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COMPOUND OF TIES BETWEEN COMPANIES THAT OPERATE IN A BUSINESS NETWORK

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ABSTRACT

Objective: This theoretical essay aims to present the compound of socioeconomic ties between companies that operate in a business network, whose finality is to increase the company's competitiveness. The compound was developed from the effort to combine and harmoniously integrate three theoretical foundations — business networks theory, transaction cost theory and relational view. **Method:** The methodology has characteristics of an exploratory study to develop a theoretical essay and adopts the deductive method from the three theories mentioned. The research question was: *Which elements of the three theories have the potential to substantiate the compound of interorganizational socioeconomic ties existing in a business network?* **Main Results:** Six components of the compound of socioeconomic ties were identified: interorganizational relational experience, interdependence, technological symmetry, relationship length, transactions frequency, and finality. **Relevance / Originality:** There are indications that the compound is original, as no other equal was found in the literature. Thus, it expands knowledge of the administration science and managerial practice. **Theoretical / Methodological Contributions:** For academic researchers, the compound makes it possible to understand the six components that characterize the essence of a socioeconomic tie, an essence that guides and facilitates research development on business networks, whether from a competitive or a cooperative viewpoint. For organizational managers, the compound enables them to understand the essential points of the relationship and instrumentalizes them as to to establish objective and effective interorganizational relationships with any company type, whether a competitor or a partner with which the company cooperates.

Keywords: Socioeconomic Ties, Business Networks Theory, Transaction Cost Theory, Relational View, Competitiveness.

COMPOSTO DOS VÍNCULOS ENTRE EMPRESAS QUE ATUAM EM REDE DE NEGÓCIO

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RESUMO

Objetivo: Este ensaio teórico teve como objetivo apresentar o composto dos vínculos socioeconômicos entre empresas que atuam em rede de negócio, cuja finalidade é aumentar a competitividade da empresa. O composto foi desenvolvido por meio do esforço de combinar e integrar harmoniosamente três fundamentos teóricos — teoria das redes de negócios, teoria dos custos de transação e visão relacional. **Método:** A metodologia possui características de estudo exploratório para o desenvolvimento de ensaio teórico e adota o método dedutivo pautado pelas três teorias citadas. A questão de pesquisa foi: *Quais elementos das três teorias têm potencial para fundamentar o composto de vínculos socioeconômicos interorganizacionais existentes em uma rede de negócio?* **Principais Resultados:** Foram identificados seis componentes do composto de vínculos socioeconômicos: **experiência** relacional interorganizacional, interdependência, simetria tecnológica, duração do relacionamento, frequência de transações e finalidade. **Relevância / Originalidade:** Há indícios de que o composto seja original, pois não foi encontrado outro igual na literatura. Assim, ele amplia o conhecimento da ciência da administração e da prática gerencial. **Contribuições Teóricas / Metodológicas:** Para pesquisadores acadêmicos, o composto possibilita a compreensão dos seis componentes que caracterizam a essência do vínculo socioeconômico, essência que orienta e facilita o desenvolvimento de pesquisas sobre redes de negócios, seja do ponto de vista competitivo, seja do cooperativo. Para os gestores organizacionais, o composto permite compreender os pontos essenciais do relacionamento e instrumentaliza-os para estabelecer relacionamentos interorganizacionais objetivos e eficazes com qualquer tipo de empresa, seja ela concorrente, seja ela uma parceira com quem coopera.

Palavras-chave: Vínculos Socioeconômicos, Teoria de Redes Organizacionais, Teoria dos Custos de Transação, Visão Relacional, Competitividade.

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INTRODUCTION

In the current business environment, which is highly competitive, unstable and transformative, companies have been looking for new ways and processes to stimulate their competitiveness, and long-term sustainability.

In this search for these new forms and processes, companies have increasingly sought to join partners for business development (Gulati, Nohria, & Zaheer, 2000). Interorganizational relationships are becoming increasingly essential as a source of profitable results and are being recognized as an important source of competitive advantage, and the main reason is to obtain synergy (Rzepka, 2017). Therefore, many companies are joining business networks that comprise different actors and follow a cooperative logic.

On the other hand, academic studies have been developed to clarify the dynamics of business networks and intercompany relationships. However, an important gap is observed in the dyadic relationship: the lack of a set of elements that the interorganizational link should have. Thus, this essay proposes the compound of ties between companies that operate in a business network. This proposal was created based on the three main theories that have developed from the relationship between firms and that give value to this connection: transaction cost (Petrescu, 2012; Williamson, 1985, 2002), business network (Britto, 2013) and relational view (Dyer, Singh, & Hesterly, 2018). This is the main contribution of this essay.

Transaction cost theory (Williamson, 1981, 1985, 1989, 1991) and the relational view (Dyer & Singh, 1998) are among the main theoretical perspectives used in interorganizational relationship studies through the business networks approach (Burgess, Singh, & Koroglu, 2006; Hitt, Xu, & Carnes, 2016).

For Contador, Contador and Satyro (2023), in a business network there are three types of ties: economic ties, referring to economic transactions, social ties, referring to interpersonal relationships, and locational ties, referring to the company's relationship with its physical territory.

This article will focus on the first two types, considering the interaction of economic ties with social ties, such as trust, commitment and cooperation, as observed by Granovetter (2007). Note that the social capital is created through social connections and social practices in business network (Bondeli, Havenvid, & Solli-Saether, 2018), despite being ambiguous from the perspective of moral or ethical values (Bankston III, 2022).

And the transaction cost theory is chosen to study this interaction because, according to Bachmann and Zaheer (2008), opportunistic behavior and (dis)trust in interorganizational relationships are central to this theory.

Regarding the dynamic environment, Tajeddini, Matine and Ali (2020) developed research to understand the role of the dynamic environment and ties in a network on the relationship between entrepreneurial strategy-making, long-term growth and short-term financial return. The research found that business growth and financial return performance will increase when entrepreneurial orientation is complemented by social ties in a network.

Regarding the complementarity between transaction cost theory and the relational view, the transaction cost theory approach starts from a unilateral perspective that ignores the interdependence between the firms involved in a relationship (Zajac & Olsen, 1993). The relational view starts from a broader perspective that considers cost reduction and the increase in customer willingness to pay as opportunities for creating superior value.

Dyer and Singh (1998), criticizing the RBV's assumption that resources are specific to a single company, develop the perspective of relational competitive advantage. They suggest that critical company resources may exceed their limits and be embedded in interorganizational relationships, which should be an important analysis unit to understand competitive advantage, as seeking such only inside companies can limit the explanatory model power used. They state that relational rents, a supernormal profit generated in an exchange relationship, cannot be generated by a company acting singly, but only through joint idiosyncratic contributions specific to partnerships or alliances. The relational view makes the company focus not on costs, but on the creation of value arising from the relationship itself, as Dyer (1997) mentions and Dyer et al. (2018) and Gulati et al. (2000) reaffirm.

This perspective of relational competitive advantage is applicable to both domestic and international markets, so much so that companies worldwide establish International Strategic Alliances (ISAs) to

strengthen their international presence and global competitiveness (Sklavounos, Rotsios & Hajidimitriou, 2020). There is a significant role of trust (a social tie) in ISAs that indicates firms need to understand the most important antecedents of trust, and the benefits of developing a trustful relationship. It is interesting to observe that the changes caused by globalization are reflected in social relations, being a catalyst for research on social capital, trust, and cohesiveness (Tkachenko & Kulaga, 2019).

Considering what has been exposed in this introduction, this theoretical essay characterizes the existing socioeconomic ties between companies in business networks, enabling the development of future metrics, and presents the tie phenomenon using the theories of transaction costs, business networks and the relational view as a foundation to build a theoretical model whose finality is to increase the company's competitiveness and that meets both academic and practical needs.

This essay adopts the exploratory method to discuss the occurrence of socioeconomic ties between companies that operate in business networks. It is organized into five sections: introduction, theoretical background, method, results and discussion, and conclusion.

1. THEORETICAL BACKGROUND

This essay will use the following constructs: Business Network Theory, Transaction Cost Theory and Relational View. The ties of competition are embedded in all three theories.

1.1. Business networks theory

Industrial organization theory and internal source theory cannot explain why companies differ in profitability (Jarillo, 1988). Organizations are not isolated entities, and market is not impersonal; quite the reverse, organizations are embedded in networks of social and professional relationships and exchanges with other organizational actors (Galaskiewicz & Zaheer, 1999; Granovetter, 1985; Gulati, 1998).

Standard factors of production such as technology, physical capital, and human capital (or social capital, as Kenton, 2022, prefers) explain only part of the economic growth and development outcomes. There are social and cultural factors, as norms, values, beliefs, and institutions that play prominent roles in economic performance (Christoforou, 2005; Easterly & Levine, 2001).

Networks are "interorganizational arrangements based on systematic ties, [...] collaborative, between formally independent companies, which give rise to a particular form of cooperation in economic activities" (Britto, 2013). These ties indicate a cooperative behavior typical of organizations operating in networks (Uzzi, 1997).

In the organizational environment, the occurrence the of network phenomenon is noted in cases of relationships between companies as follows: joint ventures, strategic alliances, outsourcing and subcontracting relationships, cooperation networks between small and medium-sized companies, industrial districts, consortia, and social networks (Grandori & Soda, 1995; Oliver, 1990; Powell, 1987).

Every individual's action is embedded in a network of social relationships — embeddedness (Granovetter, 2007). Any action, whether economic or social, is socially situated, that is, individuals do not act by themselves, but their actions are embedded in a relationships network in which information is facilitated and opportunistic behavior is limited. Thus, as opposed to opportunism, the existing trust in the relationships of the actors in the network is one of the factors that promote the reduction of those costs and enable the economic success of the firm and, mainly, of the networks (Jarillo, 1988).

Interdependence contributes to making relations between companies special (Castells, 1999) and reinforces the possibility of emergence of economic ties between the parties (Inzerilli, 1990).

The socioeconomic ties that many companies develop with business partners normally associates interdependence with trust and commitment. Sometimes investments in stocks, sometimes in convertible securities or even combined acquisitions of Electronic Data Interchanged (EDI) systems facilitate interactions to reduce costs and characterize the phenomenon of reciprocity between companies in business networks (Dyer, 1997; Dyeret al., 2018).

The creation of ties, even digital ones, between companies produces a synergistic effect in reducing costs, as demonstrated in the research by Mukhopadhyay and Kekre (2002), when supply chain digital

technology, business to business (B2B), and the architecture in business networks provided considerable efficiency for the companies involved.

The company established in business networks needs to develop an intense and cooperative communication with other firms to guarantee the efficiency of the entire system, creating strong ties between technologically similar companies (Grandori & Soda, 1995), because cooperation occurs more intensely in firms with more symmetrical technologies (Zanfei, 1994).

Contador et al. (2023), in designing the fields and weapons of the competition model (CAC) applied to business networks (CAC-Redes), an extension of the fields and weapons of CAC (Contador, 2008), classify ties into three types: economic, social, and locational, and prove that the first two are a source of competitive advantage.

Regarding social ties in networks, Contador et al. (2023) corroborate the existence of trust, commitment and cooperation and clarify that there is a convergence on the importance of these elements as they are a source of competitive advantage (Gulati et al., 2000). Trust influences commitment, which together favor the reduction of transaction costs (Granovetter, 1985) and create value, including through learning and improving complementary assets, despite conflicts, contingencies, and moral risks (Wang & Rajagopalan, 2015).

For Britto (2013), ties are relationships between companies in their qualitative aspects, while Contador et al. (2023) attribute intensity to them, therefore also treating them quantitatively. For Hong and Smith (2016), the relationship between transaction cost and firm performance varies according to the level of tie strength.

Continuity, sophistication, informality, and symmetry are structural characteristics of business relationships capable of enhancing the consistency of a business network (Rahman, Chong, Ong, The, & Ong, 2023).

1.2. Transaction cost theory

Transaction cost theory (TCT) was developed by Williamson taking into account the pioneering studies of Ronald Coase (1937). Transaction is "the event that occurs when a good or service is transferred across a technologically separable interface", and the prevailing discussions in TCT are related to minimizing the costs of these transactions (Coase, 1937; Williamson, 1991). Transaction costs occur in two phases: *ex-ante*, the hiring cost, and *ex-post*, the costs of monitoring, renegotiations, terms adaptation and commitment (Williamson, 1985).

The transaction costs can be represented as shown in Figure 1 (Wigand, 2003).

Such transaction costs may be clustered into four types (Wigand, 2003):

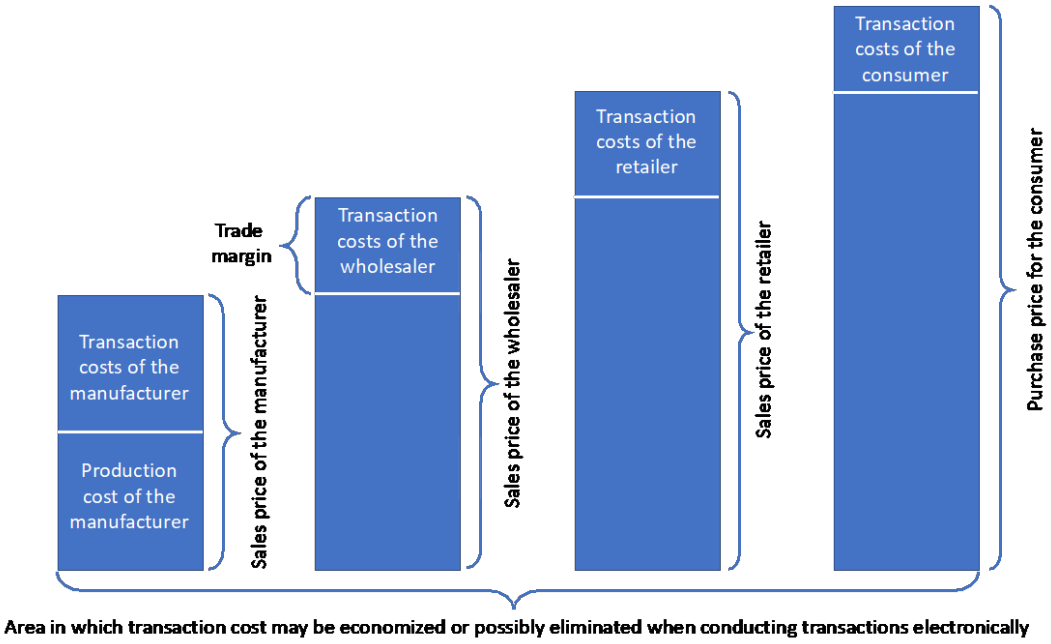
- costs of searching for products, sellers and buyers;
- contracting costs: setting up and carrying out the contract;
- monitoring costs: costs that ensure compliance with the contract terms; and
- adaptation costs: costs incurred in changes during the contract life.

Interdependence is an essential factor for the configuration of economic ties. Just as the transaction requires two actors willing to contract, in this specific case the companies adjust their exchanges according to the assumptions of the hostage model and neoclassical contracts as per Williamson's (1985) interpretation. This bilateral exchange represents a beneficial adjustment for both companies to maintain the tie through interdependence.

As for the dimension called asset specificity, or specific assets, Williamson (1985) highlighted that these are tailor-made assets and that the concept provides an exclusivity character for transactions. Any break of contract under these conditions would impose difficulties to renegotiate the specific asset in the market without losses. Moreover, on the dimension of asset specificity, Williamson's (1985) hostage model, with the so-called dedicated assets (a specific asset that is input at risk with the unilateral transaction in the long term, but which is protected by a reciprocal exchange agreement), allows the development of a clear vision of dependence between actors.

Businesses are very susceptible to technology-related issues, as the more technologically homogeneous the parties involved, the lower the transaction cost (Williamson, 1981).

In long-term relationships, particularly by using specific assets, trust and cooperation concur to the formation of an economic tie, in some cases reach-



Source: Adapted from Wigand (2003).

Figure 1. Market hierarchy and transaction costs in a stepwise fashion.

ing full interdependence between companies, configured in the so-called hostage model of asset specificity (Williamson, 1985). A research revealed that a longer exchange relationship with a supplier resulted in lower levels of *ex post* transaction costs (Buvik & John, 2000).

Frequency is an important dimension of transactions. Constant repetitions develop communication and relationships between the parties, resulting in higher levels of trust, generating favorable reputations and, therefore, lower transaction costs (Williamson, 1985).

Transactions affect the way companies are organized, influencing their behavior. Consequently, transaction costs impose limits on company activities, and, in this sense, governance and its structure gain attention and prominence in Williamson's thinking (1981, 1985, 2002). Organized, developed and adequate governance makes it possible to obtain business efficiency in the management of contracts and, thus, effectively save resources.

In the case of long-term relationships, Neoclassical Contract Law takes place, recognizing that contracts are imperfect due to the environment's complexity (Williamson, 1985, 2002). In this condition, ties can be developed by adopting hybrid structures. However, in the most frequent transactions, with mixed and specific assets, negotiation becomes constant and governance, bilateral — hybridity is a trust relationship.

Transaction cost savings may be reached using information and communication technology within the entire marketplace hierarchy, resulting in efficiency in the market or industry value chain. A potential exclusion of entire levels within the market hierarchy (e.g., wholesaler, retailer) may occur. This phenomenon of disintermediation leads to a low-cost coordinative transaction, thanks to interconnected networks and easily accessible databases (Wigand, 2003).

Blockchain technology has a potential impact on institutional economics by overcoming the trust problem using mathematical algorithms and decentralized networks. Blockchain is a low-cost means to minimize transaction costs, since the encrypted secure, verifiable, distributed, decentralized characteristics will facilitate transactions in a system. The probability of opportunism and uncertainty is low, and trust and security are high. The blockchain can significantly reduce transaction costs by reducing the search cost and eliminating a third-party intermediary in the system, but is still in its nascent stage (Ahluwalia, Mahto, & Guerrero, 2020). And cloud integration leads to decreased transaction costs in B2B networks (Petrescu, 2012).

Critical factors of transactions affect transaction costs, such as behavioral characteristics and some economic dimensions such as frequency, uncertainty, assets specificity and appropriability (Bachev, 2005).

1.3. Relational view

The relational view brought a strategic look to network theories. The relational view of strategy, which refers to a cooperation strategy between two or more organizations, emerged with greater vigor from the 1980 onwards, encompassing terms such as collective strategies, business cooperation, inter-organizational relationships (Cropper, Ebers, Huxham, & Ring, 2008).

However, the collective and merely collaborative vision makes room for opportunistic actions by cunning competitors. To avoid this, companies need to decide considering the competitive environment and the companies with which they relate (Luo, 2004), seeking synergistic relationships and joint learning (Ili, Albers, & Miller, 2010). The collective strategy has several advantages: it creates an inimitable source of resources through a network with valuable access to information, knowledge sharing, complementarity of resources, relationship-specific investments and effective governance (Balestrin, Verschoore, & Perucia, 2014). By sharing information and capabilities, and from the frequency of transactions of specific assets, firms would go through a stage of reciprocity and transparency, in which new knowledge would be generated (Zacharia, Nix, & Lusch, 2011).

In the relational view, studies by Dyer and Singh (1998) and Dyer et al. (2018) stand out.

Dyer and Singh (1998) offer a view suggesting that a firm's critical resources may span firm boundaries and may be embedded in interfirm resources and routines. They identify four potential sources of inter-organizational competitive advantage: relation-specific assets, knowledge-sharing routines, complementary resources/capabilities, and effective governance (Dyer & Singh, 1998).

Dyer and Singh (1998) also discuss how the relational view may offer normative prescriptions for firm-level strategies that contradict the prescriptions offered by adherents of the resource-based view or the industry-based view. Because, in the relational view, the value created in the interorganizational relationship benefits the firms involved and becomes a competitive advantage for them (Kozlenkova, Samaha, & Palmatier, 2014).

Dyer et al. (2018) extend the relational view to offer a dynamic perspective on the factors that drive value creation and value capture over the alliance life cycle. The authors argue that access to complementary resources provides an initial rationale for forming alliances, but benefits from complementarity can attenuate over time. Indeed, viewed dynamically, factors that often lead to higher value creation — informal trust, repeated ties, customized assets — may also lead to diminished alliance performance. They highlight interdependence between the complementary resources of partners as the critical factor determining the pattern of alliance value creation.

The firm's bargaining power and ability to appropriate value in an alliance relationship can increase over time in four ways:

- replication or replacement of the partner's complementary resources;
- development of additional value, rarity, imitability and organization (VRIO) resources;
- asymmetric (lower) investment in relation-specific assets leading to less relative dependency on the partner and greater *ex post* bargaining power;
- preventing imitation of its VRIO resources by competitors (Dyer et al., 2018).

About value appropriation, Fischer and Sojer (2015) warn: in certain situations, firms can appropriate more value than they create, but in others, the opposite happens, they appropriate only part of the value they create. For Della Corte and Del Gaudio (2014), the value appropriation process may require several skills and instruments. For this, leadership can play an important role, as it connects the organizational actors who learn with the structures and routines that influence the learning process.

Cooperation between companies in their production and logistics systems promotes a link that must be flexible to meet customer preferences quickly without discontinuing the production process (Preuveneers, Joosen, & Ilie-Zudor, 2018).

Recently, the use of digital technologies in industry has shown a significant increase in transparency in the relationship between companies (Salo, Tan, & Makkonen, 2020), which has a favorable impact on

the establishment of high standards of intercompany trust (Mubarak & Petraite, 2020).

The development of infrastructure connecting two companies, in addition to promoting economic dependency relationships and serving as a barrier against new entrants (Salo et al., 2020), also produces conditions of interdependence of resources that can determine the potential value creation of the business (Dyer et al., 2018).

The integration of physical cybernetic systems between manufacturers and suppliers made possible by the existing digital technological symmetry (Saniuk, Grabowska, & Gajdzik, 2020), where interoperability is fundamental, promotes the development of trust and commitment, and access control/authorization policies to these systems (Preuveneers et al., 2018).

Dyer and Singh (1998) suggest that generating relational income in long-term intercompany relationships theoretically offers greater protection against opportunism. The increased frequency of economic transactions between companies can favor the development of trust that reduces opportunistic behavior (Dos Santos, Lourenzani, & Lourenzani, 2019). As Silva (2021) highlighted, the higher the frequency of transactions, the lower the opportunistic behavior.

Concluding the theoretical framework, it is worth highlighting that the article's central proposal is not the interaction, complementation or even dynamics of the theories that support the compound of ties between companies, but rather to verify the convergence of common aspects between the three theories that would allow the model's development. From the deduction of the elements that form the ties (bonds) that come from these theories, the insight and the phenomenon are formed.

2. METHOD

2.1. What is theoretical essay

Initially, it is necessary to clarify what a theoretical essay, or simply an essay, is, as "in it the reader will not find the formal arrangement of a study that follows the division and logic established by traditional scientific methodologies" (Meneghetti, 2011).

The theoretical essay is considered a study developed with coherent argumentation, with deep reflection and a higher level of interpretation and personal judgment, preferably with innovative reflections, as Severino (2013) explains.

> [...a theoretical essay...] is conceived as a well-developed, formal, discursive and conclusive study, consisting of logical and reflective exposition and rigorous argumentation with a high level of interpretation and personal judgment. In the essay there is greater freedom on the part of the author, in the sense of defending a certain position without having to rely on the rigorous and objective apparatus of empirical and bibliographic documentation (Severino, 2013, p. 180).

The essay is a means of analysis and cogitations in relation to the object, regardless of its nature or characteristics, and [...] does not require empirical proof, even if it may present itself as an element of assumptions confirmation. It is permanent, deep and thorough reflection in which the centrality of its strength lies less in empirical evidence and more in the attributes of reason that thinks about reality. Despite this, the reason underlying the essay is not instrumental or mechanistic in nature, that is, the reason is that of transgressive reason. Therefore, to develop it requires involvement, reflection and analytical and critical capacity in thinking and rethinking in relation to it (Meneghetti, 2011).

2.2. Methodological procedures, criteria to select the articles and deductive method

In terms of methodological procedures, according to Gil (2006), this investigation is of the exploratory type, because it intends to provide a solution to a given problem. Gil (1999, p. 43) also clarifies that scientific investigations of this type are intended to "[...] develop, clarify, and modify concepts and ideas, in view of more precise problems or hypotheses for further studies formulation".

To substantiate the compound of socioeconomic ties between companies that operate in business network, or simply the compound of socioeconomic ties, we adopted four inclusion criteria (filters) to select the articles to be considered: seminal articles from the last century end, articles that consolidated

the three theories until the this century's first decade, articles that made contributions to them and recent articles to confirm the current validity of the compound's components.

In this way, and adopting the citations relevance and frequency as criteria, we identified six components: interorganizational relational experience, interdependence, technological symmetry, relationship length, transactions frequency, and finality.

To develop this theoretical essay, we adopt the deductive method based on the three theories mentioned. According to Salmon (1978), the two basic characteristics of deductive arguments are: if all premises are true, conclusion must be true, and all information or factual content of conclusion was already, at least implicitly, in the premises.

Therefore, for a deductive argument to be valid, the conclusion must be a logical consequence of the premises. This means that the information contained in the conclusion must be somehow present in the premises. As in a theoretical essay the premises are often conceptual and not necessarily expressed in a quantitative or factual way, the deductive argument's validity depends on the logical consistency between the premises and the conclusion, and the solidity of the premises derived from the theories (Salmon, 1978).

Table 1 (in item 3 — Results) makes it clear that the model elements are in fact present in the theories and, consequently, in the premises, that there is logical consistency between the premises and the conclusion, and that there is solidity of the premises derived from the theories.

2.3. Framework for compound of ties between companies that operate in a business network

Based on the three background theories — business network, relational view and transaction cost —, a framework is presented in Figure 2.

The words used in the main search were: "transaction cost" AND "economic ties" AND "business network". These elements were based on transaction cost theory, business network theory, and relational view. The search looked into academic journals. The search results are presented in Figure 3, when no filters were used, to give a general perspective of the academic research in this field.

2.4. EBSCOhost database search results

The bibliographic search strategy was adopted, and the EBSCOhost database, considered a prestigious database, which provides access to a variety of databases, journal, electronic journals, books and e-books (Oermann et al., 2021; University College London, 2023; University of Dayton, 2023) was used.

The search reportedrf 749 papers in academic journals from 1935 to 1999. The graph is cumulative, so in 2010 the articles totaled 2,213, then 4,216 in 2017; 5,300 in 2020; 6,144 in 2022; and 6,879 in 2023. The curve obtained shows clearly the interest of such subject represented by a higher angle in relation to the X axis in the last period. Each time the search interval shows an angle successively higher than the previous one, confirming the relevance of the theme.

3. RESULTS AND DISCUSSION

3.1. Deductive logic for the formation of the compound of socioeconomic ties

As mentioned in Section 2 — Method, to substantiate the compound of socioeconomic ties between companies that operate in business network, or simply compound of socioeconomic ties, we adopted four criteria to select the articles to be considered: seminal articles from the end of the last century, articles that consolidated the three theories until this century's first decade, articles that made contributions to them and recent articles to confirm the current validity of the compound's components.

In this way, and adopting the citations relevance and frequency as criteria, we identified six components: interorganizational relational experience, interdependence, technological symmetry, relationship length, transactions frequency, and finality.

The compound model has the characteristics defined by Ackoff and Sasieni (1968), with the typical precision of Operational Research authors. Models are simplified representations of reality. If they were as complex and difficult to control as reality, there would be no advantage in using them. Fortunately, it is possible to build models that are much simpler than reality and still be able to use them to predict and explain phenomena with a high degree of ac-

Table 1. Deductive logic for the formation of the compound of socioeconomic ties.

PREMISE 1	PREMISE 2	PREMISE 3	CONCLUSION
Premise of transaction costs theory	**Premise of the theory of networks**	**Premise of the relational view**	**Component of socioeconomic ties**
"[...] behavioral hypotheses [...]" (Williamson, 1985). "[...] commitment costs [...]" (Williamson, 1985). "[...] overcome the trust problem [...]" (Ahluwalia et al., 2020). "Users with more transaction experiences are expected to recognize transaction costs to be lower" (Li & Fang, 2022).	"[...] the existing trust in the relationships of the network actors [...]" (Jarillo, 1988). "[...] the existing cooperative behavior in organizations in networks [...]" (Uzzi, 1997). "[...] embeddedness [...]" (Granovetter, 2007). "[...] trustful relationship [...]" (Sklavounos et al., 2020) "Social capital is a positive result of human interaction" (Kenton, 2022). "The changes caused by globalization are reflected in social relations, being a catalyst for research on social capital, trust, and cohesiveness" (Tkachenko & Kulaga, 2019). "Social capital is created through social connections and social practices in business network" (Bondeli et al., 2018).	"[...] since only recent experience has a positive impact on collaborative returns" (Sampson, 2005). "Experience effects and collaborative returns in R&D alliances" (Sampson, 2005). "The nature of partnering experience and the gains from alliances [...]" (Gulati et al., 2000). "[...] the development of trust and can lead to more opportunistic behavior" (Dyer et al., 2018). "[...] modify their behavior unilaterally, in an attempt to restore balance to the relationship" (Dyer et al., 2018). "[...] as they clarify expectations, develop norms, and prove their reliability, informal governance is likely to emerge" (Dyer et al., 2018).	Interorganizational relational experience
"Hostage model of asset specificity [...]" (Williamson, 1985). "Interdependence is an essential factor for the economic ties" (Williamson, 1985).	"[...] valuing the issue of dependence between firms [...]" (Dyer, 1997; Dyer et al., 2018). "[...] interdependence contributes to making relations between companies special [...]" (Castells, 1999). "[...] the phenomenon of reciprocity between companies [...]" (Dyer, 1997; Dyer et al., 2018). "The socioeconomic ties [...] normally associates interdependence with trust and commitment" (Dyer et al., 2018).	"Interfirm relation-specific assets are idiosyncratic assets that arise from alliances between firms, under effective governance mechanisms" (Dyer & Singh, 1998). "The greater the resource interdependence between complementary resources, the greater the potential value creation [...]" (Dyer et al., 2018).	Interdependence

Continue...

Table 1. Continuation.

PREMISE 1	PREMISE 2	PREMISE 3	CONCLUSION
"Nature of symmetric technology between the parties favors contracts and reduces transaction costs" (Williamson, 1981). "Blockchain is a low-cost means to minimize transaction costs" (Ahluwalia et al., 2020). (*) "[...] digital frictionless economy [...]" (Mandelli, 2003). (*)	"[...] cooperation occurs more intensely in firms with more symmetrical technologies [...]" (Zanfei, 1994). "[...] symmetry as structural characteristics of business relationships [...]" (Rahman et al., 2023).		Technological symmetry
"In the case of long-term relationships [...] particularly in the case of specific assets" (Williamson, 1985, 2002). "[...] relationship length reduces transaction costs" (Buvik & John, 2000). "In long-term relationships, trust and cooperation concur to the economic tie formation, reaching full interdependence between companies" (Williamson, 1985). [...] "a longer exchange relationship with a supplier resulted in lower levels of *ex post* transaction costs" (Buvik & John, 2000).	"[...] economic ties are strengthened and tend to be lasting" (Dyer, 1997). "Long-term relationship motivates collaborative attitude of partners" (Anderson & Weitz, 1989).	"Human asset specificity, one type of asset specificity, refers to transaction-specific know-how accumulated through long-standing relationships" (Dyer & Singh, 1998). "The duration of safeguards facilitates relational rents" (Dyer & Singh, 1998). "[...] interdependence between the complementary resources of partners determines the pattern of alliance value creation, notably how quickly alliances generate value and how quickly they are likely to dissolve" (Dyer et al., 2018).	Relationship length
"[...] the high frequencies of transactions favor trust and restrict opportunistic behavior" (Williamson, 1985). "[...] transaction costs variation [...] such as frequency, [...]" (Bachev, 2005). "Frequency is an important dimension of transactions" (Williamson, 1985).	"[...] based on systematic links [...]" (Britto, 2013). "Moderators of relationship include [...] network related aspects such as size, density, and transaction frequency" (Petrescu, 2012).		Transactions frequency
Reduce transaction costs (Williamson, 1981, 1985, 2002).	Identify the nature, ways and conditions of effecting the intimate relationship between trust, commitment and cooperation, as "Trust and commitment are related and together enable cooperation between organizations" (Hunt & Morgan, 1994), '[...] favor transaction cost reduction" (Granovetter, 1985) and "[...] can be competitive advantage sources [...]" (Contador et al., 2023; Gulati et al., 2000).	Strategic: "[...] be source of interorganizational competitive advantage" (Dyer & Singh, 1998). "[...] offer normative prescriptions for firm-level strategies" and "[...] drive value creation and value capture over the alliance life cycle" (Dyer & Singh, 1998).	Finality

*Only symmetrical technology allows electronic communication and information exchange.

curacy. The reason for this is that, although it takes a large number of variables to accurately predict a phenomenon, a small number of variables usually explains most of it. The difficulty, of course, is finding the right variables and the right relationship between them. A model must satisfy two conditions: be simple to understand, solve and apply, and provide a complete and realistic representation of the real problem, incorporating only the necessary elements to characterize its essence (Ackoff & Sasieni, 1968).

With this conceptualization in mind and based on fundamentals and articles that support the theoretical assumptions, we chose the six components that we understand to be the most relevant to form the composite socioeconomic ties model.

This model adopted the term "relational experience" for the social behavior among parties, the first component of Table 1, because it is the most used term nowadays. Since the term is also used in psychology, the authors added the adjective "interorganizational" to avoid ambiguity. Its meaning is ancient and is synonymous with other terms also used: "cooperative norms" (Heide & John, 1992), "relational behaviors" (Lusch & Brown, 1996), "relational norms"

Figure 2. Framework for socioeconomic tie compound.

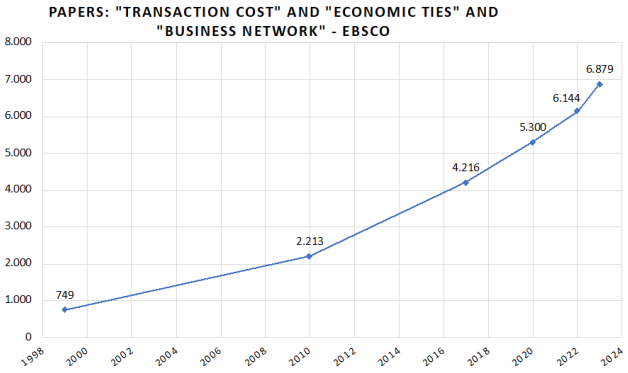


Figure 3. Cumulative amount of articles for the string: "transaction cost" and "economic ties" and "business network" in the EBSCOhost database.

(Tangpong, Hung, & Ro, 2010; Zhang, Cavusgil, & Roath, 2003), "relational norm governance" (Griffith & Myers, 2005), a "history of close collaboration" (Wuyts & Geyskens, 2005), "relational mechanisms" (Liu, Luo, & Liu, 2009), or "relational experience" (Goebel, Marshall, & Locander, 2003; Ryall & Sampson, 2009).

Trust and commitment are related and together enable cooperation between organizations, and when they are present, they produce results that promote efficiency, productivity and effectiveness, fostering cooperative behaviors that lead to success in the relationship (Hunt & Morgan, 1994). In other words, they can be seen as mediating factors for cooperation in networks (Westerlund, Rajala, Nykänen, & Järvensivu, 2009). Trustful relationship, commitment, cooperative behavior, embeddedness, are all principles that fall into the mechanisms (coordination, management, and strategies) through which networks develop (Grandori & Soda, 1995). Therefore, trust, commitment and cooperation are the most appropriated interorganizational relational experiences, and they are the foundation of the networks theory in the perspective of social approaches, the theory of transaction costs and the relational view.

The coordination of activities between two firms creates interdependence, that contributes to making relations between companies special with the characteristics of business networks (Castells, 1999), backing economic ties to emerge between the parties (Inzerilli, 1990). Consequently, additional value, such as raising their productivity, can be created when firms coordinate their exchange activities (Zajac & Olsen, 1993). Companies adjust their exchange activities according to the assumptions of the hostage model and neoclassical contracts (Williamson, 1985). This is a beneficial adjustment for both companies to maintain interdependence as a socioeconomic tie. The socioeconomic ties compound model considers interdependence as an essential factor.

Technological symmetry has been shown to be an important socioeconomic tie, essentially when it comes to electronic communication (Ahluwalia et al., 2020). Firms with symmetrical technologies are likely to have more intensive cooperation (Zanfei, 1994). Symmetric structure in business relationships are capable to enhance the consistency of a business network and consequently reducing transaction cost

(Rahman et al., 2023). This was predicted by Williamson (1981), when he stated that the nature of symmetric technology reduces transaction costs.

Long-term relationship reduces transaction costs (Buvik & John, 2000). Elapsed time is a primary enabler of relationship development, reducing opportunism, which in turn reduces transaction costs (Hakansson, 1982). Wilding and Humphries (2006) focus their work on the dynamics of long-term, collaborative dyadic relationships with a large sample of long-term, collaborative supply chain business dyads. Those ties have been increasing lately, and research provides a theoretical model that reveals the important part played by cooperation, coordination, and collaboration (C^3 behavior) in reducing the negative effects of close proximity, consequently improving business effectiveness. Long-term relationships are more familiar and comfortable, and motivate the collaborative attitude of partners, consequently leading to reduced transaction costs (Anderson & Weitz, 1989).

The frequency of repetitive and systematic economic transactions is an effective indicator of an intercompany tie. Thus, high frequencies contribute to the development of relationships and enables the preservation of strong ties between organizations. Transaction frequency negatively affects transaction costs, i.e., higher frequency leads to lower transaction costs (Li & Fang, 2022). Transaction cost economics concepts and social network theory (aspects as size, density, and transaction frequency) are moderators of relationships, influencing business processes and systems and social construction (Petrescu, 2012). Frequency is one of the critical transaction factors that affect transaction costs variation (Bachev, 2005).

Finality means the reason for being, the intention or motivation for the realization or existence of something, being synonymous with objective, purpose. In general terms, finality in the case of this paper can be of several types: to increase competitiveness, reduce transaction costs, enjoy the benefits of trust and/or commitment and/or cooperation, generate value for the organization, create advantage sustainable competitiveness, build a long-lasting network, facilitate access to resources, new markets, technologies and supplies, expand economic benefits, allow joint ventures creation, strategic alliances, etc.

3.2. Demonstration that the compound model of socioeconomic ties has the potential to increase the company's competitiveness

Finally, it remains to be proven that the socioeconomic ties that have the characteristics proposed by the compound of ties model (Table 1) have the potential to increase the company's competitiveness.

As determining factors of business competitiveness are the central theme of the fields and weapons of competition model applied to business network — CAC-Redes (Contador et al., 2023), it will be adopted as a theoretical reference. Therefore, for the aforementioned proof, we need to resort to research studies that adopted CAC-Redes as a theoretical reference.

Contador et al. (2023) proved that socioeconomic ties that have the characteristics proposed by the compound of ties model have the potential to increase the company's competitiveness. In six empirical and quantitative surveys in six different business networks, each network containing several companies, it was found that there is a strong statistical correlation between the intensity of socioeconomic ties and the degree of companies' competitiveness, exactly as taught by the CAC-Redes. This conclusion is possible because the socioeconomic tie construct of the CAC-Redes has the compound characteristics.

Next, we will report how we concluded that it was proven that socioeconomic ties that have the characteristics proposed by the compound of ties model have the potential to increase the company's competitiveness.

To this end, it is necessary to present the central idea and some of the qualitative and quantitative constructs of CAC-Redes, namely: fields of competition, coadjuvant fields, ties of competition, focus of ties in the competition and coadjuvant fields, average intensity of ties and finally the thesis.

CAC-Redes is an artifact — looking through it, it is possible to clearly visualize the organization's competitive behavior, to explore, diagnose, analyze the competitive phenomenon, to create hypotheses and formulate strategies (Contador, 2008).

CAC-Redes is both an analog and symbolic model. The analogies: fields of competition and coadjuvant fields represent the business strategy; and weapons and ties of competition represent operational and re-

lational strategies. Symbolic (quantitative) variables: focus of weapons and ties quantify the alignment of weapons and ties to the competition and coadjuvant fields; and average intensity of weapons and ties quantify the total business competence (Contador et al., 2023).

Field of competition is the imaginary *locus* of dispute, in a market, between products or between companies for customer preference, in which a company seeks to achieve and maintain competitive advantage. Each field of competition represents an attribute of the product or company that is recognizable and valued by the customer (Contador, 2008, p. 18). The field of competition chosen by the company aims to provide it with a strong presence in a market (Grahovac & Miller, 2009; McIntyre & Srinivasan, 2017), to be able to compete for customers with competitors (Grimaldi, Greco, & Cricelli, 2021).

The field of competition configuration represents the 14 fields aggregated into five macrofields (Contador, 2008, p. 57):

1. competition in price in: 1. price itself, 2. payment terms, 3. prize and/or promotion;
2. competition in product (good or service) in: 4. product design, 5. product quality, 6. products diversity;
4. competition in customer attendance in: 7. access to customer attendance, 8. customer attendance design, 9. quality of attendance;
6. competition in time in: 10. product delivery time, 11. attendance deadline;
8. competition in image in: 12. product and brand image, 13. reliable company image, 14. socio-environmental responsibility image.

Coadjuvant field, another construct, is a secondary field. The field of competition defines where the company intends to create or maintain a competitive advantage; the coadjuvant field (classified in the same 14 fields mentioned) complements and modulates its business strategy (Contador, 2008, p. 62).

Generally, a combination of one or two fields of competition with one or two coadjuvant fields, chosen from the 14 fields of competition, represents the company's competitive business strategy.

A *weapon* is any activity performed or resource managed by a group of employees with homogeneous assignments (examples: production process automation, material system, competitor analysis, advertising). A *weapon of competition* is a weapon capable of conquering and/or maintaining a competitive advantage (Contador, 2008).

A *tie* is any connection between network components (people and/or organizations). A *tie of competition* is any tie used by company to gain and/or maintain competitive advantage (Contador et al., 2023).

Companies in same sector have the same set of weapon of competition and ties of competition. Weapons and ties are business competences, which is why they are treated qualitatively and quantitatively.

The *relevance* to obtain a competitive advantage is another central construct of CAC and CAC-Redes. From the sector's weapons and tie of competition, the company selects the ones it will use to compete in a particular field (competition or coadjuvant). These weapons and ties, called *relevant*, are those that provide a competitive advantage to the company in that field, as proved by Contador (2008, p. 139-144) and Contador et al. (2023). The weapons and ties of competition are classified according to their relevance in: relevant, semi-relevant and irrelevant for each field of competition.

The *focus of weapons and ties in the competition and coadjuvant fields*, or simply focus of the weapons and ties, quantify and expresses the thesis. The focus metric measures:

- the degree of alignment of weapons and ties to the competition and coadjuvant fields chosen by the company;
- the degree of alignment of operational and relational strategies with business strategy;
- the intensity of *weapons and ties relevant to the fields*.

This metric is calculated by the quotient between the intensity sum of weapons and ties relevant to these fields and the sum of the maximum intensity possible to be obtained, with a domain in the range between [0 and 1] (Contador et al., 2023).

The *average intensity of weapons and ties* (AIW/T), the arithmetic mean of the intensity of all the company's weapons and ties of competition, represents the totality of business competences (Contador et al., 2023).

The *degree of company competitiveness* (DCC) metric measures the competitive advantage (competitive performance) through the absolute or percentage variation, in a time period, of its market share,

with a guaranteed, satisfactory profitability (Contador, 2008, p. 113). Similarly, despite the multiple ways to assess organizational performance, Brito and Brito (2012) developed a metric combining profitability and growth in market share which was more complete than previous proposals.

Having presented the concepts and definitions of the main constructs of CAC-Redes, the reader will be able to understand the central idea of this model. Contador (2008) called this idea a thesis with the visible intention of making clear the need for it to be validated, as in fact it was.

If a model purpose is to explain a phenomenon, it must contain a conjecture or hypothesis that provides an initial explanation (Alves, 2004, p. 91). The thesis on which CAC-Redes was built, its fundamental conjecture, is: *For the company that operates in a business network to be competitive, there is no more relevant condition than having high performance only in those few weapons and only in those few ties that give it competitive advantage in the competition and coadjuvant fields chosen for each product/market pair.*

This thesis means that:

- from the many weapons and ties of competition used by the company, only a few (the relevant ones, about ten to 14) are a source of competitive advantage;
- *relevant weapons and ties* are those aligned with the competition and coadjuvant fields chosen by the company to compete.

To validate the thesis and consequently CAC-Redes itself, the quantitative variables AIW/T and DCC were created.

The *focus of the weapons and ties* quantifies and expresses the thesis. This is because it represents exactly the most "relevant condition", as expressed in the clause: *"[...] than having high performance only in those few weapons and only in those few ties that give it competitive advantage in the competition and coadjuvant fields [...]".*

The results of the six research studies contained in Table IV of Contador et al. (2023) show that there is a strong correlation between focus and DCC, and that the correlation coefficients between AIW/T and DCC are always lower than those between focus and DCC.

These results, combined with the results of 19 empirical research involving 238 companies from various industrial and service sectors (Contador, 2008, p. 128-144; p. 151), are indications of the validity of the CAC-Redes' thesis. They also confirm that focus is the metric that best explains the competitiveness of companies (Contador et al., 2023).

A striking aspect of validating the CAC-Redes thesis is showing that, of the many weapons and interorganizational ties used by company, only a few are sources of competitive advantage, that is, they make the company competitive with only a few weapons and ties. This is important because the company does not need to improve many operational and relational capabilities (measured by AIW/T), but only invest in those aligned with the fields of competition and coadjuvant chosen by the company to compete, called relevant and measured by focus. It is a significant CAC-Redes advantage.

Another advantage of the CAC-Redes validity is proving that socioeconomic interorganizational ties are business competencies, which can be treated qualitatively and quantitatively, like any weapon of competition (Contador et al., 2023).

This conclusion provides the theoretical foundation for the demonstration that the compound model of socioeconomic ties has the potential to increase the company's competitiveness, which is the current topic.

Table 2 shows that, in the six empirical studies, the value of the average of Pearson's correlation coefficient between the metrics focus or AIT and the DCC of companies is 0.86 or 0.65 respectively.

These results are exactly what establishes the CAC-Redes thesis: there is a strong correlation between focus and DCC, and the correlation coefficients between AIT and DCC are always lower than those between focus and DCC.

In this way, it is demonstrated that the compound model of socioeconomic ties has the potential to increase the company's competitiveness.

FINAL CONSIDERATIONS

Objectives accomplished and main contribution

Having identified an important gap in the dyadic relationship, that is, the lack of a set of elements that the interorganizational tie should have, this theoretical essay proposed the compound of ties between companies that operate in a business network, developing the idea from the three theoretical foundations: transaction cost, business network and relational view.

Table 2. Results of six empirical studies.

Researches	Pearson's correlation coefficient between the metrics focus or AIT and the degree of competitiveness of companies			
	Focus		AIT	
	r	α	r	α
ABC Paulista pharmacies and drugstores network (Araujo, 2017)	0.88	0.004	0.55	0.160
Brazilian network of accounting offices (Mitidiero, 2018)	0.85	0.000	0.33	0.128
Bananiculture network of Vale do Ribeira (Costa, 2018)	0.98	0.000	0.91	0.000
Business network of the Brazilian automation and robotics industry (Fragomeni, 2020)	0.81	0.000	0.56	0.016
Network of multiple Brazilian banks (Scura, 2021)	0.82	0.002	0.68	0.005
São Roque winegrower cluster (Gonçalves, Contador, Contador, Satyro, & Florêncio, 2021)	0.97	0.000	0.88	0.004
Average	**0.86**		**0.65**	

Subtitle

'Focus' means *focus of ties in the competition and coadjuvant fields chosen by the company*.

'AIT' means *average intensity of all company's ties of competition*.

'DCC' means *degree of company competitiveness*.

r= Pearson's correlation coefficient between the metrics focus and AIT, and the degree of competitiveness of companies.

α = Pearson's correlation coefficient significance.

This has allowed the following objective to be achieved: to present the compound of socioeconomic ties between companies that operate in a business network, whose finality is to increase the company's competitiveness.

This is the main contribution of this essay.

Singularities

The compound model of socioeconomic ties between companies that operate in a business network was built from the effort to combine and harmoniously integrate three theoretical foundations — business networks theory, transaction cost theory and relational view. This conjugation/integration is its singularity.

Applications

For scholars of organizational networks, the compound makes it possible to understand the six components that characterize the essence of the socioeconomic tie, an essence that guides and facilitates the development of research on business networks, whether from a competitive or a cooperative point of view.

For organizational managers, the compound enables an understanding of essential points of relationships, instrumentalizing them to establish objective and effective interorganizational relationships with any type of company, whether a competitor or a partner with which it cooperates.

Implications and contributions to theory and practice

There is evidence that the compound model of interorganizational socioeconomic ties is original, as no other equal was found in the literature, especially because it has the potential to increase the company's competitiveness. As Table 2 shows, in the six empirical studies, the value of the average Pearson's correlation coefficient between the metrics focus of ties in the competition and coadjuvant fields chosen by the company and the DCC is 0.86.

Thus, it expands knowledge of the administration science and managerial practice, benefiting academic researchers, senior managers, and consultants, even allowing the future development of metrics.

Limitations

The compound only applies to business networks that have economic purposes, as two of its three theoretical foundations have this purpose: transaction cost theory and relational view.

Recommendation for future studies

It is suggested that studies be carried out to confirm the assumptions of the model presented, to establish metrics for its six components and also to differentiate between the ties of the normal relationships between companies based on the integration of the three theoretical foundations used.

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