



CONTEXTO GEOPOLÍTICO MUNDIAL NO SÉCULO XXI: REPERCUSSÕES NAS RELAÇÕES INDUSTRIAIS, COMERCIAIS, FINANCEIRAS, SOCIAIS E CULTURAIS

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Área Temática: Economia da Inovação

Coopetition: does it really matter?

Résumé

Cet article présente une étude bibliométrique qui vise à analyser la littérature académique qui utilise le terme coopétition comme une question centrale dans le domaine de la gestion au cours des 20 dernières années. 380 articles de la base de données de Google Scholar ont été analysés selon une méthode quantitative, exploratoire et descriptive. Les catégories suivantes ont été analysées: articles par an; articles par qualis; nombre d'articles par rapport aux magazines de publication; articles par auteur; mots-clés; mots présents dans les résumés; articles les plus cités. Les résultats montrent que la publication sur le sujet est récente et présente des tendances de croissance, conduisant à la conclusion que le terme coopétition est actuel et pertinent, et son utilisation ne peut pas être considéré comme une mode passagère. Nous avons également constaté que le concept ne peut être vu que comme un sujet dans le domaine de l'administration, et non pas comme un domaine d'étude. La coopétition a été associée à l'innovation, à la recherche et au partage des connaissances, afin d'assurer des avantages concurrentiels. L'étude nous permet de conclure que l'utilisation et la diffusion de la coopétition, à la fois dans la littérature et dans la pratique, sont plutôt liés aux avantages et aux raisons pour lesquelles les entreprises adoptent ce type de relation que aux difficultés rencontrées.

Mots-clés: coopétition, étude bibliométrique, relations interorganisationnelles.

Resumo

Este artigo apresenta um estudo bibliométrico com o objetivo de analisar a literatura acadêmica que usa o termo coopetição como assunto central na área de administração nos últimos 20 anos. Foram mapeados e analisados 380 artigos da base de dados do *Google Scholar* de acordo com um procedimento quantitativo, exploratório e descritivo. As seguintes categorias foram analisadas: artigos por ano; artigos por *qualis*; número de artigos *versus* revista de publicação; artigos por autor; palavras-chave; palavras dos resumos; artigos mais citados. Os resultados mostram que a publicação sobre o assunto é recente e crescente,



levando à conclusão de que o termo coopetição é atual e relevante e seu uso não pode ser visto como passageiro. Constatou-se que o conceito pode ser visto apenas como um tópico dentro da área de administração, e não como um campo de estudo. A coopetição foi associada à inovação, à busca e ao compartilhamento de conhecimento, com o objetivo de garantir vantagens competitivas. O uso e a difusão da coopetição, tanto na literatura quanto na prática, mostraram-se mais relacionados aos benefícios e motivos pelos quais se adota esse tipo de relacionamento do que às dificuldades encontradas.

Palavras-chave: Coopetição, bibliometria, relações interorganizacionais.

1. Introduction

The current business environment is characterized by some peculiarities, like constant technological changes that determine an increasing availability of knowledge and influence the variety and complexity of products. As a consequence, the survival and performance of organizations very often depend critically on their relationships with other organizations (OLIVER, 1990). However, there are still doubts about what is the best way to develop these relationships.

Initially, the search for the ideal form of relationship was presented by the dyad between competition *versus* cooperation. A number of studies (e.g. BENGTSSON; KOCK, 2000; CHEN, 2008; HUNT, 2007; OSARENKHOE, 2010) state that the performance of firms based only on competitive relationships and characterized by extreme concurrence has been proved insufficient, since not sharing information and the lack of participation in joint projects often result in reduced growth and development. In addition, due to increased availability of information, the demand for quality products and the launch of new products is growing in a way that products lose their value in a short period of time. To minimize this effect and seek alternatives for survival and differentiation, the exchanges become an important factor for the development of firms (POWELL, 1990), since they have limited rationality and knowledge gaps that can be addressed through interorganizational relationships (WILLIAMSON, 1985).

Unlike the competitive relationships, interorganizational relationships based on cooperation between companies allow both parts to obtain knowledge and resources that complement the capabilities of individual companies, providing opportunities for mutual development (HOFFMANN; SCHLOSSER, 2001; MELLAT-PARAST; DIGMAN, 2008). However, as in the case of pure competition, only cooperation can also lead to failure, since at some point the cooperation becomes incompatible with the individual goals of the organizations involved in the process. These issues can be evidenced from the risks of opportunism (astute behavior based on self-interest) that results in the loss of trust, one of the pillars supporting the base of cooperative relationships between organizations (WILLIAMSON, 1985; ZAWIŚLAK, 2004).

Several studies (e.g. ZAWIŚLAK, 2004; NALEBUFF; BRANDENBURGUER, 1996; OLIVER, 1990; BEGNIS; PEDROZO; ESTIVALETE, 2008) have tried to understand the paradox between cooperation and competition. In this context, Brandenburger and Nalebuff (1996) present the cooperation concept, in which organizations can cooperate before and compete after, or both can occur simultaneously.



Coopetition relationships are being used as an alternative strategy for organizations to survive in an increasingly dynamic market (RITALA; LAUKKANEN, 2012), enabling the resolution of different types of problems (BENGTSSON; KOCK., 2000; RITALA; VALIMAKI; HENTTONEN, 2009; KOZYRA, 2012; CRISAN, 2013). Thus, coopetition can be seen as a combination that "establishes a more dynamic relationship than the words 'competition' and 'cooperation' individually suggest" (NALEBUFF; BRANDENBURGER, 1996, p. 14). On the other hand, it must be considered that this alternative relationship requires a different treatment of the simple unification of cooperation before and competition after, and may also be seen as a kind of stage subsequent to failure of cooperation, when both parties accept the existence of opportunism in its more complete form, namely the competition.

In the last years, there has been a growing effort in the implementation and definition of coopetition in academic studies (PADULA; DAGNINO, 2007; BENGTSSON; ERIKSSON; WINCENT, 2010). The changing scenario in the business world and the diversity of approaches used to study the coopetition have increased the number of publications over the past two decades. Given the academy's interest in researching coopetition relationships between companies, and the fact that the relationship quickly became more relevant, it is noted that coopetitive relationships are an integral part of the daily agenda of many companies (BENGTSSON; KOCK, 2014).

It is clear, therefore, that the business world is in a moment when cooperation is not considered the best option, resulting in coopetition as an alternative. But does the discourse of entrepreneurs in defense of coopetition represent the reality? Is it possible to consider coopetition as the ideal type of relationship? Will the concept of coopetition endure over time, or is it just another fad in business?

In order to address these issues, one possibility is to investigate the term coopetition in recent literature. Thus, this paper presents the following research objective: **analyze the academic literature that applies the term coopetition as a central theme in the business area for the last twenty years**. In order to achieve this goal, a bibliometric research was conducted, since it allows the analysis of the topic's relevance in the academy, main authors who publish on the subject and the trends of continuity and/or progress in the use of the term (BORBA; HOELTGEBAUM; SILVEIRA, 2011). Hence, articles published in the field of business and economics on the topic have been mapped and analyzed. A quantitative, exploratory and descriptive procedure was used, in which the following aspects were investigated: articles *per year*; articles *per qualis*; number of articles *versus* journal; articles *per author*; most frequent keywords; frequency and connections of words in the abstracts; most cited articles.

This article is divided into four sections besides this introduction. The next section presents a discussion about the concepts of cooperation and competition that culminate with the term coopetition. After that, the methodological procedures used in the study are presented in detail. Finally, the results of the analysis of the selected publications are presented and discussed, followed by concluding remarks.

2. Theoretical Framework

In this section, conceptual aspects related to competition and cooperation will be addressed, culminating in the object of study of this work: coopetition. Studies on coopetition emanate from the dynamic complexity of today's markets, which requires companies



coexistence of competitive and cooperative strategies, as well as the balance between them, so that organizations achieve better results and ensure their survival (SIDE *et al.*, 1997). The importance of this topic to the literature is based on the fact that this balance, which leads to sharing and combining strategic resources and knowledge, is able to generate higher positions and competitive advantages to agents that adopt this strategic model or participate in this type of relationship (EISENHARDT; SANTOS, 2002). The topics covered in the next section are the basis for the understanding of different approaches on coopetition in academy, their practical and theoretical implications, as well as to enable the understanding of the study results.

2.1. Coopetition: hero or villain in interorganizational relationships?

Interorganizational relationships emerge as an alternative for firms to survive in an environment marked by uncertainty and rapid technological changes. Although the academic research presupposes neutrality, literature in general has a certain value judgment in relation to types of interorganizational relationships, almost separating the relationships considered the "good" and the "bad" ones. A positive image of the cooperative relationship has been created, in which it is characterized by an ethical character, while the competition is addressed with some negativity, as if it had an unethical character, what is actually totally illogical, since both types of relationship can be ethical or not. Within this logic, how does the literature describe the coopetitive relationships, characterized by both cooperation and competition issues?

Competition can be defined as a dynamic situation that occurs when multiple actors in a specific area (market), fight for scarce resources in order to produce and sell products or services that meet the needs of similar customers (BENGTSSON; KOCK, 2000; HUNT, 2007). By focusing on the interests of the individual company, the competitive approach emphasizes the concurrence among companies in all directions, i.e., both vertically and horizontally. Thus, competition has been associated to the concurrence and described in terms of exchange relationships between existing economic agents (OSARENKHOE, 2010). It can also be described as the company's ability to formulate and implement competitive strategies that enable it to expand or preserve, on a permanent basis, a sustainable market position (FERRAZ; COUTINHO, 1996).

However, only those actions are insufficient to maintain the desired competitive level, thus it becomes necessary for companies to seek alternative ways to reinvent their business strategies. To this end, collaboration is one of the possible strategies. Collaboration in business is defined as a way for organizations to work together in order to achieve a common interest, as, for example, voluntary cooperation between companies, involving exchange and sharing of resources or the joint development of products, technologies or services (LADO; BOYD; HANLON, 1997; KHANNA; GULATI; NOHRIA, 1998; CHEN, 2008; OSARENKHOE, 2010).

Extending the concept of collaboration, the cooperation is considered a way to operationalize a relationship to search for diverse strategies. The concept can be defined as a situation in which individuals, groups and organizations interact by sharing complementary capabilities and resources, or using these for the purpose of mutual benefit (GNYAWALI; HE; MADHAVEN, 2006; BLOMQVIST; HURMELINNA; SEPPANEN, 2005). In this perspective, cooperation includes similar, complementary and coordinated activities



performed by firms in a business relationship, in order to produce mutual superior results than those obtained individually. However, these relationships do not always persist over time due to the conflict between individual and collective goals (FAWCETT; MAGNAN, 2002; FAWCETT, 1991).

Inter-organizational relationships can show various types and elements of cooperation and competition in different levels of intensity. The term *coopetition* emerges, not only as a union of the terms cooperation and competition, but also as an alternative to these two forms of relationship. The concept can be considered recent in the literature, what complicates its conceptualization and generates disagreement about its use (KOZYRA, 2012). The term was first used in 1990 by Novell's CEO, Ray Noorda. However, only a few years later, in the middle of the decade, *coopetition* has become an important research topic. The first scientific works were made by Brandenburger and Nalebuff in 1996 in the book "Coopetition: a revolutionary that combines competition and cooperation. The Game Theory strategy that's changing the game of business".

Coopetition occurs in interorganizational level and is defined as the dialectical and paradoxical relationship that emerges when two companies cooperate in some areas and compete with each other at the same time (BENGTSSON; KOCK, 1999; LUO, 2005). Hence, cooperation and competition can coexist in the same relation (RITALA; VALIMAKI; HENTTONEN, 2009). Moreover, in most cases, the *coopetitive* relationships are continuous and comprehensive (LECHNER; DOWLING; WELPE, 2006), since they can be understood as a synthesis of management that connects two opposite strategies (LADO; BOYD; HANLON, 1997).

In the context of a capitalist market, in which organizations constantly seek what is best for themselves, the most effective results and the best competitive positions, what would be the role of *coopetition*? Organizations that adopt this type of relationship would be villains masqueraded as heroes? Or heroes that turn into villains when they detect more significant advantages?

For many authors, the *coopetitive* relationships are seen as the best option for those organizations that seek to share knowledge with others and, at the same time, stand out in a competitive environment (BRANDENBURGER; NALEBUFF, 1996; LADO; BOYD; HANLON, 1997; BENGTSSON; KOCK, 2000; GNYAWALI; MADHAVAN, 2001; GIMENO, 2004; LUO, 2007; CHEN, 2008; KIM; PARKHE 2009; PENG; BOURNE 2009). Brandenburger and Nalebuff (1996) defend that, in the *coopetition* game, players can achieve more success through *coopetition* than would ever do individually. Thus, the study of *coopetition* through game theory incorporates the logic that companies must collaborate in business to increase the size of the cake and then compete to divide it.

However, *coopetitive* relationships between companies require a considerable amount of attention, because they combine opposite concepts. *Coopetition* is an invitation to "sleep with the enemy" that promises great benefits for both parties involved by sharing resources and possibilities, or by using them as a booster for mutual gains (QUINT, 1997; BENGTSSON; KOCK, 2000; COY, 2006; PENG; BOURNE, 2009). The partners may also face risks of opportunism, breakage or lack of confidence (KOZYRA, 2012; MORRIS; KOCAK; OZER, 2007), information leakage (KHANNA; GULATI; NOHRIA, 1998), learning races (INKPEN, 2000), misunderstandings, misallocation of resources, different strategic purposes (HITT *et al.*, 2000) and ineffective partners (HARRISON *et al.*, 2001). These facts reduce the success and innovation's rate in relationships and compromise the



achievement of established results (RITALA; VALIMAKI; HENTTONEN, 2009; NIETO; SANTAMARIA, 2007).

Thus, in the best case, coopetition is a game between competitors who act rationally pursuing the joint creation of a positive and superior value for customers. In this sense, a great reason to coopete is the quest to improve technological standards (FJELSTAD; BECERRA; NARAYANAN, 2004; MIONE, 2009; TETHER, 2002). The main condition for coopetition is a partial congruence of interests and objectives between partners (KOZYRA, 2012; MARR; SCHIUMA; NEELY, 2004), and all members of a coopetitive relationship can benefit from it, if there is synergy (ZINELDIN, 2004; WANG; KRAKOVER, 2008). The benefits of coopetition as, for example, access to tangible and intangible assets of other companies, learning, time savings, risk sharing, increased bargaining power and access to new markets, allow better business results, due to the reaching of a better competitive position in the market (RITALA; VALIMAKI; HENTTONEN, 2009).

Given the possibilities raised by this type of relationship, many studies have been conducted regarding the development of innovations through coopetition relationships (BAYONA; GARCIA; HUERTA, 2001; TETHER, 2002). In these studies, it became evident that companies use coopetition to push the current frontier of technology and create mutual benefits in industries which products have very short life cycles (GNYAWALI; MADHAVAN, 2001). The paradox of the coopetitive relationship is that the shared knowledge in collaborative process can be used both to cooperate as to compete, making harder the formulation of individual strategies (BAUMARD, 2009; BENGTSSON; KOCK, 2000; OXLEY; SAMPSON, 2004). In this sense, collaboration with other organizations looking for complementary assets can make a competitor stronger than before (PERKS; EASTON, 2000).

Some authors claim that cooperation and competition can occur at different moments, as when companies start to cooperate in order to gain or expand markets and, shortly thereafter, when individual goals are met or become different, the relationship becomes competitive (BENGTSSON; KOCK, 2000). Another situation is when the relations of competition and cooperation are synchronized, while others support that they are sequential, spatial (context-dependent) or temporal (depending on time period) (KOZYRA, 2012; CRISAN, 2013). An example of cooperation and competition occurring at the same time is when companies take different roles in their supply and distribution chains by cooperating in some situations and competing in other (BRANDENBURGER; NALEBUFF, 1996). In this case, the interactions occur simultaneously and in different levels in the value chain. This is the case of the arrangement between PSA Peugeot Citroën and Toyota to share components for a new city car - simultaneously sold as the Peugeot 107, the Toyota Aygo, and the Citroën C1, in which companies save money on shared costs while remaining fiercely competitive in other area (BAUMARD, 2008). Based on this, coopetition can be considered neither a hero nor a villain, just a relationship in which companies take on the roles that suit them best to ensure, always, the best results for themselves.

Given the fact that coopetition is a recent concept that has raised a number of issues in the literature and encourages different viewpoints and approaches, it is appropriate to examine the extent to which the concept has been approached over the last few years; if it is relevant, or just a fad; if it is a central or co-player subject; among other issues already raised in this work. Seeking to answer the proposed questions, a literature search was performed, which will be described in the following section.



3. Methodological Procedures

The companies' dilemma to select one among several ways to cooperate and/or compete motivated this study, seeking thus to analyze the academic literature that applies the term *coopetition* as a central theme in the business area for the last twenty years. To achieve the proposed objective, a bibliometric study was conducted.

Bibliometrics can be understood as the field of science that, based on primary sources and original documents, infers about the bibliographical production in order to put the researcher in touch with what has been written and discussed about a particular topic, in a certain period and periodic or event (BORBA; HOELTGEBAUM; SILVEIRA, 2011). It seeks a deeper understanding of a particular relevant topic in the academic field (PAULISTA; CAMPOS; TURRIONI, 2010), and can be also used to measure the productivity of each author and create methods for comparing several authors.

This research is characterized as a bibliometric study, with a quantitative, exploratory and descriptive method. In order to accomplish the proposed objective, articles published in international journals on the topic *coopetition* were selected through quantitative and qualitative methods. According to Creswell (2010), the complementarities of selection methods produce more consistent results, helping to clear the understanding of the phenomenon being studied.

The data collection took place on 28th July 2014 and was conducted in the Google Scholar database. Google Scholar is a tool for academic research in the free internet access that includes full text articles, technical reports, preprints, theses, books and other academic documents. This base was selected due to its greater range of articles and citations in relation to the ISI Web of Knowledge (usually around four times more citations) and EBSCO (which provides no citation data) (VINE, 2006; JACSÓ, 2011). Another fact that justifies the selections of this database is that, while the search in the database EBSCO resulted in 39 articles and the database ISI Web Science provided 174 articles, in the search on Google Scholar, as will be seen below, it was possible to compute data from 380 articles, a significantly larger number.

The selection criteria for the data collection were as follows: a) keywords: *coopetition* and *business*; b) Language: English; c) exclude patent and citations from the results. The result was that 4,668 items were found. To compute the information, it was created a robot that imported data from Bibtex reference to a database in Excel. As can be seen in Figure 1, the following data were computed: type (article, book, incollection, inproceedings, misc, phdthesis or techreport); title; author; publisher; year; number; volume; journal; booktitle; pages; citations; googleindex.

type	title	author	publisher	year	number	volume	journal	booktitle	pages	citations	GoogleIndex
article	Intelle	Dias, Marco Antor		2014	2	11	Journal of US-Chir		108--12	0	8XJHwn0Ake
article	Antec	de Vries	Academy	2013			Academy of Mana		amj--20	1	uR1cr69Scws
article	Buildir	Qi, Guiqing		2008	3	3	International Journ		P35	0	6WDaya5bKl
article	Can Cq	Della Corte, Valent		2011			CORPORATE OW		363	0	iWKq9iqtgEc

Figure 1 – Part of Database created from Google Scholar

After deleting the duplicate records, a total of 4,632 items remained in the database. The distribution of items according to their type can be seen in Figure 2.

Among the items found, this research focuses only on the articles, items that make up the majority of the database (the data from 3,427 articles has been computed). To ensure that the selected articles have been published in recognized journals in the business area, the next step was to sort the items according to their qualis in business and economics area. Qualis is an journals evaluation system from CAPES (Coordination of Improvement of Higher Education Personnel) in Brazil, used in the dissemination of intellectual production of *stricto sensu* postgraduate (masters and doctorate) programs in the country. According to this criterion, journals are divided into seven groups: A1, A2, B1, B2, B3, B4, B5 and C. The criterion A1 stands for the highest impact factor, while the criterion C is equivalent to the lowest (ERDMANN *et al.*, 2009).

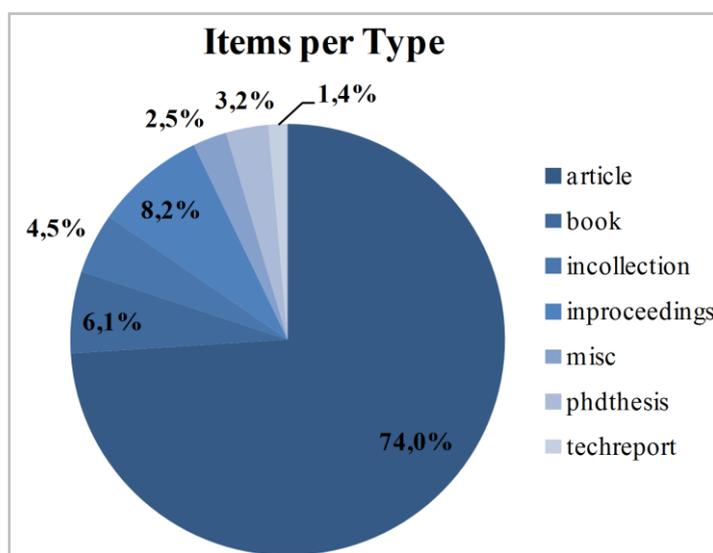


Figure 2 – Items per Type

The *qualis*¹ values from all journals in the field of “administration, accounting and tourism sciences” were computed. After that, the articles in the database were classified according to these *qualis*. Not all articles were published in journals from this *qualis*, so that only 332 items were classified. The same procedure was conducted for items that did not have a *qualis* classification in business area, but in respect of their *qualis* in the area of economics, that is considered a field related to business. This last assortment allowed the classification of more 38 articles.

The 380 articles classified according to their *qualis* compose the sample on which the analysis of this study is based. After selecting the articles, a manual search of their abstracts and keywords was conducted, in which more data were tabulated in new columns of the database.

The following categories of analysis were created: articles *per year*; articles *per qualis*; number of articles *versus* journal; articles *per author*; most frequent keywords; frequency and connections of words in the abstracts; most cited articles. In the next sections the analysis of the articles according to these categories mentioned will occur.

¹ The classification of periodicals is available at URL: <http://qualis.capes.gov.br/webqualis/principal.seam>

4. Description and Results Analysis

In this section, the selected articles will be analyzed according to the categories aforementioned. Thus, the next section starts with the analysis of articles according to the publication year.

4.1. Articles *per* Year

In this first category, it was analyzed in which years the selected articles were published. The aim was to evaluate whether there is a concentration of publications in a particular year, and if there is a trend of increase or decrease in the number of publications on the subject. The first year an article was published was 1995, as can be seen in Figure 3.

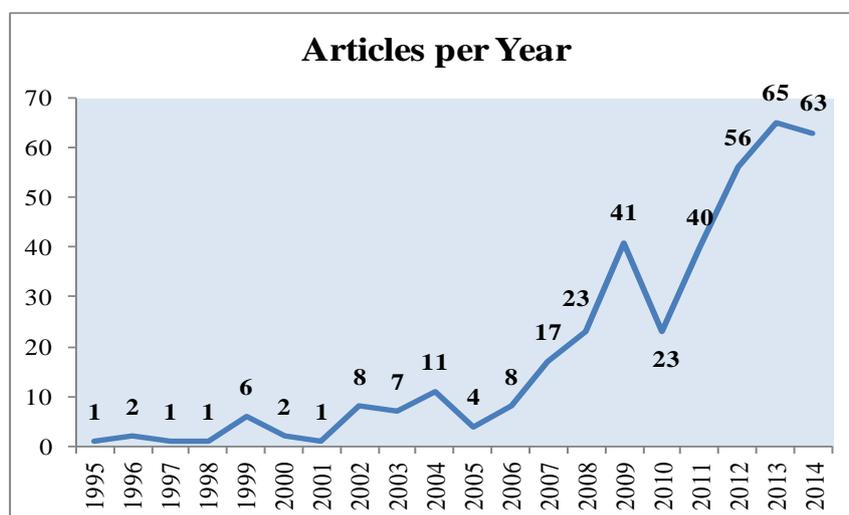


Figure 3 – Articles *per* Year

Although the concept was officially introduced to the academy in 1996 by Nalebuff and Brandenburguer, there has been a publication that applied the term before that. After the beginning of the term's usage, it took some time for the concept to be employed on a significant number of articles. A trend of steady growth in the use of the term can be noted from 2005 on. The exception is between the years 2009 and 2010, where the ascending order of publications is interrupted. Analyzing the data, it is possible to see that this fact was fomented by the "Special Issue on Entrepreneurship and Coopetition" from the International Journal of Entrepreneurship and Small Business (volume 8, number 1), in which eight of the 41 articles of the year were published. However, even if these eight articles are discounted, the year 2009 has still ten articles more than 2010. One can hypothesize that these other articles scattered among several journals may have been written with the goal of publication in this special edition. This fact, however, is only a hypothesis, because it was not possible to find another explanation for the increase in publications this year besides the special issue mentioned.

Despite the disparity in the years aforementioned, it is to notice that, in general, the trend since 2005 is the growth in the number of articles. Since until the date of the research

(28th July 2014) there were already 63 articles published in 2014, only two less than in 2013, it can be inferred that in the present year the number of publications will also exceed those of the previous year.

In addition to evaluating the quantity of published papers, it is also necessary to assess the quality of publications, i.e., if they were published in renowned journals or not. Thus, in the next section the selected items will be analyzed according to the *qualis* criteria, which indicates the impact factor of the journal in which they were published.

4.2. Articles per Qualis

The majority of the articles (207 of 380 articles, or 54.5%) were published in journals classified as A1, the highest *qualis* value, as can be seen in Figure 4. If the strata A1 and A2 are added together, the result shows that 80.5% of the papers were published in the A stratum. The remainder is divided in different strata B and C, and only one of the articles is found in a C stratum journal.

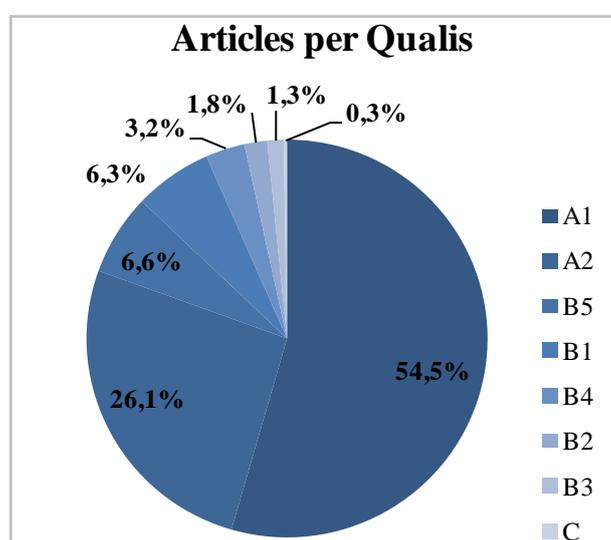


Figure 4 – Articles per Qualis

Therefore, it can be considered that the publications involving the term competition in the area of business and economics are published mostly in quality journals. Deepening further the question of the sources of publication, in the following section the items will be analyzed according to the journals in which they are published, in order to identify if any stands out in relation to the topic studied.

4.3. Number of Articles versus Journal

The analysis of the journals in which the articles were published aims to identify how the articles are divided among the many sources of publications in the area. In total, there are 75 journals in which the 380 articles were published. As seen in Table 1, 5.3% of journals (4 of 75) were responsible for 91 publications, what is equivalent to 23.9% of the articles. On the other hand, 180 articles (or 47.4% of the publications) are distributed among 61 different journals with 5 or less articles published.

These results indicate that some journals in the business area have a greater focus in the topic competition than others. The three major journals in the field, each covering 5% or more of the publications, are the Industrial Marketing Management, the International Journal



of Entrepreneurship and Small Business and the Journal of Knowledge Management. Despite a reasonable concentration in these three journals, one can also notice that most of the publications are dispersed among different journals.

Journal	Qualis	Articles	%
Industrial Marketing Management	A1	34	8,9%
International Journal of Entrepreneurship and Small Business	A2	20	5,3%
Journal of Knowledge Management	A1	19	5,0%
Technology Analysis & Strategic Management	A1	18	4,7%
Academy of Management Journal	B5	17	4,5%
Technovation	A1	15	3,9%
Journal of Business Research	A1	14	3,7%
Management Decision	A2	13	3,4%
International Journal of Innovation Management	A2	11	2,9%
International Journal of Production Economics	A1	9	2,4%
European Management Journal	A1	8	2,1%
International Journal of Information Management	A1	8	2,1%
International Journal of Project Management	B4	7	1,8%
International Small Business Journal	A1	7	1,8%
Journals with 5 or less articles	-	180	47,4%
Total		380	100,0%

Table 1 – Number of Articles versus Journal

In the next section, a detailed analysis of the authors will be presented.

4.4. Articles per Author

The analysis of authors of the selected publications aimed to verify if there is a concentration among few authors or if the articles were written by a wide range of researchers. There have been found at least² 819 authors who participated in the writing of the 380 articles. Each article has between one and more than eleven authors.

Among the authors, the large majority (92.1%) participated in the writing of only one article and less than 1% of the authors wrote five or more articles, as shown in Figure 3. Emphasis can be given to three authors that participated in the writing of seven articles: Dirk de Clercq, Pia Hurmelinna-Laukkanen and Paavo Ritala.

² Is not possible to quantify the exact number of authors because there were articles in which it was used the words "and others" at the end of a long list of names.

Number of published articles	Number of authors	Authors %
1	754	92,1%
2	44	5,4%
3	11	1,3%
4	5	0,6%
5	2	0,2%
7	3	0,4%
Total	819	100,0%

Table 2 – Authors per Participation in Articles

Such authors dispersion may indicate that the concept is probably not seen as an area of research, but as a topic within broader themes, that probably involve competition and cooperation. The analysis of the following section, that involves the keywords of the articles, can help to verify the veracity of this assumption.

4.5. Most Frequent Keywords

In order to analyze the issues explored in the articles, keywords of 326 articles were computed³. A total of 1,671 terms or expressions have been mapped, and the articles that had these terms presented between one and sixteen keywords. Terms written differently, but with the same meaning (as co-opetition *versus* coopetition) were unified in one written way, in order to facilitate the analysis. The 15 most frequent keywords are listed in Figure 5.

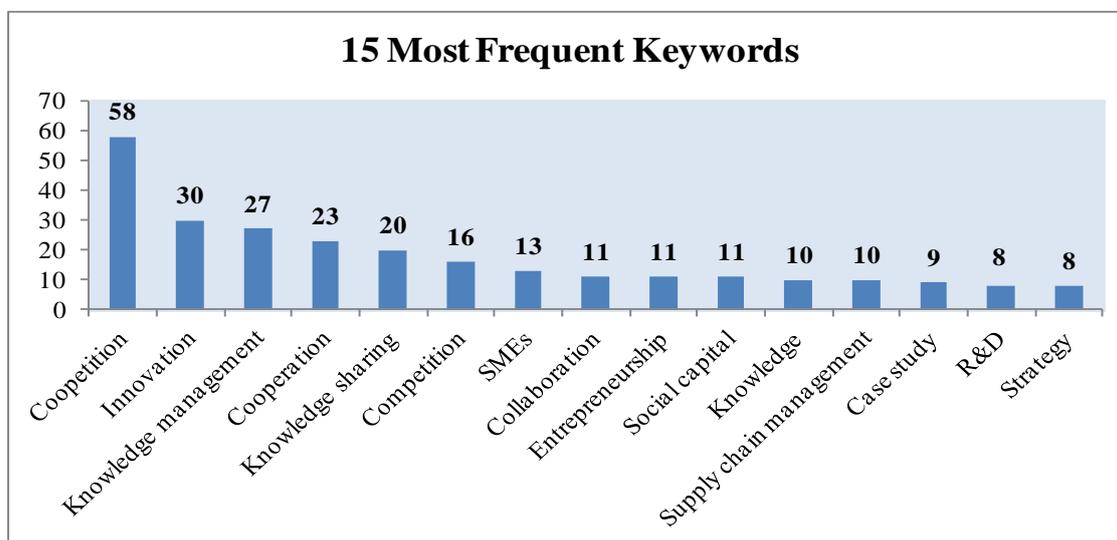


Figure 5 – 15 Most Frequent Keywords

As expected, the word with the highest frequency was coopetition, appearing in 58 articles. The second most frequent word was innovation, which was found 30 times, followed by knowledge management (27 times) and cooperation (23 times). Competition and

³ The words of 54 articles were not computed because it was not possible to find them or because some articles presented no keywords



collaboration, concepts related to cooperation, as seen in the theoretical framework, also appeared in the 15 most used keywords.

Interestingly, in only 17.8% of the 326 articles analyzed cooperation emerged as one relevant term to the study. This reinforces the hypothesis proposed in the previous subsection that the term cooperation probably cannot be considered an area of study. It can be inferred, from the great diversity and low concentration of keywords, that the concept has been employed across different main themes, and not concentrated in a specific subject. Thus, it is possible to conclude that the concept has a comprehensive nature and cannot be framed into a specific subject. Although there is not a great predominance of words, it can also be seen that most of the repeated keywords often converge to some related issues, as knowledge and innovation, cooperation, collaboration and competition.

Another analysis of the words used will be presented in the next section, in which the most recurrent terms in the abstracts of the articles will be analyzed.

4.6. Frequency and Connections of Words in the Abstracts

In order to evaluate which are the most used words in the articles abstracts and what relationships exist between them, an analysis of the words in the abstracts was performed using the program Sobek Text Miner. The program Sobek Text Miner is able to identify relevant concepts in a text from the frequency analysis and if they are related. It uses a process known as text mining, defined as a method of extracting relevant information in databases, unstructured or semi-structured (SOBEK, 2014).

For this analysis, the abstracts of 373 of the 380 articles were used⁴. The result of the analysis can be seen in Figure 6, in which the most frequent words in the abstracts of the selected articles are shown. Words related to articles in general were removed from the word cloud, such as study, paper, research, implications and findings. The lines connecting words mean that concepts are related, and words related to cooperation were highlighted, since this is the central topic of this study.

⁴ The seven missing abstracts could not be found or do not exist.

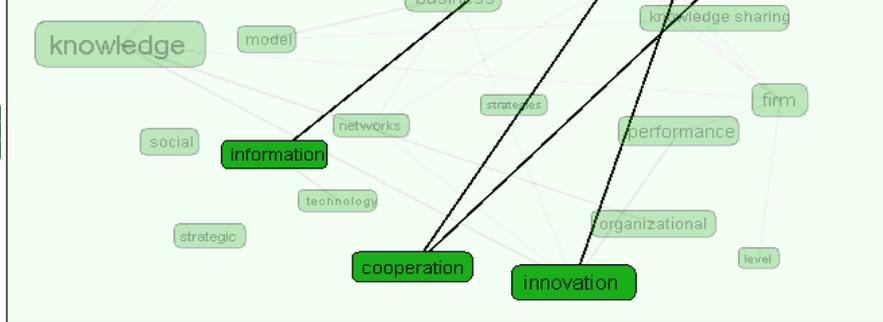


Figure 6 – Word cloud from abstracts of the selected articles

The term knowledge was the most mentioned in the abstracts (536 times). With a much lower frequency, the term competition appeared 123 times, being connected to the following terms: innovation (279 appearances); development (141 appearances); cooperation (132 appearances); competition (123 appearances); competitive (121 appearances); cooperation (118 appearances); information (107 appearances); and collaboration (72 appearances).

These keywords appear to be directly related to two main topics: types of interorganizational relationships and reasons to pursue them. This meets a current issue raised by a number of authors (SIDE; BOYD; HANLON, 1997; KHANNA; GULATI; NOHRIA, 1998; CHEN, 2008; OSARENKHOE, 2010), according to which, given the current extremely dynamic business context, exchanging becomes necessary in order to meet individual knowledge gaps and promote innovations that assure competitive advantage in the market.

The fact that in the abstracts of 373 articles the word cooperation appeared only 123 times raises again doubts about the relevance of the term in the context of the studies. Knowledge and innovation, for example, appear to be more relevant than cooperation. By seeing the existing relationships between words, it is also possible to conclude that the concept has been employed within the context of the themes that originates it (cooperation and competition) and has been linked to greater competitiveness of companies and the development of innovations, as suggested by Brandenburger and Nalebuff (1996), Side, Boyd and Hanlon (1997), Bengtsson and Kock (2000), Gnyawali and Madhavan (2001), Gimeno (2004), Luo (2007), Chen (2008), Kim and Parkhe (2009) and Peng and Bourne (2009).

The last analysis will be about the most cited articles and will be presented next.

4.7. Most cited articles

Regarding the citations that were made to the selected articles, the 380 articles received a total of 12,719 citations. Despite the high number of citations (33.5 *per* article, on average), the vast majority of articles (61.6%) was cited from zero to ten times, i.e., citations are concentrated in a small number of articles, as seen in Table 3.

Number of Citations	Number of Articles	%
0-10	234	61,6%
11-50	97	25,5%
51-100	22	5,8%
101-200	15	3,9%
201-500	8	2,1%
more than 500	4	1,1%
Total	380	100,0%

Table 3 – Number of Citations *versus* Number of Articles



The ten most cited articles can be seen in Table 4. The article with more citations was "Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories", with 1,058 citations. In the title of the article, coopetition is not highlighted as an important topic in the study, and, by looking deeper into the abstract and keywords, no mention of the term can be found. However, the second most cited article, "'Coopetition' in Business Networks - to Cooperate and compete simultaneously", refers to the concept in the title, despite being the only one of the ten most cited articles that does that. Another fact that can be noted is that five of the most cited articles are concentrated in the Academy of Management Journal, totaling 2,226 citations only among them, information from which it can be inferred that this journal can be considered a reference on topics related to coopetition.

Article	Authors	Year	Journal	Citations
Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories	Chiu, C.; Hsu, M.; Wang, E.	2006	Decision Support Systems	1,058
"Coopetition" in business Networks--to cooperate and compete simultaneously	Bengtsson, M.; Kock, S.	2000	Industrial Marketing Management	893
Tourism, competitiveness, and societal prosperity	Crouch, G. I.; Ritchie, JR	1999	Journal of Business Research	786
Institutional entrepreneurship in the sponsorship of common technological standards: The case of Sun Microsystems and Java	Garud, R.; Jain, S.; Kumaraswamy, A.	2002	Academy of Management Journal	681
Knowledge sharing in organizations: Multiple networks, multiple phases	Hansen, M. T.; Mors, M. L.; Løvås, B.	2005	Academy of Management Journal	434
Impact of strategic alliances on firm valuation	Das, S.; Sen, P. K.; Sengupta, S.	1998	Academy of Management Journal	427
Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance	Balkundi, P.; Harrison, D. A.	2006	Academy of Management Journal	426
Organizational ecology: Past, present, and future directions	Amburgey, T. L.; Rao, H.	1996	Academy of Management Journal	298
Revisiting marketing's lawlike generalizations	Sheth, J. N.; Sisodia, R. S.	1999	Journal of the Academy of Marketing Science	269
Past, present and future of mobile payments research: A literature review	Dahlberg, T.; Mallat, N.; Ondrus, J.; Zmijewska, A.	2008	Electronic Commerce Research and Applications	263

Table 4 – 10 Most cited articles



This subsection completes the analysis. An overview of the most common results of the analysis can be seen in Table 5.

Analysis Criteria	Most frequent result	Frequency	% of articles
Articles <i>per</i> Year	2013	65	17,1%
Author	Dirk de Clercq, Pia Hurmelinna-Laukkanen and Paavo Ritala	7 (each)	1,8% (each)
Journal	Industrial Marketing Management	34	8,9%
Keyword	Coopetition	58	17,8%
Words in the abstract	Knowledge	536	Does not apply
Citations	Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories	1,058	Does not apply

Table 5 – Most common analysis results

Briefly, the main recurrences were as follows: the year when there were more publications is 2013; the authors who have written more articles are Dirk de Clercq, Pia Hurmelinna-Laukkanen and Paavo Ritala; the journal that published more articles is the Industrial Marketing Management; the keyword with the major frequency is *coopetition*; the word that appeared more in the abstracts is *knowledge*; and the most cited article was “Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories”. In the following section, the final remarks of the article will be presented.

5. Final Remarks

This article aimed to analyze the academic literature that applies the term *coopetition* as a central theme in the business area for the last twenty years. 380 articles from Google Scholar were validated according to their publication in journals classified in business and economics qualis. For the analysis, a bibliometrical procedure was used, in which the following categories were investigated: articles *per* year; articles *per qualis*; number of articles *versus* journal; articles *per* author; most frequent keywords; frequency and connections of words in the abstracts; most cited articles.

The results show that the term *coopetition* is increasingly used in studies of the business area, what allows concluding that the relationship of *coopetition* cannot be treated as a fad at the academy, since it is a current concept applied both in theory and in organizations' practice. Despite the growth in the number of publications, the construct *coopetition* cannot be considered as a field of study, but as a relevant topic that fits in studies about issues related to cooperation and competition, as innovation, knowledge management and knowledge sharing. This can be proved by the facts that the term does not appear with great emphasis within the article summaries and there are no authors targeted for a long period of time in publications about the concept, nor specific journals on the topic.

On the other hand, the broad dissemination of the term in the business area and its acceptance in different journals of high impact factor confirms the idea of some authors (PADULA; DAGNINO, 2007; BENGTSSON; ERIKSSON; WINCENT, 2010) that *coopetition* is a current and relevant topic in academy, that is demanding increasing attention



of leading scholars in the area. The concept can be thus considered dynamic and actual, given that it is employed in different research contexts and emergent issues.

The use of the term appears to be strongly associated with the development of innovation and the quest for knowledge, which allows inferring that the vision presented in the literature is probably more related to the benefits and reasons why companies adopt this type of relationship than the difficulties faced in its use. Furthermore, the meaning and use of the concept seem to be generally connected to its origins, i.e., competition and cooperation, what suggests that the term coopetition is not seen and employed autonomously, but only as a part of these other subjects.

It is worth noting that this study, despite evidencing the reasons and benefits of the use of coopetition indicated by the literature, does not attempt to defend the studies on coopetition in academy, nor assumes that this type of interorganizational relationship is considered ideal for all organizations. That said, the contribution of this study is to show, based on a bibliometric study and in the use of reliable techniques and databases, that the term has been outstanding and showing its relevance in the modern world through the attention given to it by several researchers in the area of business. Despite the fact that the creation of the term coopetition highlights the organizations' apparently obvious interest, coopetition provides us a renewed approach of interorganizational relationships and opens space for the development of new studies in this field, enabling a better understanding of this complex dynamic between companies that coopeete with each other.

This study is limited by presenting only a quantitative analysis of a limited number of variables. Therefore, other issues could be analyzed, as the methodologies applied, in which countries the issue is relevant and in which way is the term being used. It is also suggested to accomplish future longitudinal studies in order to verify the evolution of the term and confirm if the ascending trend in the number of publications will continue.

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