Coopetition as the new trend in inter-firm alliances: literature review and research patterns

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Abstract

Since the end of the 1990s, the number of articles on coopetition—a relationship built on simultaneous competition and cooperation—has steadily increased in response to the growing prevalence of relationships of coopetition in many industries. The tension inherent in a relationship of coopetition with a direct competitor presents both a challenge for managers and, at the same time, an exciting and complex research area. Different researchers of coopetition have addressed the topic from vastly different perspectives, basing their research on different theoretical frameworks, types of analysis, methods, and aims. By classifying articles on coopetition published in the last 20 years, this paper presents an application of cluster analysis to examine trends and tendencies in coopetition research. The paper also assesses whether this research field has followed a coherent progression during this period. The research reveals two independent research trends within the coopetition literature. The first research trend consists of studies that have mathematically modeled and simulated coopetition scenarios using game theory, whereas the second research stream consists of theoretical research describing the dynamics and tensions of coopetition based on evidence from case studies. Based on the cluster analysis, inter-firm alliances and their governance mechanisms emerge as the most promising theoretical and practical approach to improve cooperation between competitors.

1. Introduction

The term coopetition refers to a complex reality that is widespread in today's business world. The business environment is becoming increasingly turbulent, competitive, complex and uncertain, so collaboration with competitors offers many firms an attractive strategy (Bouncken et al. 2015a)—especially small firms lacking sufficient resources to cope with entrepreneurial challenges and seize market opportunities (Bengtsson and Johansson 2014).

Shorter product life cycles, spiraling R&D costs, risk sharing (Gnyawali and Park 2009), and greater competitiveness are some of the reasons forcing firms to improve their resources and competencies. This poses a massive challenge for small and medium-sized enterprises (SMEs) (Aragón-Sánchez and Sánchez-Marín 2005), which, albeit competitive in certain business areas, are always weak in terms of their size. Cooperation can allow SMEs to group together and reach a large enough size to overcome their disadvantage with respect to larger competitors, while maintaining their advantage in terms of specialization, cost reduction, and flexibility (Pil and Holweg 2003). But cooperation is common among big companies, too. Through coopetition, firms can meet other objectives such as accessing technology, improving distribution channels or simply obtaining synergies. The inexorable spread of globalization has meant that markets no longer wait for firms to grow internally. The role of information technologies (ITs) has also been crucial in the qualitative shift from internal growth business rationale to the business dynamic of networking. Nevertheless, the growing importance of cooperation in today's complex business environment gives rise to a paradox if the cooperating firm is also a competitor.

Cooperation among competitors, far from being unusual or novel, is actually common and has a long history in business. According to Harbison et al. (1998), as early as the 1990s, most cooperative agreements between businesses were between competitors. The executive credited with coining the term coopetition is Ray Noorda, CEO of the multinational software and services company Novell (Bengtsson and Kock 2014; Luo et al. 2006; Zhang and Frazier 2011), who first used the term during the emergence of the computer networking industry in the late 1980s. Since then, despite sporadic use of the word coopetition by prestigious executives, the first authors to formalize the term were Brandenburger and Nalebuff (1996). They analyzed coopetition using game theory, conceiving coopetition as a plus-sum game, rather than a zero-sum game, in which players (competitors) can win even when rivals do not lose. This is a prisoner's dilemma variant of game theory (Lado et al. 1997).

In addition to the inherent relevance of coopetition for SMEs (Kraus et al., 2012) or family firms (Harms et al. 2010), and the growth of coopetition thanks to networking technologies, case studies of global companies such as Sony, Samsung (Ritala and Hurmelinna-Laukkanen 2009), and Amazon (Ritala et al. 2014) have further raised the profile of coopetition as a business strategy and have garnered the attention of scholars and the public alike. The number of articles on coopetition is increasing rapidly, with a point of inflection around the year 2000. Nevertheless, the coopetition literature remains relatively scarce. As Liu et al. (2014) reported, the concept of coopetition has been applied to assess different business and organizational phenomena such as business networks (Chien 2005; Gnyawali and Madhavan 2001; Ritala and Hurmelinna-Laukkanen 2009), strategic alliances (Afuah 2000; Khanna et al. 1998), multifaceted supply chain management relationships (Wilhelm 2011), conflicting relationships

between subsidiaries of multinational corporations (Luo 2005), and district formation (Soubeyran and Weber 2002).

The sectors that have been studied vary greatly (Bouncken et al. 2015a). For instance, studies have examined coopetition in biotechnology (Lai et al. 2007), engineering (Shih et al. 2006), IT (Gueguen 2009), and service industries such as tourism (Wang and Krakover 2008), health care (Peng and Bourne 2009), insurance (e.g. Okura 2007), and transportation (Shao 2012).

Research on coopetition has therefore been perceived as unsystematic, disperse, and heterogeneous, with scholars calling for a reflection on the conceptualization of coopetition and analysis of tendencies and research opportunities for better planning of the research agenda. Articles by Bengtsson and Kock (2014), Bouncken et al. (2015a), and Peng et al. (2012) represent milestones in coopetition research. This paper presents a classification of coopetition articles based on the three literature reviews by the aforementioned authors. The paper also discusses whether the coopetition literature has developed coherently according to the classification proposed by Bengtsson and Kock (2014) and Bouncken et al. (2015a). The analysis of patterns in coopetition research gives us a better understanding of the research streams within the coopetition literature and the trends and theoretical frameworks that support each of these streams of research.

This paper has the following structure. Section 2 presents a literature review, building upon previous literature reviews by Peng et al. (2012), Bengtsson and Kock (2014), Bouncken et al. (2015a), and Gast et al. (2015). Section 2 also assesses the basic traits and dimensions that define different types of coopetition studies. Section 3 presents analysis of the coopetition literature according to the classification based on these dimensions. Section 4 summarizes the results, discusses research patterns, and describes clusters of coopetition studies. Section 5 presents the conclusions of the study.

2. A review of research on coopetition

2.1. Defining coopetition

Like any theoretical concept designed to capture a complex reality in any of the social sciences, coopetition has been interpreted in numerous ways within different theoretical frameworks, albeit always under the same premise that coopetition refers to cooperation with competitors (Bengtsson and Kock 2000). Coopetition is inherently contradictory (competition vs. cooperation), so it creates tensions that, if handled improperly, can easily erode and destroy the relationship of coopetition (Wilhelm 2011). In fact, according to Bengsston and Kock (2014), the defining feature of coopetition is its paradoxical nature. Coopetition cannot exist without an interaction between the conflicting logics of cooperation and competition (Bengtsson et al. 2010; Smith and Lewis 2011). The definition of coopetition implies using the relationship of coopetition to address problems where the two opposing logics—competition and cooperation—are interrelated (Chen 2008). From this perspective, coopetition is a challenging strategy that is hard to understand if considered outside a highly competitive environment where adverse circumstances force two competitors to join forces. Unsurprisingly, therefore, the word "forces" appears explicitly in many definitions of coopetition (Wiener and Saunders 2014) and is implicit in many others, as is the case with intraorganizational coopetition.

To make sense of the volatile, unstable relationships that characterize coopetition, some authors have extended the definition of coopetition by delineating the scope of relationships of cooperation and competition separately. For instance, Peng et al. (2012) defined coopetition as cooperation with competitors in non-market areas where direct competition takes place. Bengtsson and Kock (2000) proposed a similar definition, describing conventional coopetition as a situation whereby two organizations cooperate

in activities such as R&D or procurement while competing in activities such as sales (Dahl 2014). In these definitions, firms cooperate in areas not directly involved with the customer while competing in customer-related areas (Bouncken et al. 2015a). In such cases, the dynamics of cooperation and competition are organizationally and even physically separate. An examination of the separation of these two dynamics in time can be found in the study by Brandenburger and Nalebuff (1996), which describes how firms must initially work together to create a market and then compete to obtain the biggest market share. In other definitions, the competitive part of coopetition is forced by a third party, as is the case when buying firms proactively build relationships of coopetition among suppliers to obtain collaborative synergies (Wu et al. 1010). Wiener and Saunders (2014) named this form of coopetition "forced coopetition." For Peng et al. (2012), the dynamic of coopetition is determined not only by commonalities in the market, but also by similarities in resources. Other definitions of coopetition are less clear, and the competitor term covers suppliers, customers, and "complementors" with whom the firm must compete and/or cooperate (Afuah 2004).

According to Wu et al. (1010), the best approach to tackling the paradox of coopetition is to avoid viewing coopetition as the midpoint between competition and cooperation—in other words, to avoid adopting a linear view of coopetition. Competition and cooperation are distinct but related dimensions. Coopetition deals with this conflicting relationship in a two-dimensional plane (Bengsston and Kock 2014). From this perspective, the full complexity and tension of a relationship of coopetition emerges through horizontal cooperation. In fact, Bengtsson and Kock (1999) defined four types of horizontal relationships: coexistence (low cooperation; low competition), cooperation (high cooperation; low competition), competition (low cooperation; high competition), and coopetition (high cooperation; high competition), each one corresponding to a section of

the positive quadrant of the cooperation-competition plane. This dynamic between cooperation and competition is a central part of coopetition research (Bengtsson and Kock 2014; Bouncken et al. 2015a; Peng et al. 2012). As Peng et al. (2012) noted, the individual forces of competition and cooperation are independent, but in the case of coopetition, they are interconnected too. In any event, coopetition research must seek to identify the optimal blend of cooperation and competition (Ketchen et al. 2004) and study the factors that create a balance between cooperation and competition (Bengtsson and Kock 2014).

2.2. Levels of coopetition analysis

Perhaps the most relevant fact that has led to the divergence of coopetition research, besides its ambiguous definition (Bengtsson and Kock 2014), is the variety of levels of analysis that scholars have applied to coopetition. For Raza-Ullah et al. (2014), simultaneous cooperation and competition between firms creates tensions, which emerge at individual, organizational, and interorganizational levels. The term coopetition, however, can be applied to relationships between workers in the same department or project or to groups or functions within the same organization.

The main stream of coopetition research focuses on the interorganizational level, analyzing coopetition between competing firms (Bouncken et al. 2015a). Nevertheless, studies on coopetition have also examined the individual level (coopetition between people working in the same company) and inter-network level (coopetition between two firm networks or two groups of associated firms).

The first obvious division of coopetition is interorganizational versus intraorganizational coopetition. Interorganizational coopetition involves a strategic decision that affects the organization and maintains the independence of the coopeting entities.

Intraorganizational coopetition, in contrast, can be sub-divided into coopetition between individuals, teams (Baruch and Lin 2012), functional units, or business units within the same organization. At the intraorganizational level, actors must follow their organization's instructions, and the goals defined by the organization are common. Nevertheless, dynamics between individuals differ from group or unit dynamics, and theory supporting the analysis must be adapted to the intraorganizational level under study. Whereas at the individual level, the organizational culture, motivation, and rules for interaction play fundamental roles in the dynamics of coopetition (Poulsen 2001), in the relationship between business units, the social network perspective of organizational coordination regarding formal hierarchical structure and coordination mechanisms is paramount (Tsai 2002).

In their literature review, Bouncken et al. (2015a) identified four coopetition dynamics depending on the level of analysis: the individual level between people, the intraorganizational level between business units, the interorganizational level, and the network level. Similarly, Bengtsson and Kock (2014) established four types of coopetition analysis depending on the level of the coopetition: individual level, organizational level, interorganizational level, and inter-network level. These authors also emphasized the importance of not restricting coopetition to an exclusive relationship between two firms because several firms can be involved simultaneously in various relationships of coopetition.

2.3. Objectives of coopetition

The reasons for an organization to collaborate with its competitors vary, but they must be compelling enough to force the organization to take the controversial step of entering into a relationship of coopetition. The most common reasons for entering into a relationship

of coopetition are to gain access to essential resources and knowledge (Bengtsson and Kock 2000), share resources and knowledge to improve efficiency, develop technical innovations by collaborating in R&D (Bengtsson and Kock 2014; Walley 2007; Bouncken and Kraus 2013), reduce risks, share costs (Bouncken et al. 2015a), achieve economies of scale by combining similar activities (Gnyawali and Park 2011), enter new markets (Gnyawali and Park 2009), and achieve economies of scope by combining complementary activities (Luo 2005). Some of these aims are complementary. Bouncken et al. (2015a) classified the objectives of coopetition into five groups: efficiency, market power, market exploration and development, innovation, and internationalization.

Notable research devoted to studying the creation of new markets or the improvement of the firm's position in existing markets includes the studies by Ritala and Hurmelinna-Laukkanen (2009) and Zeng and Chen (2003). A special case of the creation of new markets is internationalization or, to borrow Bengtsson and Kock's (2014) term, international expansion (Luo and Rui 2009). Notable research on coopetition as a strategy to improve innovation includes studies by Bonel and Rocco (2007), Huang and Yu (2011), Quintana-Garcia et al. (2004), Ritala (2012), Ritala and Sainio (2014), and Ritala and Tidstrom (2014). Another group of innovation-related studies consists of those that examine the creation and acquisition of knowledge. Notable research includes studies by Li et al. (2011) and Zhang et al. (2010). Studies on networks as a means to learn (Powell et al. 1996) also fall into this group. In the body of research related to efficiency and cost saving, notable studies include those by Chin et al. (2008), Gnyawali and Park (2009, 2011), Luo (2007), and M'Chirgui Z (2005).

The aforementioned objectives of coopetition refer to studies on interorganizational coopetition. In the case of intraorganizational coopetition, individual- and organizational-level objectives are dominated by sharing knowledge and exploiting economies of scope

(Bengtsson and Kock 2014). At the organizational level, studies have also assessed team or group performance (Baruch and Lin 2012; Enberg 2012).

2.4. Theoretical frameworks for coopetition

Difficulties caused by the lack of consensus regarding the definition of coopetition (Bengtsson and Kock 2014) are exacerbated by the myriad of theoretical approaches to the problem, which are determined by the level of analysis and the aims of the coopetition addressed by the study. For instance, knowledge sharing coopetition requires a different theoretical framework at the individual level (Hutter et al. 2011) from the interorganizational level (Li et al. 2011). Dividing different theoretical frameworks can prove difficult because different research streams may overlap and draw upon premises from different schools of thought. Numerous theoretical frameworks have been applied in research on coopetition.

As previously mentioned, the first theoretical framework employed to study coopetition was game theory (Brandenburger and Nalebuff 1996). Despite its early importance in coopetition research, game theory has not been the dominant logic in subsequent coopetition studies, although it has been heavily used both on its own (Okura 2007; Rodrigues et al. 2009) and in conjunction with other theories (Gnyawali and Park 2009; Ritala and Hurmelinna-Laukkanen 2009).

In terms of strategic management, several theoretical perspectives have influenced research on coopetition. Research on strategic alliances has addressed coopetition in alliances, albeit as a peripheral or conflictive element in relationships of cooperation. Like coopetition, cooperation between organizations can be analyzed both horizontally and vertically (Mesquita and Lazzarini 2008), although in horizontal alliances, competition

plays a more important role. In strategic alliances, competition has been studied as an element that must be managed and minimized as much as possible (Oum et al. 2004). The analysis of strategic alliances has centered on six major bodies of theory: transaction cost economics, resource dependence, strategic choice, stakeholder theory, organizational learning (Bouncken et al., 2014a), and institutional theory (Lowensberg 2010). Likewise, these theories can be found in the literature on coopetition. For instance, Peng et al. (2012) distinguished between the following theoretical frameworks used to analyze coopetition: transaction cost theory, resource dependency, and organizational learning perspectives. Peng et al. (2012) also highlighted the use of alliance learning dynamics (Khanna et al. 1998; Bouncken et al., 2015b). Interestingly, like in strategic alliances, these perspectives can be used to study not only the formation of alliances, but also their lifecycle and dynamics (Lowensberg 2010).

Another key framework within coopetition research is the resource-based view (RBV). Given that firms can attain a better competitive position by improving their capabilities and exploiting unique, inimitable, non-transferable resources (Grant 1991; Peteraf 1993), groups of competing firms with complementary resources join forces to combine their resources (Quintana-García and Benavides-Velasco 2004). Under the RBV, collaborating with other firms offers a flexible mechanism to access strategic resources to compete in competitive, dynamic environments (Wong et al. 2007). In addition, the RBV shows the importance of distinctive competencies—particularly intangible competencies—in business strategy, competitiveness, and success. Knowledge-based assets are especially suited to this approach because they are difficult to imitate (Barney 1991). Therefore, relationships of coopetition whose objective is knowledge creation and acquisition are well suited to examination under the RBV based on dynamic capabilities—that is to say, the organization's ability to integrate, build, and reconfigure internal and external

capabilities to adapt to changing environments (Teece et al. 1997). The objective of exploring learning and knowledge sharing can also be analyzed using the network perspective (Powell et al. 1996). Several authors have used this approach to study the dynamics of coopetition (Bengtsson and Kock 2000; Chetty and Wilson 2003; Madhavan et al. 2004; Song and Lee 2012). Together with the main theories used in research on interorganizational coopetition, other approaches have been used to study intraorganizational coopetition. Such approaches include social embeddedness (Luo et al. 2006).

The vast range of approaches in coopetition research makes it difficult to propose a common classification. Some authors have therefore opted to group theories into broader categories to make them easier to handle. For example, Bouncken et al. (2015a) considered the following five theoretical perspectives used in coopetition research: dynamics and game theory, resource-based view and dynamic capabilities, power (resource dependency and control theory), negotiation (contract building, contract learning, and different relational capital), and governance logic. Other authors, however, have preferred to keep the approaches separate, even when studies use multiple approaches (Peng et al. 2012)

3. Method

The present literature review consists of analyzing articles listed on the *Web of Science* (formerly *Web of Knowledge*), the world's premier research platform. Echoing the approach adopted by Bouncken et al. (2015a), the review was performed for articles published in peer-reviewed academic business and management journals, including "operations research and management science" journals. This latter journal category was

included because several studies using game theory were in this category, and its exclusion would have biased the sample. Other journal categories contained few coopetition studies, and the articles were heavily sector-focused (e.g., health, tourism, and metallurgy). Books and conference proceedings were omitted. Articles that contained the words "coopet*" or "co-opet*" (Bouncken et al. 2015a) in the title were selected. After discarding reviews, papers not written in English and a few unavailable articles, the final sample contained 75 papers published between 1996 and 2015 (20 years).

All articles were classified according to the three main dimensions previously discussed: analysis level, coopetition objectives, and theoretical framework. As much as possible, this study adopted classifications proposed in previous reviews of the coopetition literature. For instance, for the level of analysis, a modified version of the classification proposed by Bengtsson and Kock (2014) was used (see Table 1). For other cases, namely the classification of coopetition objectives and the theoretical framework, however, several proposals were combined to create a new classification. Cooperation objectives were classified according to a modified version of the classification by Bengtsson and Kock (2014), with elements taken from Bouncken et al. (2015a) (see Table 1). In addition, a fifth objective was added—"combination of objectives"—for studies that bring together disparate objectives such as knowledge sharing and innovation or efficiency and economies of scope or that take a broad view of the potential advantages of coopetition. Regarding the theoretical framework, bringing together a small number of approaches proved more difficult, so it was crucial to find a suitable trade-off between having a small number of groups in the classification and ensuring that all the theories within a given group were coherent. Hence, instead of using "theoretical framework," as per Peng et al. (2012), we named this classification "theoretical focus" (see Table 1), and we created a new classification combining the proposals by Bouncken et al. (2015a) and Peng et al.

(2012). Notably, some authors of empirical studies have built their theoretical focus by drawing upon the coopetition literature itself. Therefore, this approach was included in the theoretical focus classification to classify articles whose literature review was based on coopetition research and theoretical frameworks specific to coopetition.

In addition to these dimensions, other types of variables were used to classify research on coopetition. For instance, method is important. Whereas the case study method is used for exploratory research, statistical analysis using an empirical data set (i.e., quantitative methods) is used for confirmatory research. In coopetition research, the use of mathematical models is also prevalent. The classification proposed by Bouncken et al. (2015a) was used to classify articles based on their method (see Table 1).

Whether the research focused on SMEs or multinationals was another factor taken into account (Bengtsson and Kock 2014). An intermediate classification (large companies) was added for firms that were neither SMEs nor multinationals, as is the case with ports (Shao 2012). Data on the full classification criteria and the number of articles in each category appear in Table 1. Some classifications were ambiguous. For example, in terms of theoretical focus, many articles use combinations of approaches. The dominant method was used to classify articles in terms of their theoretical focus. For example, although Peng et al. (2012) classified their own article (Peng and Bourne 2009) as having an RBV and network structure focus, we included this article in the network perspective category because we felt it was the most dominant and relevant focus in the article.

Table 1 about here

It was decided that mathematical models were valid for the study of SMEs, so articles using mathematical models were classified as studies on SMEs in the “size of firm”

dimension. Some articles were not classified in a particular dimension because they did not fit any of the available categories. For instance, conceptual papers that contained no reference to size were not assigned to any category in the "size of firm" dimension.

4. Results

To analyze patterns emerging from the classification of the literature as described in Table 1, a two-step cluster analysis was run in SPSS. Two-step cluster analysis is an exploratory technique that reveals non-obvious groups of cases. The technique works with both continuous and categorical variables. The number of clusters was determined automatically using the Akaike information criterion.

Table 2 about here

Cluster 1 consists of articles focusing on the team and organization levels (4 and 2 articles, respectively). The objectives of this form of coopetition are to allow firms to gain new knowledge (7 articles) and improve performance (3 articles classified in the efficiency section). The articles use a range of theories but generally adopt a social perspective (8 articles). The methods used in this cluster are qualitative (6) and quantitative (5 articles). Articles in this cluster have a clear tendency for intraorganizational analysis, fundamentally based on team dynamics. There is a special focus on knowledge sharing and the outcomes of multifunctional projects. The size of the firms is irrelevant in this cluster. We named this cluster "coopetition in intraorganizational project teams."

Cluster 2 is dominated by interorganizational analysis (11 articles). The objectives are fundamentally to gain new knowledge and exploit economies of scope (3 articles) and to

develop technology and innovate (9 articles). The theory is varied, but in this cluster, the RBV and dynamic capabilities are the dominant logics, especially in terms of knowledge management (7 articles). The predominant method is quantitative (11 articles). Most articles focus on SMEs, linked to the quantitative method. We named this cluster "innovation and economies of scope coopeting."

Cluster 3 is split between interorganizational studies (8 articles) and studies on networks and clusters (5 articles). The dominant theories are network theory and alliance dynamics. The methodology is dominated by qualitative methods, mostly case studies (10 articles) that overwhelmingly focus on large and multinational companies. This is a complex group of studies, but the fundamental link between them is coopetition in alliances (7 articles), although in several articles the alliance is with several suppliers that form a network (6 articles), requiring a special approach. We named this cluster "alliance dynamics."

Cluster 4 comprises studies based on game theory (8 cases) and studies using mathematical and simulation models (10 cases). The analysis level is interorganizational, and the objectives are mostly linked to market position and firm performance (9 cases between both objectives). We named this cluster "mathematical and simulation models."

Finally, Cluster 5 comprises interorganizational studies with a broad approach but with a theory specifically built on previous coopetition studies (17 articles). Cluster 5 covers a wide range of objectives, and some articles address a complex combination of objectives (5 articles). The size of the firms in the empirical studies is mixed, although, interestingly, the dominant method is qualitative. We named this cluster "broad approach to coopetition."

To determine whether these clusters changed over time, a second cluster analysis was performed, adding the article's year of publication (Table 2). Doing so made it possible to observe whether the cluster patterns changed over time. To maintain the number of clusters of the first analysis, the second cluster analysis was forced to yield five clusters. The results in terms of the number of articles in each cluster remained practically the same over time. The results regarding the development of the clusters over time appear in Figure 1.

Figure 1 about here

As Figure 1 shows, the usage of the term "coopetition" has tended toward an interorganizational meaning, with Cluster 1 ("coopetition in intraorganizational project teams") appearing strongly during the 2000s. Interestingly, the content of articles in Cluster 4 ("mathematical and simulation models") was consistently present over time. In the remaining clusters (2, 3, and 5), which contain the majority of the articles on coopetition (43 of the 64 articles placed into clusters), the tendency seems to be toward a broader view of coopetition that addresses a wide range of objectives or indeed a combination of objectives in the same study (Cluster 5). The most recent studies (Clusters 3 and 5) are dominated by qualitative methods.

Interestingly, adding the time variable to the other classification variables but allowing the algorithm to determine the number of clusters actually yielded four clusters (data not shown). Clusters 1 and 4 were identical to those previously described, but Cluster 3 ('alliance dynamics') disappeared, with most articles appearing in Cluster 4 ('broad

approach to coopetition') and a few being allocated to Cluster 2 ('innovation and economies of scope'), thereby creating a concentration of network articles in Cluster 4.

5. Conclusions

Coopetition seems to have become a key research interest within management research. The number of articles with coopetition in their title has grown steadily and continues to do so (20 articles in 2014 vs. 11 in 2011). This increase in the number of articles on coopetition has also led to a shift in research focus and approaches to the study of coopetition. Most notably, coopetition has already been studied within the field of strategic alliances, which is no longer a new problem. The objectives in an alliance may be as varied and complex as they are in a relationship of coopetition. These aims include improving productive capacity, reducing risk and uncertainty, improving operational flexibility, fulfilling market potential (Todeva and Knoke 2005), combining resources, and cutting costs. Likewise, strategic alliances can be studied from numerous theoretical perspectives (Lowensberg 2010). Cooperating with companies in the same market, product, or value-chain phase means collaborating with competitors. Strategic alliance researchers have consistently considered competition between partners a normal state of affairs (Oum et al. 2004). In fact, competition in an alliance is considered a negative factor that can jeopardize collaborations. From the strategic alliance point of view, however, the potential for partner opportunism adds to the element of risk in alliances and must be avoided (Das 2004). Nevertheless, the difficulties in competitive alliances and the risk of opportunistic behavior by partners mean that such alliances have their own idiosyncrasies. These additional difficulties of cooperation relationships with competitors are even greater in horizontal alliances, posing greater management challenges for partners (Perry et al. 2004). In some cases, like when suppliers form collaborative networks with main

clients, coopetition is “forced.” This idiosyncrasy of coopetition, coupled with the powerful simulation tool provided by game theory, has led to the development of a specific area of research on coopetition.

After 15 years of studies focusing on coopetition, the topic requires a review and redefinition of the challenges facing researchers. This paper discusses the development, trends, and future of coopetition research as well as the challenges that studies on coopetition seek to overcome. The results show a tendency toward coopetition theory based on what Bengtsson and Kock (2014) define as the dynamics of coopetition. This, together with the multiple aims of coopetition—technical innovation, economies of scope, economies of scale, and internationalization—addressed by studies, means that coopetition scholars have tended to perform qualitative research (case studies), which allows them to thoroughly explore the dynamics of complex relationships of coopetition. Interestingly, this tendency covers both horizontal coopetition and vertical coopetition through supply networks. Although research is often framed within established theoretical frameworks such as the RBV, knowledge management, and the network perspective, these frameworks must be adapted to the conditions and tensions that characterize coopetition. It is important to understand how relationships of coopetition form, how the dynamics between partners work, and which factors must be managed to yield advantages that outweigh the risks and tensions created by coopetition. Besides exploratory research, management journals have begun to publish coopetition studies that use mathematical models and simulation based on game theory. These studies complement the development of a theory that permits the dynamic analysis of coopetition.

Despite this study’s objective nature, the method used in this study is to some extent subjective. The choice of classification variables and the choice of groups for each

variable mean that the method was somewhat biased. This subjectivity was mitigated using variables cited in three outstanding literature reviews on coopetition (Bengtsson and Kock 2014; Bouncken et al. 2015a; Peng et al. 2012), which made it possible to combine the perspectives of these three studies and use common elements as much as possible. Nevertheless, the method remains subjective. In addition to this initial subjectivity, the decision to place each study into a certain group, especially for the categories “objectives” and “theoretical focus,” was at times ambiguous and challenging. Hence, the findings of this study should not be interpreted as conclusive, but rather as an indication of the trends in coopetition research.

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Tables and figures

Table 1. Criteria used to classify the coopetition literature (frequency in brackets)

Analysis level*	**Coopetition objectives**	**Theoretical focus**	**Size of firm**	**Method****
Individual and team (6)	Market exploration and development (13)	Dynamics and game theory (10)	SMEs (42)	Conceptual models (10)
Organizational (5)	Gaining new knowledge and exploiting economies of scope (16)	RBV, dynamic capabilities, and knowledge management (12)	Large companies (10)	Qualitative methods (30)
Interorganizational (52)	Efficiency and economies of scale (20)	Network perspective (7)	Multinational companies (12)	Quantitative methods (22)
Network and cluster (12)	Technology development and innovation (14)	Alliance dynamics (11)		Mathematical and simulation models (13)
	Combination of objectives (10)	Social perspective (8)		
		Coopetition (19)		
		Others (8)		

* Adapted from Bengtsson and Kock (2014); ** Adapted from Bouncken et al. (2015a).

Table 2. Cluster distribution of the classified articles

Cluster	Articles in the cluster	% of clustered cases	% of all articles
1 (Coopetition in project teams)	11	17.2%	14.7%
2 (Innovation and economies of scope)	12	18.8%	16.0%
3 (Alliance dynamics)	13	20.3%	17.3%
4 (Mathematical and simulation models)	10	15.6%	13.3%
5 (Broad approach to coopetition)	18	28.1%	24.0%
Combined	64	100.0%	85.3%
Cases excluded	11		14.7%
Total	75		100.0%

Figure 1. Change in clusters over time