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Unveiling the Collaborative Dynamics of Clusters in Enhancing Cooperation for Green Marketing Initiatives: A Conceptual Model

Abstract. In the current business landscape, where prioritizing sustainability has become imperative, cooperation in developing green marketing takes center stage. Companies are urged to adopt innovative approaches, transcending individual interests in favor of a collective commitment to the greater good. In this transformative journey, cluster organizations emerge as facilitators, leveraging their inherent advantages to propel and support such innovative endeavors. However, despite the growing scholarly attention towards green marketing and the diminishing significance of geographical proximity in communication, there remains a need for further investigation into the effectiveness of clusters for green marketing initiatives. Accordingly, this paper aims to conceptualize how clusters, leveraging their non-spatial proximity advantages, can foster cooperation for Green Marketing initiatives.

Clusters are influenced by firm relationships such as affiliation, coordination, collaboration, and strategic networks. These relationships influence the degree of non-spatial proximities such as social, cognitive, institutional, and organizational dimensions. Moreover, each facet of non-spatial proximity serves as a foundation for distinct forms of cooperation in green marketing. This framework posits that social proximity fosters research collaboration and knowledge sharing, cognitive proximity facilitates the exchange of resources and expertise, institutional proximity supports advocacy for policy initiatives, and at the apex of cooperative endeavors, organizational proximity drives joint marketing initiatives and innovation. This conceptual model offers practical guidance and paves the way for more in-depth examinations in subsequent studies.

Keywords: Sustainability, Green Marketing Cooperation, Proximity, Business relationships, Business networks, Clusters.

1 Introduction

Establishing green marketing initiatives and promoting corporate engagement are critical prerequisites for fostering economic, social, and environmental sustainability performance [1]. In analogous contexts, scholarly investigations have examined inter-firm proximity [2] and cooperation [3] as antecedents to collaborative innovation. However, despite the inherently competitive nature of marketing [2], where firms often compete, marketing cooperation has been recognized as an innovative solution for fostering collective performance [4]. Simultaneously, the emerging innovation of green marketing [1] adds complexity to the landscape. Hence, a nuanced study becomes imperative to unravel how firms' relationships and proximity may significantly impact the dynamics of Green Marketing Cooperation (GMC).

Several reasons underscore the significance of firms' proximity as a decisive factor. Firstly, the relationship between proximity and innovation has been subject to systematic research, as evidenced by extensive studies [2, 5, 6]. Before the advent of contemporary information and communication technologies, geographical proximity played a pivotal role in clusters [7] and was a pertinent precursor for collaboration [8]. Consequently, delving into the literature on regional economics becomes imperative to elucidate how clusters continue to form the foundation for successful development and performance in regions, even amid the diminishing role of geographical proximity [9]. Boschma [2] notably underscores the role of firms' proximity in innovation in a context closely aligned with our discussion, acknowledging geographical proximity as a foundational factor that fortifies other dimensions of proximity, such as cognitive, organizational, social, and institutional.

However, a judicious balance is essential, as an excess or deficiency of proximity can pose challenges. Firms engaged in collective innovation must navigate the intricacies of non-spatial proximity dimensions that underscore the importance of regional clusters [2]. According to Porter [3], the coexistence of cooperation and competition within a location is the prevailing condition for forming a cluster. Nevertheless, more than proximity is needed, and effective communication among actors is imperative for fostering cooperation, particularly in marketing [10].

Nevertheless, the nexus between proximity, cooperation, and green marketing, acknowledged as a nascent area, warrants further research [11]. In addition, the existing theories need to be fundamentally revised. The outcomes of theoretical models scrutinizing the correlation between proximity and innovation diverge from some conceptual frameworks. For instance, despite Boschma's [2] proposition that all dimensions of proximity are pivotal precursors of innovation, research findings by Geldes et al. [9; 12] reveal that only social proximity impacts innovation. Furthermore, recent studies indicate that the various non-spatial dimensions of proximity may not necessarily influence each other [13]. Consequently, despite the heightened attention to the significance of collaboration with competitors, there remains a need for additional theoretical investigations to grasp this subject comprehensively [6].

In this context, conflicts arise due to the inherent coexistence of competitive and cooperative behaviors [14], influencing how firms engage with their rivals [15]. Consequently, the nature and impact of firms' proximity on Green Marketing Cooperation (GMC) may vary, contingent on the quality of this factor, with the level of relationship playing a pivotal role in marketing cooperation [10; 16], an aspect that has received relatively scant attention in research. Notably, this research adopts a comprehensive definition of green marketing, encompassing social and cultural aspects and the environmental responsibilities of both customers and businesses [1]. It further expands this framework by incorporating cooperation marketing [10]. In essence, the objective of green marketing should encompass all facets of economic, environmental, and social sustainability [17]. Thus, green marketing is expansive [1], allowing actors to collaborate in pursuit of shared environmental and social objectives while safeguarding their competitive advantage. Consequently, cooperation could exert a more pronounced influence on the efficacy of green marketing [18].

Consequently, although cooperation with competitors is inherently risky, creating shared values and cooperation requires individual commitment [10]. Cooperation could exert a more pronounced influence on the efficacy of green marketing [18]. Sharing knowledge and experiences with competitors to attain shared objectives underscores the significance of cooperativeness within the interplay of cooperation and competition [6]. The effectiveness of such cooperative endeavors is contingent upon the depth of inter-firm relationships [10]. Despite the inherent risks associated with collaborative efforts in sales and marketing activities [19], the exchange of marketing knowledge holds the potential for considerable success, particularly for firms with aligned goals, such as those centered on environmental and social sustainability [1].

Moreover, inter-firm relationships, encompassing affiliation, coordination, collaboration, and strategic networks, are identified as determinants [10] of non-spatial proximity dimensions such as social, cognitive, institutional, and organizational proximity [2]. The outcomes of these inter-firm relationships assume a controlling role in influencing green marketing cooperation [4].

This study raises two primary questions that lay the groundwork for future research into the influence of varying cooperation levels and the impact of different closeness dimensions on cooperative efforts within Sabzer recovery initiatives.

Research Question 1: How important is the quality of inter-firm relationships in shaping and enhancing the effectiveness of non-spatial proximities?

Research Question 2: Do different proximity dimensions similarly influence cooperation in green marketing?

This research notably highlights the need to identify which proximity dimensions—cognitive, organizational, social, and institutional—are essential for successful cooperation in green marketing. It also seeks to understand the conditions that likely govern the relationship between these non-spatial proximity dimensions and green marketing cooperation. This research establishes a comprehensive framework for future studies to explore these questions thoroughly. Furthermore, this conceptual model serves as a valuable tool for assessing the significance of business networks or clusters in the context of green marketing and sustainability performance.

2 Literature review

Subsequently, this paper builds upon existing models and elucidates the primary components constituting this conceptual framework. This section begins by defining Green Marketing Cooperation (GMC). It then examines its correlation with firms' proximity across varied scenarios, presenting corresponding hypotheses.

2.1 Green Marketing Cooperation (GMC)

Examining existing research on business cooperation reveals a prevalent focus on technological innovation, with comparatively less attention given to non-technological aspects, notably marketing cooperation [9]. Literature on clusters generally highlights firms' collaborative efforts in various marketing activities, encompassing market research, distribution strategies, product development, promotions, and communications [20]. Recognizing the competitive nature of these activities, the OECD [4] characterizes interfirm marketing cooperation as a form of non-technological innovation. Consequently, this study acknowledges marketing cooperation as a non-technological

innovation, as articulated by Geldes, Felzensztein, and Turkina [9], and extends this concept to encompass green marketing [1], elucidating the notion of Green Innovations [21].

Nevertheless, the structure of green marketing markedly diverges from traditional marketing concepts, undergoing continual evolution with technological advancements [1]. In the contemporary landscape, the imperative of addressing climate change and prioritizing environmental sustainability has prompted a reevaluation of business activities, particularly in production and marketing [22]. Initially, green marketing was conceptualized to play a significant role in aligning marketing strategies with environmental considerations [1]. However, this definition evolved with shifting marketing perspectives, assigning a distinct place to consumer needs. Fuller [23] refined the definition, characterizing green marketing as the "process of planning, implementing, and controlling the development, pricing, promotion, and distribution of products" while satisfying three criteria: meeting customer needs, achieving organizational goals, and ensuring compatibility with ecosystems [23, p. 4]. This definition underscores the integration of environmental sustainability into marketing and the centrality of Green Marketing to cleaner production and corporate sustainability [1, p. 1264].

Accordingly, the general definition of green marketing is the link between the sustainability of society, the environment, and consumers and the sustainable development of a company with a focus on the impact of social and cultural concepts [24]. Companies can take the first step by collaborating in developing market research to identify green needs [25]. Also, they can reach sustainable supply methods by sharing the acquired knowledge and cooperation in using primary resources. Collaborative efforts among various stakeholders can facilitate the fair distribution of costs and benefits, promoting green initiatives like recycling programs [26] and renewable energy projects [27]. However, companies must partner with regulatory authorities to ensure compliance with environmental regulations and pursue elevated standards for sustainability [28]. Establishing essential criteria [29] and certifications [30] for green products is achievable through Collaboration between businesses and relevant industry associations, allowing consumers to discern environmentally friendly options with standardized criteria easily and maintaining consistent messaging across the industry. The growing trend of companies obtaining eco-labels or third-party certifications for their green products contributes to the increasing prevalence of environmentally friendly products [31]. Finally, Collaboration among research, development, marketing, and sustainability teams can foster the creation of eco-friendly products. To develop environmentally friendly solutions, companies need to share their knowledge and resources [32]. Ultimately, the synergy among research, development, marketing, and sustainability teams can facilitate the development of environmentally conscious products [33]. To formulate eco-friendly solutions, companies must exchange knowledge and resources [32].

Based on the preceding discourse, collaborative efforts within green marketing encompass research cooperation and knowledge dissemination. Inter-organizational alliances may encompass shared resources and knowledge, advocacy for policy measures, and joint marketing endeavors. Such cooperation encompasses joint activities aimed at fostering a culture of environmental sustainability [1], participation in trade missions and fairs with a focus on green destination marketing, the generation and dissemination

of market intelligence [34], and collaborative research and development endeavors to manage the costs associated with innovating green products [35].

2.2 Geographical proximity (Spatial dimension of proximity)

The investigation into regional economics has reexamined the conventional understanding of geographical proximity, acknowledging it as the most widely recognized form of proximity [2; 5]. Concentrated activities are crucial, offering collaboration while preserving competitive advantages [36]. Notably, outcomes like experiential learning, skill acquisition, and replicating successes under tacit knowledge are contingent upon geographical proximity [2]. Furthermore, geographical proximity is a primary complement to other dimensions of proximity and competition [6].

The diminishing importance of geographic proximity for businesses is primarily attributed to technological advancements [9; 12]. Despite suggestions highlighting the facilitative role of geographical proximity [2; 5; 6], recent findings indicate that physical distance does not significantly impact a firm's competitive or cooperative behaviors. Newer research advocates reconsidering this factor, departing from previous perspectives [9; 12]. Boschma [2], however, contends that a cluster situation inherently balances the levels of other dimensions of proximity. He introduces the concepts of "absolute distance" and "relative distance," where absolute distance pertains to whether or not firms are in the same geographical area, and relative geographic proximity signifies the distance between firms [2, p. 68]. Geographical economists firmly believe that this proximity dimension facilitates non-spatial proximity measurements [2; 6]. Consequently, we propose this factor as the foundational basis for balancing non-spatial proximities.

2.3 Non-spatial Proximity and Green Marketing Cooperation (GMC)

In the last two decades, many investigations have indicated the importance of firms' proximity to innovative performances [6]. For instance, Boschma [2] highlighted the role of firms' proximity in innovation and added non-spatial dimensions to the geographical proximity. Others use proximity to refer to the similarities that facilitate innovation networks [5]. With this regard, Geldes et al. [9] applied the non-spatial proximities concept to cooperation marketing and tested it in an agricultural cluster in Chile. Boschma [2] explained that the non-spatial proximity among the firms exists in different forms with different levels. These alternatives include social, cognitive, institutional, and organizational dimensions. As we know, sources have yet to discuss the order of emergence of these dimensions of proximity. The following is a discussion of the definition of the four forms of non-spatial proximity.

Social proximity-

Social proximity plays a significant role as firms frequently rely on micro-level social relations to exchange general information, bypassing the need for macro-level relationships [10]. Defined by Boschma [2] as socially embedded relationships at the micro-level, social proximity is characterized by friendships based on trust, kindness,

and shared experiences. This informal aspect of inter-firm interactions influences cooperative and competitive behaviors [6; 15]. Social similarities often indicate a fundamental level of trust and commitment among actors [2], positively impacting cognitive proximity [13]. Additionally, literature on coopetition underscores social interaction as a precursor to cooperativeness [15; 27]. Geldes et al. [9] specifically emphasized social proximity as the primary driver of marketing cooperation. Therefore, social proximity, facilitated by informal relationships, emerges as the initial and pivotal catalyst for cooperation in green marketing at fundamental levels while concurrently fostering firms' cognitive proximity.

Cognitive proximity

Referring to Boschma [2], cognitive proximity is the similarity of the level of learning or cognition between organizations. In cognitive terms, businesses must be close to each other to use shared knowledge [36]. Cognitive similarities allow firms to gain the collective knowledge necessary for innovative cooperation [5]. In other words, this type of proximity facilitates sharing “the same references and knowledge” and is essential for “processing new information and understanding changes in the environment” [9 p. 256].

However, distinguishing cognitive proximity from the organizational dimension is challenging, and more general interpretations of such proximity exist. For instance, Molina-Morales et al. [37] have defined it as cultural and organizational similarities, including shared values, language, and norms. In other cases, researchers dubbed it “cognitive–organizational proximity” [9; 12]. In response to these doubts, [13] have examined the relationship between non-spatial proximities in more than 90 cluster organizations and found that cognitive and organizational proximities are entirely separate.

Generally, researchers situate cognitive proximity as an antecedent to mutual understanding in a cluster, as companies' competitive interaction is affected by their knowledge limitations [2; 26]. For this reason, this work expects cognitive proximity to be vital for cooperation in green marketing because paying attention to the marketing discussion from a green perspective requires high knowledge in all aspects [1]. In addition, cognitive proximity sometimes leads to the unwanted disclosure of confidential information due to a lack of awareness of maintaining the appropriate distance in collaboration with competitors, which lowers the number of actors willing to share their knowledge [2; 27]. Nevertheless, green marketing is vast enough to provide sufficient space for simultaneous cooperation with competitors [1]. In short, cognitive proximity could be the reason for GMC if members coordinate on environmental problems.

Institutional proximity-

This proximity dimension, defined by similarities in institutional arrangements such as norms and rules in large-scale exchanges, is acknowledged as a determinant [2]. Firms, as an alternative to simple cooperation, can adhere to established rules to mitigate conflicts [14]. Adopting a macro-perspective provides a systematic approach to cultivating win-win situations [10]. In regional activities, the lack of

control over rules can hinder cooperation [36], whereas adherence to established guidelines enhances the coherence of firms' interactions and reduces transaction costs [2]. Regulatory bodies and institutions are crucial in overseeing and resolving problems [38]. Consequently, this model posits that institutional proximity could influence Green Marketing Cooperation (GMC) when firms operate at a collaborative relationship level.

Organizational proximity –

Organizational proximity, encompassing the shared space of relations and reference and knowledge spaces among actors [2, p. 63], is often influenced by institutional proximity [13]. Excessive organizational proximity can initially facilitate cooperation and performance, including knowledge transfer or sharing, but over time, it may contribute to firms' lock-in [2]. From a managerial perspective, an inter-firm relationship attains maturity when cooperative and competitive behaviors are balanced and integrated into the organization's strategy [39]. However, considering non-spatial dimensions of proximity, each independently and collectively impacts various behaviors and performances, such as competition, cooperation, learning processes, competencies, organizational structures, beliefs, goals, communication processes, exchanges, governing institutions, and rules (Boschma). Organizational proximity is placed last in the non-spatial proximity linear relationship, with the social dimension considered the initial factor [13]. As highlighted by Davids and Frenken [40, p. 24], "Organizational, social, institutional, and geographical proximity may, each in their way, but most likely in combination, provide solutions to that fundamental coordination problem." Their qualitative approach underscores a robust connection between proximity and competition.

Therefore, in a cluster organization, members are ready to join strategic networks to share strategic knowledge, which means they are prepared to cooperate at the highest level. In this level of cooperation, all members are involved with a shared target and cooperate to achieve their common goals "through consistent strategy and concerted efforts" [10 p. 138]. This type of relationship has more formal structures that can integrate the shared vision of cluster members and lead them to destination marketing [41].

Accordingly, organizational proximity is affected by institutional similarities and positively impacts GMC. This impact will be maximized if all members are ready to join strategic networks.

2.4 The Function, Classification, and Intensity of Inter-firm Relationships

While various dimensions of proximity may, to some extent, serve as catalysts for cooperation [42], they may only sometimes suffice to attain shared objectives. The significance attributed to proximity by specific authors lacks universal support, as evidenced by the findings of researchers exploring the correlation between proximity and cooperation. For instance, Geldes et al. [9] examined various proximity types in marketing cooperation, identifying only social proximity as a significant influencing factor. Their results raise two possible perspectives: either solely social proximity shapes

firms' cooperation, or the impact of other dimensions of closeness may vary under specific conditions.

To successfully engage in collaborative green marketing, it is imperative to comprehend and delineate the relationships among the involved actors [43; 10]. Hence, this research aims to bridge this gap by incorporating the concept of relationship type into characterizing the actor's level of proximity.

As it interacts with other members, the communication within an organization spans a spectrum from informal to more integrated relationships [16]. Notably, Wang & Krakover [10] have categorized relationships into four types and levels:

1. Affiliation: The most informal links among members are formed based on initial trust and commitment.
2. Coordination: The second level of inter-firm relationship.
3. Collaboration: Involving a set of practices.
4. Strategic Networks: When members are fully prepared to participate in strategic networks in every possible way.

Consequently, this research explores four scenarios to elucidate how the level of inter-firm relationship may moderate the association between non-spatial dimensions of proximity and Joint Green Marketing Cooperation.

Affiliation-

The cluster development process among firms unfolds through several stages, with the initial phase being Affiliation [41]. The relationship between firms starts with building trust, commitment, and a shared goal and moves forward through affiliation [2]. At this initial stage, actors explore common objectives, laying the groundwork for knowledge sharing and collaboration in innovation [14; 44]. Informal Affiliation at this level is characterized by the emergence of common interests and mutual support, serving as a precursor to cooperation [16].

In a qualitative investigation conducted by Wang & Krakover [10] within tourism organizations, the link between marketing cooperation and the level of interfirm relationships was examined. The findings indicated that Affiliation represents the most informal connection between organizations. Affiliation is portrayed as a product of trust and commitment, emphasizing a "person-to-person rather than organization-to-organization" nature [10 p. 132].

Behavioral researchers have delineated multiple factors underscoring the significance of trust and perseverance in collaborative endeavors [14]. Initially, social relations grounded in trust can serve as the catalyst for establishing affiliations among firms in industrial settings [45]. Furthermore, associations built on trust and commitment enhance cooperation, thereby facilitating the exchange of knowledge [44]. Higher levels of trust among participants correlate with a reduced risk of opportunistic behavior, underscoring that cultivating stable, committed relationships can mitigate differences and challenges for firms [2; 6].

Under this perspective, Affiliation may serve as the underlying factor for social proximity. Subsequently, this level of proximity serves as the foundation for collaborative engagement in research endeavors and the exchange of knowledge, particularly within the marketing domain.

Coordination-

Coordination is the second level of the working relationships among and between firms [10]. This relationship refers to the established decisions and basic rules that help firms cooperate with their partners [46]. To align minimal activities to support each other in specific tasks, cluster organizations at least need a coordination level of relationship. In addition, Coordination allows cluster organizations to align self-interest with different interests and better participate in activities such as fairs and events and joint learning. However, the policies and strategies remain relatively informal [10].

Amidst the challenges posed by global warming, the imperative for corporate sustainability becomes evident through adopting environmentally conscious strategies. Consequently, enterprises must adopt a green-oriented paradigm in resource procurement and utilization [1]. Furthermore, at this juncture, achieving parity among companies is crucial regarding their capacity to assimilate knowledge for collaborative planning toward shared objectives through collective learning [2]. Consequently, establishing cognitive proximity necessitates closer relationships, emphasizing Coordination over mere affiliation.

Hence, this degree of relational closeness can catalyze Cognitive proximity, creating a conducive environment for exchanging resources and information essential for pursuing green marketing initiatives.

Collaboration-

Collaboration is born from Coordination [47], a sign of development in cluster organizations [7]. Collaboration begins when the clusters form initiative groups and enter into joint meetings and collective decisions [41]. At this point, many researchers recognize the interaction of cluster members with institutions as the main factor of cooperation. For example, Calignano et al. [41] mentioned that cluster organizations foster collaborative innovations through Coordination in research activities.

However, higher levels of cooperation usually require regulation and control [41]. Researchers use collaboration to explain more formal inter-firm working relationships as a higher grade for Coordination [10]. Collaboration is "when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structure, to act or decide on issues related to that domain." [47 p. 146]. In addition, actors must develop a collaborative formal agreement plan for working as a cluster. At this level, organizations face each other to interact directly, facilitating mutual support and achieving common goals [10].

Consequently, it is anticipated that collaborative endeavors among members will result in institutional proximity, with the resultant output manifesting as policy advocacy.

Strategic networks-

However, strategic networks can be divided into vertical and horizontal structures [10]. If the design of relations is vertical, it can hinder progress and innovation, but formal horizontal systems are precisely what centralized economies need for development [2]. On the other hand, competing companies that cooperate outside the

framework can also prompt the misuse of cooperation “as partner’s opportunism” [14 p. 205]. As mentioned above, organizational proximity refers to a cognitive likeness and the similarity of interactions [2]. According to this definition, if the cluster members are ready to join strategic networks, this level of relationship may moderate the impact of all dimensions of non-spatial proximities on GMC.

Hence, this conceptual model incorporates horizontal strategic networks within cluster organizations, utilizing it as a regulator for the uppermost tier of the relationship between non-spatial dimensions of proximity and cooperation in green marketing. Consequently, achieving Joint Marketing Initiatives and Economies of Scale requires the establishment of Organizational Proximity among firms. This particular proximity facet can be cultivated through the influence exerted by strategic networks.

3 Conceptual Model

Indeed, geographical [33] or other dimensions of proximity such as social, cognitive, institutional, and organizational [2] are not automatically reasons to achieve common goals. Moreover, even the linear relationship between non-spatial proximity [13] reinforces the hypothesis that these dimensions do not create simultaneously. So even if all these dimensions are a reason for innovation, depending on the type and level of relationships (10), non-spatial dimensions of proximity became important one after the other [13]. Thus, various dimensions of proximity exert disparate influences on diverse forms of collaboration, particularly evident in multidisciplinary domains such as marketing.

This challenge prompts researchers to gauge the correlation between distinct dimensions of proximity and marketing cooperation to confront two ambiguous issues. Firstly, determining the primary factor contributing to the emergence of various dimensions of closeness is imperative. Secondly, discerning the specific type of marketing cooperation influenced by each proximity dimension becomes a pivotal consideration. Furthermore, while countless investigations study the different dimensions of proximity, no conceptual or theoretical models draw down the relationships between proximity and green marketing cooperation. For example, Geldes et al. [9] only test the relationship between proximity and cooperation marketing. Therefore, considering the critical role of cooperation and green marketing for global sustainability [1], this research referenced Boschma’s [2] theory of proximities to conceptualize the connection between firms’ proximity and GMC.

In response to the first question, this research highlights several key points about the impact of interfirm relationships on various dimensions of non-spatial proximity. First, interfirm relationships, such as affiliation, coordination, collaboration, and strategic networks, significantly influence non-spatial proximity dimensions such as social, cognitive, institutional, and organizational proximity. In other words, social proximity, which arises from informal relationships between companies, encourages research collaboration and knowledge sharing. Cognitive proximity facilitates sharing resources and expertise, institutional proximity supports policy advocacy, and organizational proximity drives innovation and co-marketing. Furthermore, the quality of these relationships is essential to manage the inherent competitive and cooperative dynamics within clusters. Effective relationships help balance these dynamics, improving the cluster’s overall cooperative effectiveness and innovative outcomes.

Consequently, this research shows that the interaction between the quality of interfirm relationships and non-spatial proximities could determine the success of cooperative firms in green marketing. This hypothesis indicates that fostering high-quality relationships can significantly improve the effectiveness of these non-spatial proximity dimensions, leading to better outcomes in sustainability-oriented marketing practices. Solid and well-managed relationships can also lead to more successful cooperation and innovation in green marketing efforts. The themes and theories mentioned above should be tested in future research. In response to the second research question, the content of this research reveals that the influence of non-spatial

dimensions of Proximity on cooperation in green marketing may vary, each contributing differently based on the context and specific requirements of the initiatives:

- Informal, trust-based relationships within firms primarily drive Social Proximity. This Proximity can foster cooperation by enabling research collaboration and knowledge sharing, which is essential for initiating cooperative interactions within green marketing.
- Cognitive Proximity involves the similarity in knowledge and understanding between firms. Cognitive Proximity is essential for sharing technical expertise and resources, which are necessary for successful collaborative efforts in green marketing. It helps understand new information and adapt to environmental changes, especially regarding sustainable practices.
- Shared formal rules and norms define institutional Proximity. Institutional Proximity facilitates cooperation by providing a framework for policy advocacy and ensuring compliance with standards and regulations, which is crucial for large-scale environmental initiatives.
- Organizational Proximity relates to the structural connections between firms, such as shared goals and strategic alignment. Organizational Proximity is essential for successful joint marketing initiatives and for integrating sustainable practices into the core strategies of collaborating companies.

Consequently, this research clarifies that while all these dimensions are essential, their specific impact on cooperation may vary significantly, indicating that they do not influence cooperation similarly. Instead, each dimension plays a unique role in facilitating different aspects of cooperation within green marketing.

The assumptions articulated in this research delineate the sequential relationship among diverse dimensions of non-spatial proximity, influenced by the nature of inter-firm relationships. In the subsequent section, the assumptions posit that each non-spatial dimension can influence a specific type of cooperation in green marketing (Figure 1).

H1- The development of inter-firm relationships progresses sequentially, beginning with Affiliation, advancing to Coordination, followed by Collaboration, and culminating in the formation of Strategic Networks.

H2- Inter-firm relationships govern the dimensions of non-spatial proximity.

H3-In cases where inter-firm relationships involve affiliation, social proximity positively affects research cooperation and knowledge exchange.

H4—In cases where inter-firm relationships involve Coordination, Cognitive proximity positively affects Shared Resources and Knowledge.

H5- In cases where inter-firm relationships involve Collaboration, Institutional proximity positively affects Policy Advocacy.

H6—In cases where inter-firm relationships involve Strategic Networks, organizational proximity positively affects Joint Marketing Initiatives.

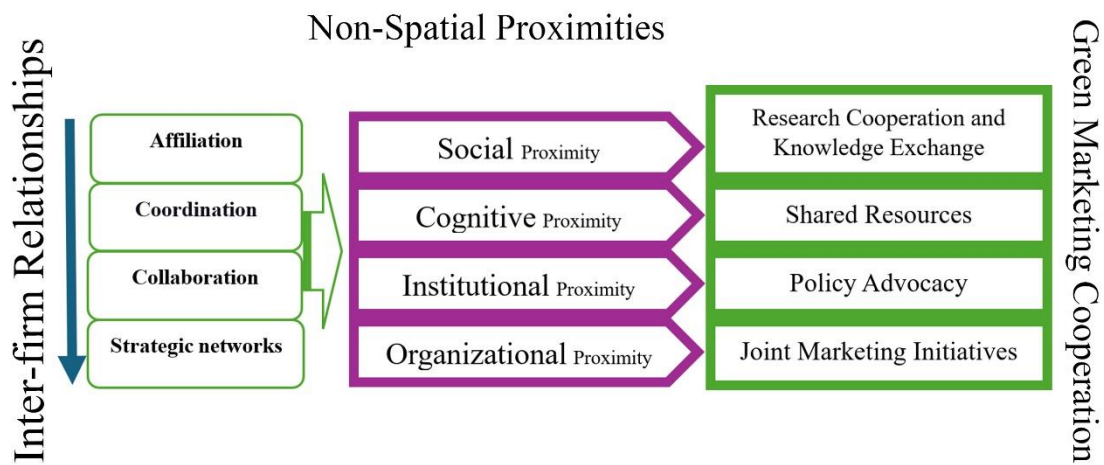


Fig. 1. Graphic descriptions of the conceptual model and hypotheses.

4 Implications, considerations, and directions for future research

This paper introduces a conceptual approach to determine a practical framework for evaluating the non-spatial dimensions of proximity about varying degrees of green marketing cooperation. The hypotheses advanced in this study serve as a foundational basis for addressing two critical inquiries in prospective research.

First, future research could examine how the quality of interfirm relationships shapes and enhances the effectiveness of nonspatial proximities, such as social, cognitive, institutional, and organizational dimensions. This gap includes understanding the role of these relationships in fostering cooperation in green marketing.

Second, further examine whether different dimensions of proximity (cognitive,

organizational, social, and institutional) similarly affect cooperation in green marketing. This gap includes identifying dimensions of proximity for successful collaboration and under what conditions these relationships influence green marketing collaboration.

The suggested approach paves the way for future investigations into the relationship between proximity and various subtopics within green marketing cooperation. A quantitative or qualitative scrutiny of this model in subsequent research endeavors holds potential value. Empirical validation of this conceptual model within cluster organizations would elucidate the interconnections between non-spatial proximities among members and their modes of relationship. Subsequent testing of this conceptual model is poised to provide theoretical insights into Green Marketing Cooperation (GMC) and furnish pertinent information conducive to the sustainable functioning of cluster organizations. Furthermore, the model can be applied to scrutinize different industries individually or collectively.

Additionally, empirical validation of these models within two distinct contexts—clustered versus non-clustered environments—would yield insightful distinctions concerning the role of geographical proximity. Such comparative analysis could significantly enhance our understanding of the models' applicability and the impact of geographical closeness on cooperation dynamics.

Following Banerjee and Chaudhury's recommendation [39], the proposed strategy for future testing of comparable models involves selecting a population comprising a comprehensive array of business activities characterized by specialized features, such as regional clusters. Accordingly, researchers could target a subset of this population for future investigations.

However, preceding research recommends six criteria for selecting respondents, including their explicit willingness to cooperate with competitors (assessed through an exit yes-or-no question), business size, respondent age, respondent gender, respondent level of authority, and business location [13]. In the quantitative approach, several researchers advocate dividing the questionnaire into four sections: screening, leading questions, business profile, and respondent demographic information. Parallel studies have designed central questions to gauge the four dimensions of proximity (cognitive, organizational, institutional, and social) [2; 9; 11]. To measure Green Marketing Cooperation (GMC), researchers may enhance existing marketing cooperation scales [e.g., 7] with a green marketing perspective [1]. In alignment with referenced studies, all questions in this section can be assessed using a seven- or 5-point Likert Scale, and prior research recommends the utilization of Structural Equation Modeling (SEM) for analysis.

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