Managing Coopetition in Knowledge-based Industries

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Abstract

This paper develops an on-going theory of coopetition management in knowledge-based industries. Coopetition is a strategy which combines simultaneously competitive and collaborative relationships. This combination permits companies to benefit from both the advantages of the competition and the advantage of collaboration. However this strategy is also risky in case of unintended spillovers and technology plunders. Companies have to manage the coopetitive risk by implementing three principles of coopetition management: the separation principle, the integration principle and the co-management principle.

Key words: coopetition, cooperation, competition, knowledge

Managing coopetition in knowledge-based industries

Coopetition, i.e. collaboration between competitors, is a growing research topic in the strategic management literature (Yami *et al.*, 2010; Bengtsson and Kock, 2014; Czakon *et al.*, 2014). Coopetition strategies appeared as strategic standard in knowledge-based industries such as high-tech industries (Gnyawali and Park, 2009; Pellegrin-Boucher et al. 2013). Since the emergence of the concept, theories and previous literature have been mostly normative. For Brandenburger and Nalebuff (1996), coopetition is a strategy that will lead to higher levels of performance. This normative approach of coopetition strategies used to be admitted by previous scholars who did not question deeply enough the positive relationship between coopetition strategies and the firm's performance (Czakon, 2010; Bengtsson and Kock, 2014). However, recent researches highlighted that coopetition is not always the best strategic option. Collaborating with competitors creates tensions and exposes the firm to a high risk of undesired knowledge transfer and asymmetrical learning (Baumard, 2010; Fernandez et al., 2014; Fernandez and Chiambaretto, 2016). Taking into account the tensions due to coopetition strategies, they can be win-win strategies but they can turn into win-lose strategies. So, the appropriate management of coopetitive tensions appears as a critical condition for coopetition success. Considering the key role of the management in the success of coopetition, the question becomes: how firms manage coopetitive tensions to ensure the success of their strategy in knowledge-based industries? This chapter aims at providing interesting insights on this question.

Coopetition: a double-edged and paradoxical strategy

Coopetition is a dyadic relationship that simultaneously combines two contrary dimensions, i.e., collaboration and competition (Gnyawali and Park, 2011). In coopetition, the challenge is to collaborate to create value while competing to capture a higher share of the value created (Peng *et al.*, 2012; Ritala, 2012). Competition and cooperation are rooted in,

and promoted by, each other (Peng *et al.*, 2012), so that coopetition is highly beneficial under high market uncertainty (Ritala, 2012), to improve competitors' abilities to respond to customers and solve problems (Wong and Tjosvold, 2010).

A company involved in a coopetition strategy can benefit from the advantages of both competition and cooperation. On one side, competition fosters innovation processes by encouraging firms to introduce new product combinations, to improve products-services etc. Competition also allows firms to improve their market position and their performance at the expense of their competitors (Gnyawali and Park, 2011).

On the other side, cooperation, gives the firm access to almost-free resources, skills and knowledge that are necessary or essential to preserve their competitiveness (Lado *et al.*, 1997). In a resource-limited environment, firms are willing to pool their resources to develop new technologies together (Jorde and Teece, 1990). Innovation between competitors divides the risks of innovation (Tether, 2002; Rijamampianina and Carmichael, 2005), supports the creation of standards and reinforces the firms' power within the industry (Gnyawali *et al.*, 2008). Risks and cost sharing between firms allow them to increase their innovation and market performance (Ritala, 2012). In project alliances, the combination of specialized competencies across firms represents an opportunity to increase their innovation performance (Bouncken, 2011; Yami and Nemeh, 2014).

In our view, the paradox generated by the simultaneity of competition and cooperation represents the essence of the concept of coopetition (Bengtsson & Kock, 2000; Raza-Ullah, Bengtsson, & Kock, 2014). The competitive dimension of coopetitive agreements is essential in avoiding complacency and maintaining creative tension both within and between organizations (Bengtsson & Sölvell, 2004; Quintana-García & Benavides-Velasco, 2004), whereas the cooperative dimension of the relationship allows firms to access key resources and/or technologies, launch new products and/or access new markets (Lado et al., 1997).

From a performance viewpoint, theoretical models predict that coopetition should generate added value and offer superior performance in comparison with other relational models (cooperative or not). Nevertheless, studies studying the link between coopetition and performance present contrasting results: some studies reveal negative relationships (Kim & Parkhe, 2009), whereas others find neutral relationships (Knudsen, 2007) or a positive effect (Luo et al., 2007; Peng et al., 2012; Bouncken & Kraus, 2013).

These puzzling results can be explained by the fact that if coopetition is potentially a source of high performance for firms, it is also a source of drawbacks. Clearly, coopetition strategies should be analyzed as a double-edged sword (Bouncken and Kraus, 2013). Alliances between competitors do not stop the competition between them (Hamel *et al.*, 1989). Competition coexists with collaboration. A firm collaborates with its competitors to increase its own competitiveness, to lead the market at the expense of its partners.

Collaboration is an opportunity to access competitor's resources in order to increase its own competitive advantage. So, collaborating with competitors does not decrease competitive tensions. Competitive tensions are deeply integrated in coopetition strategies that combined simultaneously collaboration and balance of power (Raza-Ullah et al., 2014; Gnyawali et al., 2016).

According to this perspective, collaborating with competitors is the best way to access to their knowledge. All firms involved in coopetition strategies expect to acquire some of their coopetitor's knowledge. Hence, the art of coopetition would be to appropriate more knowledge than the coopetitors. Coopetitors are engaged in a learning race, and try to obtain asymmetric learning at their advantage (Hamel *et al.*, 1989). When gains are symmetric, coopetition is considered as a win-win strategy. When learning is asymmetrical, coopetition can become a win-lose strategy. Because one coopetitor wins at the expense of the other, the knowledge sharing turns into knowledge plunder (Hamel *et al.*, 1989; Baumard, 2010).

If coopetition is a source of value, it also creates instability and tensions within the firm (Gnyawali and Park, 2011; Fernandez *et al.*, 2014; Raza-Ullah *et al.*, 2014). Tensions arise from the combination of two opposite dimensions of cooperation and competition. These tensions are located at multiple levels.

Multiple levels of coopetitive tensions

Coopetitive tensions are not focused on one level in the organization but are felt at different levels. Tensions are multidimensional and multi-level (Murnighan and Colon, 1991; Raza-Ullah *et al.*, 2014; Tidström, 2014). Three levels of coopetitive tensions should be distinguished: inter-organizational, organizational and individual (Fernandez et al., 2014).

At the inter-organizational level, the first tension arises out of the dilemma between the creation of common value and the appropriation of private value (Gnyawali *et al.*, 2016; Ritala and Tidström, 2014). After the knowledge-creation phase, tensions arise between the distributive and integrative elements of knowledge appropriation (Oliver, 2004; Ritala and Hurmelinna-Laukkanen, 2013). Another type of coopetitive tension arises out of the risks of transferring confidential information and the risks of technological imitation. Partners pool strategic resources to achieve their goals (Gnyawali and Park, 2009) but at the same time, they need to protect their core competencies because they remain strong competitors (Fernandez and Chiambaretto, 2016). Indeed, although partners must share information and knowledge to achieve the common goal of the collaboration (Dyer & Singh, 1998; Gardet & Mothe, 2011; Gnyawali & Park, 2011; Mention, 2011), each partner must also protect the strategic core of its knowledge from its competitor (Baruch & Lin, 2012; Baumard, 2010; Hoffmann et al., 2010; Ritala et al., 2015) because partners that operate in the same industry must develop unique skills (Nelson & Winter, 1982). Information that is shared within a common collaborative project potentially could be used in a different market in which the

partners compete. In brief, the competing partner could benefit by appropriating the shared information (Hurmelinna- Laukkanen & Olander, 2014).

At the organizational level, two main sources of coopetitive tension are likely to exist. The first source of tension appears between the different business units (Luo *et al.*, 2006). Managers involved in internal activities compete with colleagues involved in coopetitive activities to obtain human, technological, and financial resources from the parent firm (Tsai, 2002). The second source of tension relates to employees involved in activities developed with competitors. These employees face tensions when a current competitor becomes a partner or when a partner becomes a competitor (Gnyawali and Park, 2011; Raza-Ullah *et al.*, 2014).

Finally, at the individual level, coopetitive tensions could appear for a variety of reasons. Individuals face the dilemma of choosing between an individual strategy and collaboration. In a pure collaborative project, a common identity is gradually created as individuals from different companies work together over time. In a coopetitive project, two firms' identities are mixed without being merged. The psychological equilibrium of the individuals involved can become disturbed (Gnyawali *et al.*, 2008; Raza-Ullah *et al.*, 2014).

Coopetitive tensions exist at multiple level. Thus, it is important for firms to be sure that coopetition strategies will be positive for them and not harmful. We consider that coopetition management is the key factor success of coopetition strategies. An appropriate management of coopetition strategies allow firm to reach the expected levels of performances while a non-appropriate management of coopetition strategies will drive the firms to a "highway to hell" (Bengtsson et al., 2016). Because, the management and the implementation of paradoxical relationships such as coopetition strategies are complex, it requires specific investigation.

Managing coopetition paradox: separation vs integration principles

The question is how to manage coopetitive tensions to ensure the success of the relationship. The pioneers of coopetition management literature, consistent with the paradox solving approach through splitting, explained that "*individuals can not cooperate and compete with each other simultaneous, and therefore the two logics of interactions need to be separated*" (Bengtsson and Kock, 2000, p. 423). Thus, the management of collaboration and the management of competition should be split to manage coopetitive tensions (Dowling *et al.*, 1996; Bengtsson and Kock, 2000; Herzog, 2010). The separation can be functional or spatial. Partners can cooperate on one dimension of the value chain (i.e., R&D) while competing on another dimension (i.e., marketing activities).

However, other scholars noted the limitations of this principle (Oshri and Weber, 2006; Chen, 2008). The separation principle appears to be inefficient because it creates new internal tensions within the organization and generates integration issues for individuals. In the example cited above, a conflict can arise between both departments. One of the heads can be perceived as a "traitor" because he collaborates with "the enemy". The separation principle stimulated the internal inter-individual competition. Thus, it becomes very important to look for other solutions to manage coopetition.

As noted by Wong and Tjosvold (2010), managers of competitive organizations that have many personal connections avoid discussing their various conflicts in competitive win-lose ways. Thus, inter-individual relationships and personal interactions strongly contribute to coopetition management in a win-win way. To encourage these inter-individual relationships and personal interactions, an integration principle is highly recommended (Das and Teng, 2000; Oshri and Weber, 2006; Chen, 2008). The integration principle is consistent with the acceptance of paradoxes (Smith and Lewis, 2011), which allows individuals to understand their roles in a paradoxical context and to behave accordingly, following both logics

simultaneously. Thus, the challenge for managers is to simultaneously manage collaboration and competition to optimize the benefits of coopetition (Luo, 2007). Instead of reducing competition or collaboration, firms would rather maintain them in a balance (Clarke-Hill *et al.*, 2003). Relevant managerial tools are then required to reach this balance and to preserve it (Chen *et al.*, 2007; Chen, 2008).

The literature review highlights two main but opposed principles to manage coopetitive tensions. In the separation approach, individuals are unable to integrate the coopetition duality. Consequently, to address coopetitive tensions, an appropriate organizational design separates collaboration from competition. Conversely, in the integration approach, individuals can integrate coopetition duality into their daily activities. Thus, managing coopetition relies on the development of individuals' capacity for paradox integration. The question becomes what is the best principle to manage coopetition, separation or integration?

Combination of three principles to manage multi-level coopetitive tensions

As tensions exist at three different levels it is necessary to define a global management of coopetition including these three levels. In this perspective, we developed a multi-level framework highlighting the relevant principle to manage each level of tensions.

At the inter-organizational level, it seems necessary to implement the separation principle (Fernandez et al., 2014; Le Roy and Fernandez, 2015; Fernandez and Chiambaretto, 2016). Competition and cooperation should be split between different levels of the value chain, or between different products or markets. This separation is necessary to define a dominant role for each activity within the firm, collaborative or competitive. For instance, Fernandez and Chiambaretto (2016) show how firms can design specific information systems in which information flows are clearly separated for collaborative and competitive activities. The specific design of the information system allowed the coopetitors to simultaneously share

the necessary information (to ensure the project's success) and protect non-critical information (to preserve each parent firm's competitiveness). But this single separation is not sufficient to efficiently manage the multiple coopetitive tensions and creates some new tensions at the individual level.

At the individual level, it seems necessary to encourage the integration of the coopetition paradox (Fernandez et al., 2014; Le Roy and Fernandez, 2015; Fernandez and Chiambaretto, 2016). Competition Indeed, the separation principle creates internal tensions within firms, between employees who are in charge of collaboration and those in charge of competition. The only way to control these tensions is to permit people to understand the role of each employee in coopetition. The understanding of the coopetition paradox contributes to limit the tensions within the firm and allows individuals to behave not too cooperatively or not too competitively with their coopetitors.

Regarding the protection and sharing of strategic information, Fernandez and Chiambaretto (2016) study how managers implement informal processes to integrate the tensions generated by this paradoxical situation. By developing specific techniques (such as aggregating information to avoid any potential reverse engineering), project managers manage to simultaneously share and protect information. The simultaneous combination of these collaborative and competitive behaviors clearly shows that they have integrated the coopetition paradox.

Between the inter-organizational level and the individual level, i.e. at the organizational level, it seems necessary to implement a third principle: the co-management principle (Le Roy and Fernandez, 2015). The organizational level refers to the working-group level or the project level and appears as critical level to implement successfully coopetition. At the organizational level, employees from competing firms are involved in coopetition projects, working together on a daily basis. Because of the close collaboration between team

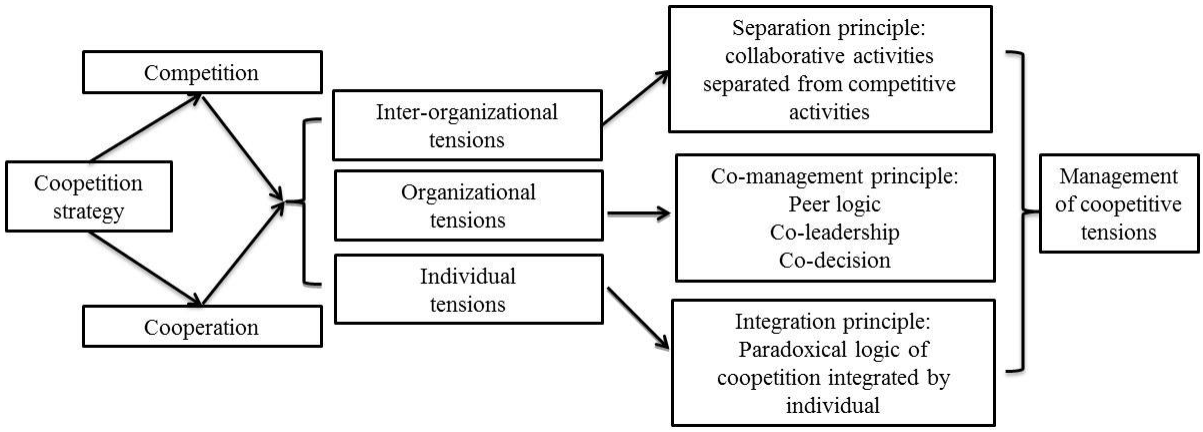
members, there is a lot of information exchange and technology sharing. Consequently, tensions at this level are extremely high and required a specific management. Thus, firms implement the co-management principle to manage successfully coopetition at this working group level (Le Roy and Fernandez, 2015).

The co-management principle is based on peer logic. Regular projects are coordinated by a hierarchical principle and that is not possible in a coopetitive project. Each parent firm wants to control the use of its technology and the transfer of its knowledge. Because there is no hierarchy between both coopetitors, each partner should be involved in the governance of the entire project. In order to preserve the equity of the relationship, the governance, the leadership and the control should be equally shared by the firms. The project team would thus be managed by two a dual structure of command. The implementation of the co-management principle represents an additional cost for both coopetitors. Each coopetitor needs to appoint a project manager and a manager for each segment. As a consequence, the decision-making process takes more time because the approval of both managers is always required. This redundancy of managerial functions could appear as a waste of resources but it is essential to develop trust and to encourage the necessary knowledge sharing between team members (Le Roy and Fernandez, 2015).

Finally, we propose a framework (figure 1) to analyze the management of coopetition strategies distinguishing three levels of tensions (inter-organizational, organizational and individual) and three corresponding principles to manage each level of tension (Fernandez et al., 2014). The separation principle is relevant to manage coopetitive tensions at the inter-organizational level; the co-management principle is relevant to manage coopetitive tensions at the organizational level (team level); the integration principle is relevant to manage coopetitive tensions at the individual level (Le Roy and Fernandez, 2015). These three

principles should be simultaneously combined and implemented to manage efficiently coopetitive tensions.

Figure 1: A framework to manage coopetition
(source: adapted from Fernandez et al., 2014 and Le Roy and Fernandez, 2015)



Conclusion

This chapter focuses on the essential question of the management of coopetition strategies in knowledge-based industries. Coopetition strategies could be either profitable or negative for firms. Therefore, the management of coopetition becomes essential to benefit from coopetition while limiting its negative effects. Coopetition creates tensions at three levels: the inter-organizational, the organizational and the individual levels. We argue that one principle of is adapted to manage tensions at each level: the separation principle to manage inter-organizational coopetitive tensions; the co-management principle to manage organizational coopetitive tensions; the integration principle to manage individual coopetitive tensions. The success of coopetition strategies relies on the combination of these three principles of management.

The importance of the combination of these three principles was initially found in the space industry (Fernandez et al., 2014; Le Roy and Fernandez, 2015). This high-tech industry is characterized by high levels of R&D costs, high levels of risks associated with innovation, high levels of knowledge required for innovation, high market uncertainty, etc. All companies

evolving in knowledge-based industries are facing the same issues. Thus, our framework could guide these companies willing to adopt coopetition strategies in such environments. Further researches could confirm this assumption in other high-tech or low-tech industries. In this perspective, coopetition management is a new and stimulating research topic with high potential for researchers and practitioners.

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