

RESEARCH ARTICLE

Coopetition in business relationships: Validation and improvement of the coopetitive paradox model

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ABSTRACT

The purpose of this study was to validate the conceptual model of the coopetitive paradox proposed by Gnyawali et al.^[1] This qualitative study, using grounded theory, involved 54 executives from 25 companies from Ecuador's agriculture sector. The results validated and complemented the conceptual model of the coopetition paradox, filling up important knowledge gaps related to the sources of the dualities and contradictions that drive the paradoxical coopetitive situations in an inter-company network. New findings indicate that the willingness of firms for collaborate with competitors is influenced by the competitive position, the emphasis on the strategic development of the sector, and the interest in long-term sustainability, inferring that an individualistic business culture that emphasizes competitiveness significantly limits the drive for coopetitive strategies. It was also found that the ability to identify and manage sources of tension in coopetitive relationships is determined by the structure of managerial thinking in top managers. As a result of this study, 13 new tentative propositions were incorporated into the theoretical model. This represents an important contribution on strategic management by highlighting the meaning of coopetition to increase the perceived value of customers and the network, even in the presence of conflicts, rivalries and divergent interests.

Keywords: Coopetition; Collaboration; Competition; Business Relationships; Coopetitive Paradox Model

Classification codes: M10, M12, M14, M50, M54

1. Introduction

Strategic management in business has traditionally been focused on two classic paradigms: (a) the competitive paradigm, based on the capabilities to create distinctive competencies and competitive advantages that permit companies to maintain or enhance their position and to grow in relatively stable markets,^[2] and (b) the relational collaborative paradigm, focused on cooperative behaviors to strengthen competitiveness through the creation of networks, the development of strategic alliances and the markets for the creation of one or more competitive advantages.^[3,4] Combining the two approaches, the concept of coopetition emerged,^[5] which merges two apparently contradictory notions - competition and cooperation -

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which occur simultaneously as part of a business strategy that tries to take advantage of the benefits of both paradigms.

However, despite the interest that this concept has aroused in the scientific community, it remains a highly fragmented field of study that requires further exploration,^[6-10] even more so given the mixed results that have been obtained when the cooperative phenomenon is studied from a perspective of theoretical understanding.^[11-14]

Coopetition is a phenomenon that is currently being researched and it is defined as a business strategy that aims to capture value through working together with competitors to accomplish one or more shared benefits. But because it is fragmented and detached from reality,^[15] it remains unclear how businesses manage to sustain a balance between collaboration and competition over time, particularly in situations when dependency is necessary to provide value to customers.^[16] This is particularly important if it is assumed that company levels of cooperation and competition are not constant,^[17] but rather fluctuate over time due to the influence of each company's valuation and involvement in the setting of shared goals, which determines the level of cooperation, and the power dynamics among them, which determine the level of competition.^[18] Given the foregoing, the following queries are addressed in this article: How do the paradoxical competitive circumstances between the organizations that comprise an inter-company network arise from the dualities and contradictions that underlie them? (2) How do the individuals participating in these interactions interpret the tensions and conflicts they feel? When interpreting the tensions and conflicts present in the coopetition paradox, how can roles and hierarchical positions get in the way?

So, the interest in addressing this subject is even greater given the fragmentation of the results found in the study of inter-company coopetition, so that in addition to answering the research questions, it was possible to validate and improve the conceptual model proposed by Gnyawali et al.^[1] and in doing so, generate a more complete theoretical explanation of coopetition in the context of the relationships among companies that make up a cooperative network. To do so, consideration was given to personal experiences, the perspectives of executives, the verification of the empirical reality, existing knowledge and the factors that differentiate the individuals involved in cooperative interactions according to hierarchical levels, areas of responsibility and functional roles they practice in their organizations.^[19-21]

The structure of this paper is as follows. Section 2 reviews the relevant literature about coopetition. Section 3 analyses the methodology that has been used to conduct empirical research on the conceptual model of the cooperative paradox to revise a proposed theory from an ontological perspective. Section 4 show the results in sections that lead to different theoretical propositions, so that each one is supported by empirical evidence. Sections 5 and 6 present the discussion of the results and conclusions, limitations and future lines of research.

2. Literature Review

When Nalebuff and Brandenburger^[5] first used the word coopetition in the literature, they defined it as "a network of value among competitors, complementary companies, suppliers, and customers".^[2, p.177] It has been conceptualized as "a situation in which we have competition and cooperation simultaneously".^[3, p.3] The terms "paradoxical relationship among two or more actors simultaneously involved in cooperative and competitive interactions"^[22, p.181] and "simultaneous and paradoxical commitment between cooperation and competition"^[23, p.26] are other definitions of coopetition. Coopetition refers to simultaneous competition and collaboration among companies, aiming to create value.^[24] It is a strategic approach that recognizes the need

to cooperate with competitors in a complex marketplace.^[25] Furthermore, it involves deliberate actions aimed at achieving specific benefits through partnerships with the right allies.^[26,27]

Coopetition is now recognized as a commercial phenomenon that dominates supply chains, driven by investment efficiency.^[13,28] It also serves as a strategic alliance, strongly facilitated by information technologies and joint investments. This alliance creates synergies through shared interests and collective actions, necessitating knowledge exchange and collaborative learning among organizations.^[29]

Coopetitive relationships not only leverage existing resources but also create new ones, particularly in the context of new technologies, joint information and knowledge development or acquisition, and significant capabilities, including coopetition competencies.^[30] The importance of coopetition appears even greater for small and medium-sized enterprises.^[31,32] However, contradictory findings exist due to varying innovation objectives leading to different levels of value creation and resulting tensions over appropriation among competitors.^[33-35]

The extent of these dualities is influenced by specific organizational interests, the anticipated growth and development linked to coopetitive dynamics, organizational cultures, and the economic and financial resources dedicated to the relationship. These factors can become sources of conflict when divergences and contradictions are more pronounced. According to Yami and Nemeh,^[33] these dualities are best illustrated by three dimensions: (a) the creation versus appropriation of value, (b) separation (temporal or spatial) versus integration, and (c) maintaining weak links (bridging) versus seeking deep links (bonding) among the involved parties.

Regarding the above, the authors of the studied model argue that as the intensity of the dualities increases, the level of tension experienced by the focal company increases mainly through the development of tension".^[1, p.11] In addition, the authors maintained that the participants in the paradoxical relationship do not stop feeling mistrust among themselves, even when they perceive the need to collaborate to achieve their own objectives. This mistrust has implications for perceptions and behaviors, which are important sources of conflict. Furthermore, they argued that deep and firm differences in beliefs and values also generate serious disagreements about how to approach the same situation, even more so if it is ambiguous and difficult.

Until now, one sufficiently solid conceptual model is known to explain coopetitive dynamics: the coopetition paradox model analyzed in this research. This model illustrates the roots of paradoxical coopetitive situations at the level of the firm, and the way in which they feed on dualities and contradictions. These dualities are abstract forces emerging from the need to engage in activities that, despite being inherently opposed, must be performed simultaneously. The primary outcome of these dualities is the tension that surfaces when challenges are perceived. Contradictions, on the other hand, are specific to each entity involved in the paradox and arise from the interactions among individuals who have different perspectives, reasoning approaches, and interests.

The contradictions and dualities inherent in the coopetitive paradox give rise to tension, which has two interconnected aspects: (a) tension from dualities, experienced individually as discomfort or unease in facing the paradoxical situation, and (b) conflict from contradictions, manifested through interactions among the involved individuals. Nearly all literature on coopetition treats tension as the central focus, which is understandable given its implicit presence in the nature of coopetition.^[8,36,37]

From the theoretical model developed by the authors analyzed in this research, it can be extracted that the coopetitive paradox has three distinctive characteristics: (a) the tensions experienced by the actors of the organization come from the confrontation among identities, goals and motivations; (b) the degree to which the dualities and contradictions manifest themselves depends on the intensity of the duality between

competition and cooperation and (c) the sources of paradoxical situations and the nature of the tensions that result are unique to the context in which they occur, so the strategies to deal with them must also be unique.

In this sense, the following theoretical propositions indicated by the creators of the model are considered:

- 1) P1: As the intensity of dualities increases, the level of tension felt will also increase, mainly through the development of tension experienced by individuals.
- 2) P2: As the level of contradictions in the cooperative relationship increases, the tension felt will increase and become publicly manifest in the development of conflicts.
- 3) P3: The results obtained from cooperation are influenced by the level of tension felt in the Organization.
- 4) P4: The analytical capability of a company influences the level of tension felt that arises from dualities and contradictions.
- 5) P5: Execution capability directly influences the results obtained from the cooperation.
- 6) P6: Execution capability increases as the analytical capability increases.
- 7) Pn4: The magnitude of the tensions felt in a cooperative inter-company interaction is influenced by: (a) the learning capacity, (b) the commitment of the top management, (c) the leadership style, and (d) the organizational structures of the companies involved.
- 8) Pn5: The magnitude of the tensions felt in a cooperative inter-company interaction determines the ability to identify and manage the factors that originate those tensions.
- 9) Pn6: The perceptions felt by managers in senior management positions has an impact on the way they feel tensions that occur in cooperative interactions.
- 10) Pn7: The emphasis on competitiveness hinders the integration around common.

The previous proposals invite us to recognize that the study of tensions and conflicts constitutes a critical factor for the development of cooperative relationships. However, the fragmentation of the theory aimed at explaining cooperative relationships and their difficult management, evidences the lack of knowledge that exists about the factors that intervene in the recognition and assimilation of cooperative interactions between companies belonging to a certain sector, and forces to identify the factors that influence the way of perceiving the tensions and conflicts that derive from them, as well as the most effective way to manage them. Consequently, based on the literature reviewed on the phenomenon of cooperation and from the experiences, perspectives and other differentiating factors of the individuals involved in cooperative interactions, the understanding of the paradoxical situations that occur and the perceived tensions. For this, the different hierarchical levels, the functional areas of responsibility and the roles that individuals exercise within their respective organizations were considered.

3. Research Methodology

From an ontological standpoint, the research was based on constructionism, an interpretive model of reality that emphasizes collective thought in the creation of knowledge. The study adopted an interpretivist epistemological approach, while methodologically, a qualitative approach was employed to understand the perspectives of individuals immersed in the cooperative phenomenon. Grounded theory, described as "the discovery of the theory from the data",^[38, p.1] was utilized to verify and enhance the cooperative paradox model.

The reason to use this research method is its strength in “theory verification” and “theory modification” and “theory generation”^[38, p.3] to increase the understanding of social phenomena seeking data-grounded theoretical explanations. The phenomenon was examined in 25 companies from Ecuador's banana, cocoa, shrimp, and flower exporting sectors, all of which heavily rely on cooperation to compete internationally. A theoretical sampling was used, which is the data collection process to generate theory, in which the analyst simultaneously collects, encodes and analyzes data, simultaneously deciding what data to collect and where to find it”.^[38, p.45]

These companies were selected seeking a representative number of organizations that permitted representing the phenomenon studied in its entirety and thus to saturate the data.

Since the purpose of the research was to revise a proposed theory, the cases were selected, not because they are representative of a certain population, but “because they are particularly suitable for illustrating and amplifying the relationships and logic among the constructs”.^[39, p.27] Thus, the four chosen sectors provide a solid basis to broadly explore research questions and generate theory that is supported by empirical evidence. The research is aimed at the four most representative agricultural sectors of the country (banana, cocoa, shrimp and flowers), the data were obtained by applying 54 in-depth interviews to a similar number of individuals who occupied the two highest levels of responsibility in the hierarchy of the parent company (when applicable), and in the selected companies, given that they were the people who live with the phenomenon on a day-to-day basis, carrying out their responsibilities as top executives. The selection of these executives was conditioned by two criteria: (a) the involvement of the individuals with the object of study and (b) their direct participation in the processes that configure the paradoxical cooperative situations that they experience during the development of their professional activities.^[40]

Additionally, a questionnaire with open-ended questions was administered to 15 cooperation and business strategy experts from Colombia, Ecuador, Peru, Spain, and Venezuela to validate the results from the in-depth interviews. These experts were selected based on their suitability, availability, and willingness to participate. The suitability criteria were prioritized as follows: (a) researchers with published works on cooperation, (b) directors of doctoral programs in related fields, and (c) professors of strategic management, business strategy, or equivalent specializations. The information was collected individually via email.

The questions were answered and returned to the researcher via the same method, with most participants also receiving follow-up phone calls. This data collection approach aligns with the theoretical assumptions of Eisenhardt and Graebner,^[39] who emphasize the importance of using numerous well-informed informants with diverse perspectives on the focal phenomenon. These informants should include organizational actors from various hierarchical levels and functional areas, as well as external observers, who in this case were replaced by experts.

Regarding the methodological process of constructing the grounded theory, the data were collected and analyzed until theoretical saturation was reached; that is, until the interviewees stopped providing new relevant data about the phenomenon studied (see **Figure 1**).

Based on the grounded theory construction process (**Figure 1**), as suggested by Roman et al.,^[41] the information obtained was subjected to an open and axial coding process using the constant comparative method. To do this, in a first stage and using the Atlas.ti software (v.8) as support, the central content of each interview was analyzed through open coding and the creation of numerous memos, in such a way that it facilitated giving meaning to the information collected. Then, through the axial coding process, behavioral patterns and connections between categories were identified that allowed the creation of conceptual networks. Subsequently, the central categories were identified (selective coding), which when related to each other

allowed the generation of an integrative description of the phenomenon studied, which can be subject to verification or validation in future research.

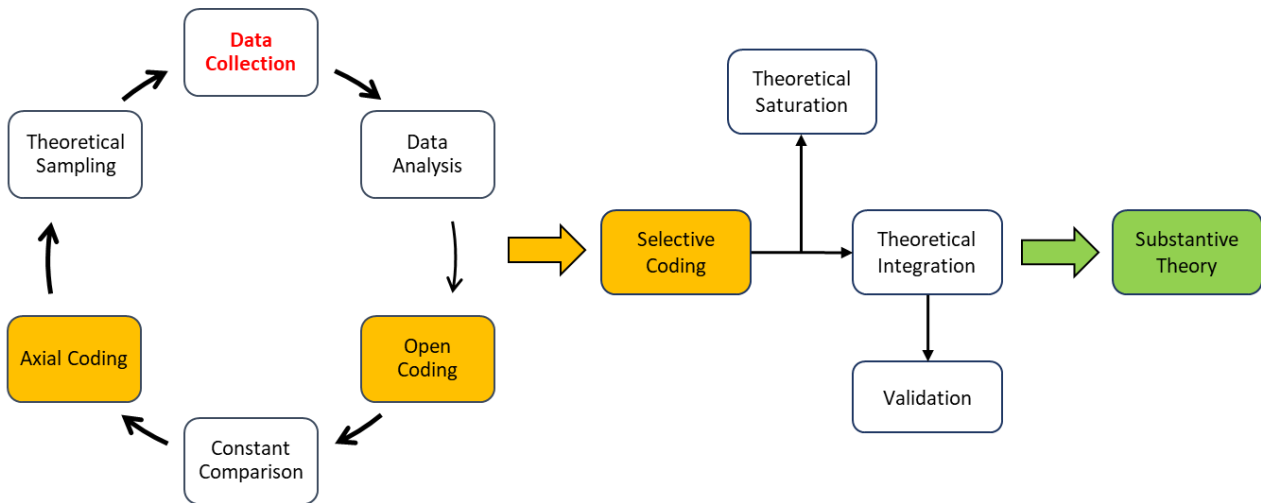


Figure 1. Model of substantive theory, adapted from Roman et al.^[41, p.995].

Table 1 shows the abbreviation used for the 52 interviewees and the 15 experts, according to the agricultural subsector they represented.

Based on Creswell's postulates,^[42] the internal validity of the research (credibility) is only relevant within the cases studied since the relationships between data and categories have emerged thanks to the reconstruction of the perspectives of the people who carry out their activities in these contexts. Likewise, given the fragmentation of the theory on cooperation, it was not possible to triangulate different perspectives or theoretical models on this phenomenon. On the other hand, the limitations imposed by Covid-19 prevented on-site observations and the creation of discussion groups, which made it impossible to carry out triangulations of a methodological nature; even so, the reliability of the study is guaranteed by the use of multiple sources of primary data, using telephone calls and other means, virtual meetings, as well as by the recording and literal transcription of the information obtained, which allowed the speeches of the participants in the research to be preserved and recovered and analyzed repeatedly.

The quality of the research was evaluated using criteria set by Lincoln and Guba^[43] to ensure the credibility, transferability, dependability, and confirmability of the findings and the proposed substantive theory. Additionally, following the outlined methodological process met the criterion of completeness,^[44] as it included detailed information about the sample characteristics and a thorough description of the data collection techniques and construct operationalization. For the criterion of clarity, the data processing and analysis methods were explicitly detailed, including the empirical validation process conducted through expert interviews.

Table 1. Codes used to identify participants in the study.

Population group	Abbreviation
Experts consulted	E-XX
Company executives from the banana sector	BN-XX

Company executives from the cacao sector	CC-XX
Company executives from the shrimp sector	SM-XX
Company executives from the flower sector	FL-XX

Note: the code XX refers to the sequential number corresponding to the individual in each population group.

4. Results

Given the qualitative nature of the research and since the central focus is the confirmation of a proposed conceptual model, looking to improve it, the results are shown in sections that lead to different theoretical propositions, so that each one is supported by empirical evidence. To do this, following Eisenhardt and Graebner,^[39] tables and figures are used to summarize the theoretical evidence found about the phenomenon studied.

4.1. Verification of the coepetitive paradox proposed by the analyzed authors

4.1.1. Dualities and contradictions that drive coepetitive paradoxes (Proposition 1)

One of the primary dualities observed in coepetition involved the necessity of collaborative teamwork juxtaposed with the desire for independence from third parties. This dichotomy is further compounded by the tension arising from the imperative to share information and knowledge while safeguarding the company's competitive advantages. Similarly, in alliances focused on joint technological development and sharing, tensions arise regarding ownership of the new technology and the imperative to safeguard proprietary knowledge to maintain competitive edge. In such scenarios, there exists a significant dilemma regarding the extent to which information should be shared. According to the respondents, these dualities are influenced by a strong emphasis on competitiveness and the pursuit of improved market positioning, which can hinder collaborative efforts among companies and cooperation with competitors.

Another factor contributing to tension is the lack of well-defined policies regarding the extent of each company's involvement in coepetitive interactions, particularly concerning the imperative to maintain confidentiality of information, knowledge, and technology. This issue may stem from the maturity needed to establish strategic objectives and adhere to them consistently. Additional dualities recognized as sources of tension include the conflict between disruptive innovation and the preservation of business identity, the balance between process automation and service personalization, and the tension between technology transfer and protection of intellectual property. Regardless of the size of companies and their legal ownership, the dualities found are summarized as follows: (a) teamwork vs. individualism and no dependence on third parties, (b) the degree to which information and knowledge can be shared vs. protection of competitive advantages based on knowledge, (c) disruptive innovations vs. consolidation of business identity through incremental innovation, (d) automation of processes vs. personalization of services and (e) technology transfer vs. protection of intellectual property.

4.1.2. Tensions and conflicts driven by the coepetitive paradoxes (Proposition 2)

Regarding the perception of tensions and conflicts arising from coepetitive interactions, it is acknowledged that the intensity of these tensions is influenced by the extent and nature of the coepetitive objectives and dynamics.

Additional factors influencing the intensity of tensions and conflicts include the company's capacity to effectively process received information and to retrieve and share information as requested or required by other involved companies. Moreover, the level of commitment among senior management of companies engaged in coepetition processes and the perception of benefits obtained by each participating company also play significant roles.

The latter aspect is particularly noteworthy as an imbalance in the benefits acquired could serve as the catalyst for new tensions and conflicts, potentially endangering the coepetitive partnership. Similarly, it can be inferred from the testimonies received that, to the extent that the sector manages to reach a certain level of maturity, tensions and conflicts will be less and can be managed more easily; particularly those related to setting goals, objectives, and indicators of control. Another element that seems to determine the magnitude of tensions and conflicts would be represented by individualistic behavior and the consequent perception of a greater risk to the sustainability of the company in the sector.^[45-47]

4.1.3. Felt tension and coepetitive performance (Proposition 3)

The testimonies indicate that tensions arising from coepetitive relationships directly impact organizational outcomes. This is evident through increased commitment to innovation, efforts to address market challenges, and the elimination of routines that fail to add value in a changing business environment. It has been noted that coepetition not only facilitates the exchange of existing resources but also enables access to external resources that would otherwise be unattainable. Consequently, coepetitive dynamics can promote business innovation.

However, the tension caused by mistrust among individuals can impede the pursuit of synergies and effective decision-making. The negative impact of distrust on coepetitive performance appears more related to the desire for dominance within the sector rather than other competitive factors. Despite intense competition in a sector, it does not prevent the creation of conditions that foster understanding and cooperation among companies aiming for collective benefits, common goals in social and environmental management, and cost reduction.

4.1.4. Analytical capability as a moderator of dualities and contradictions and felt tension (Proposition 4)

According to the participants in the study, managing coepetitive interactions begins with the ability to understand and analyze dualities and contradictions and their potential implications. This involves identifying new coepetitive opportunities, evaluating critical factors, and acting accordingly, given the complexities of the cooperative paradox. Aligning the strategic interests of the sector with those of each company relies on analytical skills to predict favorable outcomes from this alignment, even when operational interests differ. Similarly, it requires the ability to devise ways to exchange information and knowledge among competitors without compromising each company's competitive potential.

4.1.5. Executional capability as a moderator between felt tension and competition performance (Proposition 5)

Similar to analytical capabilities, execution capabilities are crucial for competitive performance because they enable the design and implementation of actions that foster collaboration with competitors. These execution capabilities involve managing complex relationships and productively handling tensions, aiming to maximize positive outcomes and minimize negative ones. According to the interviewees, execution capability is evidenced by the efficiency in managing each coepetitive relationship and the joint creation of value, particularly in terms of technology and market value, based on coepetition objectives.

4.1.6. Analytical capability and executional capability (Proposition 6)

The clearer the perception about the situation in which cooperative relationships are found, and the greater the knowledge one has about the different options available, the greater will be the ease of identifying the most effective processes, finding new approaches, allocating resources and developing the most appropriate actions to manage the dualities and contradictions. Therefore, the more developed a company's cognitive ability to comprehend and analyze paradoxical situations, the greater its capacity to execute, combine, refine, and implement new methods for managing cooperative relationships.

In addition, the better the company's understanding of the paradoxical situation, the greater will be its ability to take advantage of its execution capabilities. This was evident in the different aspects of cooperative practices in the flower sector and in the reasons that promote collaboration among competitors. So, the cooperative paradox model proposed by Gnyawali et al.^[1] was validated, although with some important additions. However, it was clear that there were some components missing in order to complete the model, which will be addressed in detail later.

4.1.7. Proposal to improve the model by the analyzed authors

The data collected showed that there were some gaps in the model proposed by Gnyawali et al.^[1]. The testimonies suggest that the primary source of dualities stems from the dominant competitive paradigm rooted in the cultural traditions of company managers and their experiences with industry counterparts. This belief is reinforced by a desire for independence, the emphasis on protecting competitive advantages and confidential information, and the pursuit of better market positioning, even at the expense of competitors.

Therefore, the ability to engage in cooperation appears to depend on two key factors: (a) the influence of the sector in encouraging entrepreneurs to collaborate with competitors for mutual sectoral benefits, which can then benefit each company, and (b) the perceived risks by executives concerning the company's market sustainability.^[48,49]

These risks can be perceived from two perspectives:

- The risk inherent when the cooperative relationship is already established, but this relationship is broken during the cooperation process.
- The risk of not collaborating with competitors, which could harm business sustainability by preventing access to external resources, hindering the development of new capabilities, and missing business opportunities.
- The risk inherent in collaboration, which involves sharing physical, financial, technological, or management resources, potentially threatening the company's competitive edge.

From a theoretical standpoint, it is suggested that the ability to take on such risks is tied to cultural factors that influence the recognition of the need for cooperation. This recognition is linked to communication, joint goal setting, and the acknowledgment of mutual benefits. Another crucial factor in shaping cooperative capability within a specific sector is the degree of compatibility between companies. Without new corroborating studies, cultural traditions, and particularly managerial behaviors that emphasize a competitive paradigm, appear to inhibit cooperative interactions. Thus, a company aiming to foster cooperative relationships may encounter resistance if the other party is reluctant to collaborate, share information, or transfer knowledge to competitors, or if they feel self-sufficient enough to achieve strategic leadership and capitalize on specific market opportunities.^[50-52] **Figure 2** illustrates the factors that determine cooperative capability among companies within a network.

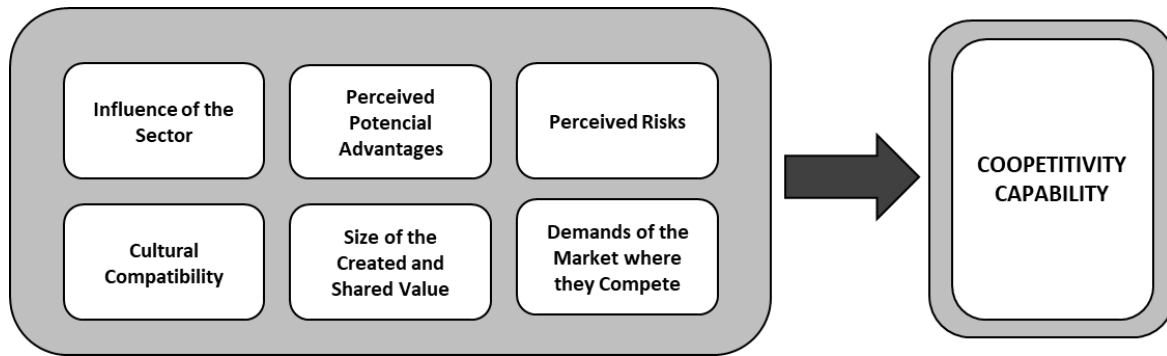


Figure 2. Determinant Factors of Inter-firm Coopetitive Capability.

These findings are significant considering that, while the conceptual model proposed by Gnyawali et al. ^[1] argues that coopetitive paradoxes are configured from the dualities and contradictions that take place, it does not mention the sources of such dualities and so, it leaves aside a set of factors that could drive or inhibit any coopetitive behavior, even before contradictory interests are perceived. From this arises a first new theoretical proposition (Pn1):

Pn1: The dualities implicit in the coopetition paradox derive from: (a) the capacity of the sector to influence business decisions, (b) the potential advantages and risks perceived by the coopetition companies, (c) the degree of compatibility among the managers, (d) the size of the value created and shared, and (e) the demands of the markets where they compete.

Concerning the formation of paradoxical situations, the testimonies suggest that these are consistently influenced by the coopetitive capability of the company, without a unanimous agreement on the impact of hierarchies and functional roles. In this regard, a first perspective indicates that the higher the hierarchical level or functional responsibility, the greater should also be the ability to perceive the asymmetries that may arise in cooperative relationships. A second perspective realizes that said capacity is independent of the hierarchies and functions since it depends on unilateral factors associated with the organization, bilateral factors associated with the internal dynamics of the companies, and multilateral factors associated with the sector or the market (see **Table 2**).

Considering the **Table 2**, a second new theoretical proposition is presented:

Pn2: The ability of companies to act coopetitively is a factor that influences the creation of paradoxical situations.

Table 2. Factors that determine success in managing tensions and conflicts.

Unilateral factors	Bilateral / multilateral factors
Certainty of impacts	Mutual trust between coopetiting partners
High level of effective communication	Joint establishment of common objectives
High capability for decision-making	High level of integration and commitment
Those responsible for senior management are convinced of mutual benefit	Definition of times established in a joint and participatory manner
Ability to record, assimilate and take advantage of the information provided by the coopetitive party	Clarity and transparency in the contractual relationship with coopetiting partners (including roles and responsibilities)
Coherence between expected benefits and committed resources	Establishment of mechanisms to resolve conflicts
Commitment, involvement and support of senior management in	Business cultures that encourage and support coopetitive

Table 2. (Continued)

Unilateral factors	Bilateral / multilateral factors
cooperative dynamics	strategies
High level of leadership capability to involve and maintain motivation for teamwork with competitors	Clear willingness of the sector to evolve together

Another relevant finding shows a possible relationship between the benefits obtained and the perceived tensions, which may even be decisive for interrupting cooperative interaction. In this regard, once the benefits of cooperation are appreciated, judgement about who is benefiting the most can influence the perception of the need to maintain the alliance for a longer or shorter time.

This finding could be an indication that tensions and conflicts not only derive from the dualities and contradictions that arise among cooperating partners, but may also derive from the managers themselves, since they are more likely to think about short-term benefits than in sustained development over time. From the above, it may be inferred that cooperative relationships require a long-term style of thinking, and this may be one of the elements that define whether a company is compatible with another to work on the basis of common objectives. In this sense, although cultural values and strategic thinking are decisive when initiating a cooperative interaction, they also exert a significant influence on the decision to interrupt, maintain or expand collaboration with competitors.

The cooperative paradox analyzed focuses on the tensions and conflicts that must be adequately managed in order to achieve the purpose of cooperation. However, it excludes that which relates to the magnitude in which they are manifested. Among the factors that determine the magnitude of the tension felt, the following stand out: (a) the perception by managers of the scope of the purpose for the collaboration and the potential benefits, (b) the desire to achieve leadership positions within the sector, (c) the emphasis on safeguarding competitive advantages, (d) the risks perceived around business sustainability and (e) the planning horizon.

Regarding this last factor, it is to be expected that the greater the emphasis on the short term, the greater will also be the magnitude of the perceived tensions. This reveals two new theoretical propositions:

Pn3: The magnitude of the tensions felt in a cooperative interaction among companies is determined by: (a) the scope of the purpose pursued, (b) the planning horizon, (c) the perceived potential benefits and (d) the risks to the sustainability of companies. The magnitude of the tensions felt in a cooperative interaction among companies is determined by: (a) the scope of the purpose pursued, (b) the planning horizon, (c) the perceived potential benefits and (d) the risks to the sustainability of companies.

Pn4: The magnitude of the tensions felt in a cooperative inter-company interaction is influenced by: (a) the learning capacity, (b) the commitment of the top management, (c) the leadership style, and (d) the organizational structures of the companies involved.

Hierarchies and roles do influence, directly or indirectly, how the tensions and conflicts that arise from cooperative interactions are appreciated. This is based on the ability to identify and manage the sources of tension according to a structure of thought consistent with the hierarchical position and/or the functional responsibility. In this regard, it is to be expected that the managers higher up in the hierarchy and/or with greater functional responsibility will make decisions aimed at creating a climate of reciprocal trust among cooperating partners, estimate the impact of dualities and contradictions, and manage the asymmetries that may arise during the development of cooperative interactions. From here arises the fourth new theoretical proposition:

Pn5: The magnitude of the tensions felt in a cooperative inter-company interaction determines the ability to identify and manage the factors that originate those tensions.

Another finding that represents a relevant contribution to the management literature shows that a significant factor encouraging the adoption of cooperative strategies is the willingness shown by the actors involved in the network or the sector to plan sectoral development goals that enable it to evolve in a single direction. This joint orientation is supported by the preeminence of cultural values shared by the companies that make up the network, as well as by the degree of coherence with the market characteristics and trends. In this sense, planning, conviction about the benefits of cooperation, willingness to promote cooperative relationships and the maintenance of commitment and trust seem to be the fundamental management elements. From here, two matters of singular importance arise. On the one hand, the emphasis on the competitive paradigm may be a factor capable of hindering integration around a common purpose, participatory planning, information exchange, the decentralization of projects and management of the sector's strategic development. On the other hand, the willingness of a company to collaborate with competitors is determined by its competitive position.

Additionally, it can be pointed out that the willingness shown by a business network to evolve jointly constitutes a factor that favors the adoption of cooperative strategies and implies that cultural values are synchronized with the characteristics of the market. In this sense, the maturity of the sector, together with the presence of shared business cultures that promote and support collaboration with competitors, will in turn create conditions for projecting new joint objectives of sector development and coping more easily with fluctuations in the uncertainty that derives from the complexity of the markets. Hence, the following four new theoretical propositions were identified:

Pn6: The perceptions felt by managers in senior management positions has an impact on the way they feel tensions that occur in cooperative interactions.

Pn7: The emphasis on competitiveness hinders the integration around common objectives among companies and influences the ability to analyze the benefits of collaborating with competitors.

Pn8: The competitive market position of a company influences the ability to analyze the benefits of collaborating with competitors.

Pn9: The strategic approach adopted by a given business sector influences the ability of companies to develop cooperative strategies.

Regarding the scope of cooperative dynamics, the results suggest a double orientation. The first, which can be called "classic", since it is the one that abounds in the literature, refers to the benefits that cooperative companies directly perceive, while the second orientation, which can be called "emergent", since it has emerged from the findings of the present study, takes into account cooperative interactions among companies linked to a certain sector. Rather than being oriented toward the search for particular business benefits, they initially seek collective benefit so that they can then identify and take advantage of new growth opportunities. In practice, the limitation may arise when not all the companies that make up a certain sector show their willingness to engage in cooperation, which could be due to the predominance of cultural aspects that prioritize competition over the different forms of collaboration, and so would trigger new tensions and conflicts among the members of the sector.

In this regard, in sectors with a low level of integration companies seem to be more focused on operational sustainability (in the short term) than on strategic development (in the long term), which may be a factor that stimulates the emphasis on competition, with negative influence on the adoption of cooperative

strategies. The opposite occurs in highly cohesive sectors, where there is evidence of interest in achieving sectoral benefits that can then be taken advantage of individually by each of the companies that comprise it. In this vein, the findings would give rise to the idea that the qualities of the sector as well as the alignment of strategic interests and dominant cultural aspects can influence its level of integration and, consequently, cooperative inter-business relationships.

Based on the above, the following new theoretical propositions emerged:

Pn10: The strategic interests of an industrial sector determine the ability of companies to develop cooperative strategies.

Pn11: The results of the cooperative strategies developed by two or more companies belonging to a particular industrial sector have an impact on the rest of the companies that make up that sector.

Pn12: The management capacity of a certain industrial sector is influenced by the congruence of strategic interests of the companies that comprise it.

Pn13: The emphasis on innovation and sustainability influences the results obtained by companies that act cooperatively.

By way of synthesis, **Table 3** shows the thirteen new theoretical propositions related to the most significant new findings.

It should be noted that the initial theoretical propositions were formulated at the time of creating the competition paradox model, but since then new and complementary contributions on inter-firm competition have been added. Thus, although the findings permit validating the conceptual model of the competition paradox studied, from a theoretical perspective, these findings complemented and improved it by incorporating two elements of significant importance in competition: (a) first, the sources of the dualities and contradictions that configure the cooperative paradoxes; and (b) secondly, the existence of factors that influence the way tensions and conflicts are perceived, while also assuming an eclectic perspective on the influence of roles and hierarchies in the way tensions and conflicts are perceived. Nonetheless, it must be emphasized that, due to the methodological approach used, such proposals should be subjected to empirical verification before attempting to generalize on the results. Figure 3 shows the improved competition paradox model.

Given the hermeneutic nature of the research, the results are based on the points of view of the study's participants and so, their generalization is not intended since they lack of statistical significance.

Table 3. New tentative propositions that complemented cooperative paradox model.

Subject	New theoretical propositions
Sources of dualities	Pn1: The cooperativity dualities derive from: (a) the capacity of the sector to influence business decisions, (b) the potential advantages and risks perceived by the companies, (c) the cultural compatibility, (d) the size of the value created and shared, and (e) the demands of the markets.

Drivers of cooperative paradoxical	Pn2: The ability of companies to act cooperatively influences in the creation of paradoxical situations.
Determining factors of the magnitude of the stresses	Pn3: The magnitude of the tensions is determined by: (a) the scope of the purpose (b) the planning horizon, (c) the perceived potential benefits and (d) the risks to the sustainability. Pn4: The magnitude of the tensions is influenced by: (a) the learning capacity, (b) the commitment of the top management, (c) the leadership style, and (d) the organizational structures. Pn5: The magnitude of the stresses determines the ability to manage the factors that cause these stresses. Pn6: The perceptions of senior managers affect the magnitude of the tensions felt.
Determining factors in the cooperative management	Pn7: The emphasis on competitiveness influences the ability to analyze the benefits of the cooperation. Pn8: The competitive position influences the ability to analyze the benefits of cooperation Pn9: The strategic adopted by a business sector influences the ability cooperative of firms. Pn10: The strategic interests of an industrial sector determine the cooperative ability of companies.
Results of cooperative interactions	Pn11: The results of inter-company cooperation have an impact on all companies in the sector Pn12: The management of an industrial sector depends on the strategic interests of the companies Pn13: The emphasis on innovation and sustainability influences inter-company cooperation.

As can be seen in **Figure 3**, from a broad perspective, the findings confirm the theoretical premises contained in the conceptual model of the cooperative paradox proposed by Gnyawali et al.^[1], especially regarding the following aspects: (a) the relationship between the level of tension felt by managers and the intensity with which paradoxical dualities are manifested; (b) the influence of contradictions in the generation of tensions and conflicts; and (c) the impact of the tensions felt by managers on the results obtained from cooperative interactions. But, in addition, it allowed the incorporation of new theoretical propositions that expand the understanding of paradoxical situations and felt tensions, which are fundamental to develop and manage the cooperative capabilities of companies and expand the conception of cooperative interactions at the level of inter-business relations (meso level), as initially postulated by Pellegrin and Boucher (cited by Dagnino et al.^[53]).

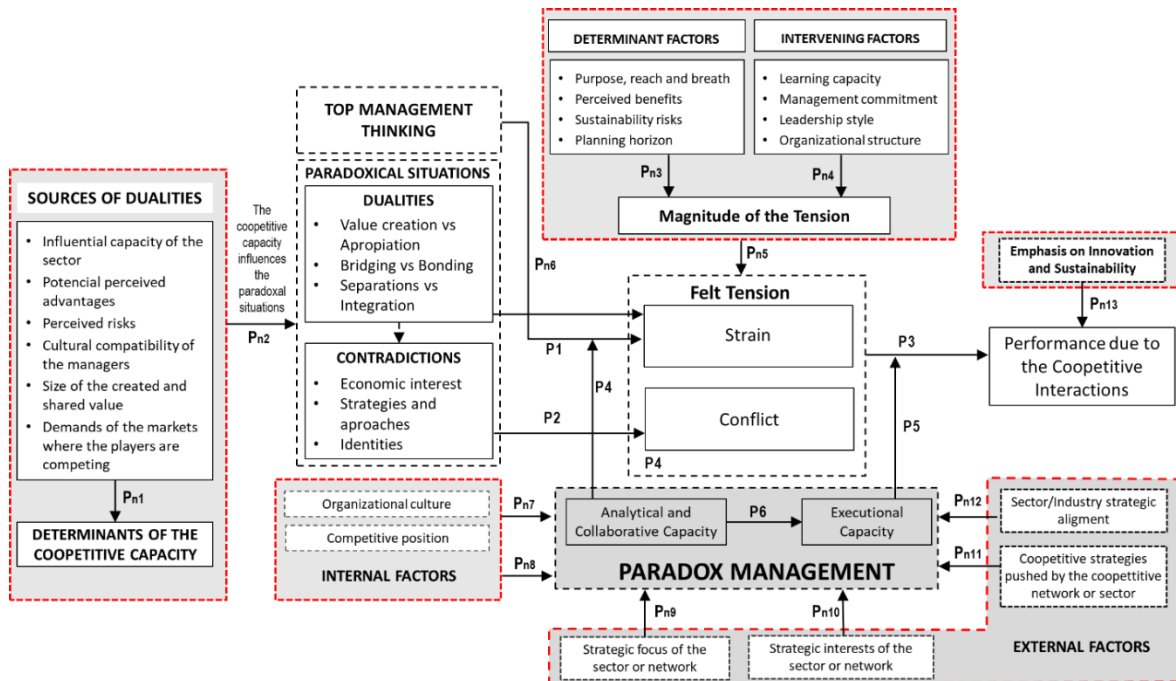


Figure 3. Improved conceptual model of the cooperation paradox

5. Discussion

Although inter-firm cooperative dynamics represent an advantageous relationship among competitors, it is not exempt from the difficulties derived from a low level of trust among partners, a divergence of perspectives and conflicts of interest. This coincides with the observations of Bengtsson and Kock^[22]

regarding the complexity of the relationships among the parties. In this sense, coopetition should not be understood only as a paradoxical relationship between competitors who need to cooperate with one another to succeed in competitive markets^[22] or as a strategy for the joint creation and sharing of value.^[24,25,54]

However, the cooperative dynamics among companies belonging to a particular sector are not only conditioned by the formation of collaborative links based on the strategic preferences of the coopeting companies,^[55] but also by the strategic interests of the sector itself, as well as its ability to align these interests with short, medium and long-term objectives. This perspective represents an important contribution to the literature on coopetition. However, it also permits the incorporation of new theoretical propositions that broaden the understanding of paradoxical situations and tensions felt, which are fundamental to develop and manage the coopetitive capacities of companies and broaden the conception of coopetitive interactions at the level of inter-firm relationships (meso level), as was initially postulated by Pellegrin and Boucher (as cited by Dagnino et al.^[53]).

Such findings have implications both at a theoretical and empirical level. At a theoretical level, the proposed modifications to the conceptual model of the coopetitive paradox shed new light on the factors that intervene during coopetitive activities with competing companies, representing a new step in the evolution towards a comprehensive theory on coopetition. However, based on new theoretical contributions that had not been addressed in the specialized literature, new doubts arise about the real impact of company and individual cultural traditions, as assumed in the classic paradigms of business management and in the type of reasoning that entrepreneurs use to promote dynamics of inter-firm coopetition in a given sector.

In this sense, and keeping the focus on the theoretical implications, these findings give rise to an in-depth study of four highly complex aspects associated to coopetition in the Latin American context: (a) the qualities of the sectoral context that favor and hinder company interdependencies under the concept of coopetition, both at a structural level and from a market perspective; (b) the cultural determinants that could promote or interrupt the coopetitive dynamics among companies in a certain sector; (c) the possible relationship between the level of integration that a certain sector has reached and the perception of the risk to the company's sustainability in the face of market uncertainty; and finally (d) the way in which that relationship impacts the way of perceiving and managing the dualities and contradictions that configure coopetitive paradoxical situations in a network context.

These merits adopting a framework of managerial thinking that, without renouncing competitive principles, fosters trust, understanding, the visualization of common goals and the attitudes that are necessary to collaborate with competitors, not so much in crisis contexts or in situations that are driven by the imperatives of necessity, but as a common practice oriented to inter-organization innovation.^[56-58] Top managers must therefore abandon the focus on the old management traditions that focused their interest on profitability and begin to shift their interest towards the concept of sustainability.

This is coincident with the approach that encourages the creation of networks and interdependent relationships based on trust, the free flow of information among partners, the exchange of knowledge, the rapid acquisition of resources and the achievement of greater flexibility to achieve mutual development. In this sense, given that the coopetitive approach cannot be disassociated from management strategies, and assuming that company interdependence represents a source of value creation and value sharing based on convergent interests,^[52] top managers and executives responsible for managing companies and corporations should assume new cognitive and attitudinal skills that encourage the adoption of a new style of leadership and management in order to bring to life shared long-term purposes of their organizations. The adoption of

this new management style should be understood as an urgent need and a strategic decision that should be taken regardless of the size and structure of the organization or the nature of the activities they develop.

The results indicate that factors such as distrust, the perceived risk of sharing knowledge, and cultural differences play significant roles in influencing tensions during cooperative interactions. Furthermore, the findings suggest that the intensity of these tensions is notably impacted by various factors including the cooperative objectives, planning duration, perceived benefits and risks, learning capabilities, commitment of top management, leadership style, and organizational structures involved in cooperative interactions. This magnitude determines the capacity to recognize and address the tensions experienced. Finally, the findings suggest that the increase in value obtained by adopting cooperative practices in the context of a network is not only beneficial for companies, but also has a favorable impact on the network itself and on society as a whole through the market.

6. Conclusions

The conceptual model of the cooperation paradox of Gnyawali et al.^[1] was validated. However, this model was found to be incomplete, and so it was complemented.

The present research found out that the model did not include the determinants of cooperative capability, in which there are six sources of dualities: (a) influence of the sector, (b) perceived potential advantages, (c) perceived risks, (d) cultural compatibility of the executives, (e) size of the value created and shared, and (f) the market demands where they compete. Nor did it include the magnitude of the tension felt, which includes overall determining factors and specific intervening factors.

Cultural traditions, emphasis on competitiveness, the lack of recognition of the advantages of collaborating with competitors, as well as difficulties in aligning strategic objectives and establishing clear policies on the scope of the cooperative projects among companies are factors that trigger the following dualities: (a) the need to work as a team vs. the desire not to depend on third parties, (b) the need to share information and knowledge vs. the desire to protect competitive advantages, (c) the need for disruptive innovations vs. the desire to consolidate the cultural identity of the company, (d) the need to automate processes vs. the desire to personalize services and finally, (e) the need to transfer technology vs. the need to protect intellectual property.

These dualities bring to light the contradictions that configure the paradoxical situations, especially in terms of the presence of opposing interests and strategic divergences, contradictory styles in the way of doing business, different styles of leadership and significant differences with respect to the acceptance of risks.

These findings, together with the theoretical proposals that have emerged from them, broaden the understanding of how the dualities and contradictions are produced that drive cooperative paradoxical situations among companies that make up an inter-firm network. This and expanding the answer to the first research question, How are the dualities and contradictions produced that drive the paradoxical cooperative situations among companies that make up an inter-company network?, is determined by the influence exerted by the sector, the potential advantages and the risks that are perceived in cooperative interactions, the alignment among cultural values, the size of the value created and shared and lastly, the demands imposed by the markets in which they compete.

The second question, How are the tensions and conflicts felt by the individuals involved in these interactions perceived?, highlights the idea that the magnitude of the perceived tensions is determined by: (a) the scope and the potential benefits of the cooperative purpose, (b) the company's emphasis on maintaining

competitive advantages and preserving its leadership in the sector and (c) the perceived risks to sustainability. The magnitude with which such tensions are perceived is influenced by: (a) the strategic vision and organizational culture, (b) the ability to process and share information, (c) the commitment shown by senior management to promote and maintain cooperative interactions, (d) the styles of communication and leadership, (e) the organizations' structural design and (f) the ability of managers to adapt to changes.

Regarding the third research question, How do roles and hierarchical positions intervene in the way of perceiving the tensions and conflicts inherent in the cooperation paradox?, two perspectives emerged. The first maintains that hierarchies and functional roles directly influence the ability to recognize tensions and conflicts, while the second proposes the opposite, since what determines this ability are the different structures of thought through which they can be underestimated or overestimated. In other words, it is not the role or hierarchy that determines the ability to perceive tensions and conflicts, but rather the structure of thought that has been built from personal beliefs and values of company executives, regardless of the hierarchical position or the functional responsibilities they have assumed. On the basis of both perspectives and adopting an eclectic position, it can be inferred that functional roles and hierarchical positions do have an influence (direct or indirect) on the ability to perceive the tensions and conflicts that occur as a consequence of cooperative interactions, for which the two perspectives are complementary.

Finally, in response to the fourth research question, How do executives manage the various situations that occur in cooperative relationships in the context of an intercompany network?, two categories of factors have been identified that seem to determine this type of interaction. The first one incorporates factors associated with the organization, among which stand out the certainty of the impacts, the level of effective communication, the capacity to assimilate information and make decisions, the coherence in the relationship between benefits and resources and the leadership commitment and capability of senior management. The second category includes factors associated with the sector and/or the market, particularly demonstrations of mutual trust, the joint establishment of common objectives, the level of integration and commitment, the planning of activities, the clarity and transparency of the contractual relationships, the mechanisms to resolve conflicts, the cultural alignment among companies and, finally, the willingness of the sector to grow and evolve together.

The knowledge obtained contributes to the literature on management by shedding light on the critical factors that must be taken into account for successful cooperation to occur. It is thus necessary to recognize:

- The decisive influence of the sectoral context on the possibilities of developing solid cooperative interactions among the companies that comprise it.
- The power of organizational culture, understood to be a catalyst for intercompany cooperative dynamics.
- The impact of innovation on the ability to manage the complexity of cooperative interactions, given the growing need to increase the value generated by the network to guarantee the sustainability of the companies that comprise it.

Drawing from these findings, the suggested enhancement to the examined model presents an avenue for further research, prompting inquiries such as: How can we surpass traditional management paradigms to embrace a novel form of strategic thinking that fosters a balance between competition and collaboration? What factors influence the decision to share information, technology, and resources with competitors? And how do we evaluate the effects of collaboration with competitors at the inter-firm level within a network context?

The main limitation of the research is that the sample was limited to companies in the agricultural sector, so the results could not be generalized to other relevant economic activities in the country. This, in turn, constitutes a possible line of future research. That's why, the replication of this study in broader and more diverse sectoral contexts is recommended in order to validate the findings regarding the factors that determine the cooperative capabilities of a particular sector, as well as the internal and external elements that condition the way of perceiving tensions and conflicts. The new knowledge that emerges from these studies will help to consolidate the theory of the cooperative paradox, which continues to be disjointed. In this sense, new research is encouraged to verify the validity of the theoretical propositions presented here, and to expand the state of knowledge on the object of this study.

Author Contributions

Conceptualization, JMDC; Methodology, JMDC and ASR; Software and visualization, YFO; Validation, ASR and YFO; Formal analysis, JMDC; Investigation, JMDC, MMIV and ASR; Resources, ASR; Data curation, YFO; Writing—original draft preparation, JMDC; Writing—review and editing, ASR; Supervision and project administration, MMIV. All authors have read and agreed to the published version of the manuscript.

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