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The influence of cooperation network in suppoting small business in registering brands: insights from public and private institutions

A influência das redes de cooperação no apoio aos pequenos negócios no registro de marcas: perspectivas de instituições públicas e privadas

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HIGHLIGHTS

- Redes de cooperação facilitam o registro de marcas, ampliando o acesso de pequenas empresas à orientação qualificada e ao direito de uso exclusivo em todo o território nacional.
- Parcerias entre instituições públicas e privadas aumentam a competitividade e impulsionam o crescimento dos pequenos negócios brasileiros ao apoiar o registro de marcas.
- O modelo validado no estudo destaca a importância da confiança e colaboração entre atores da rede para o sucesso na proteção das marcas.
- O registro de marca evita o uso de sinais semelhantes por concorrentes, garantindo segurança jurídica e proteção legal para pequenas empresas.
- A colaboração institucional fortalece pequenos negócios, promovendo expansão de mercado e ressaltando o valor das redes para a sustentabilidade empresarial.

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KEYORDS

Cooperation Network

Model

Small Business

Structural equation model

Multigroup Analysis

ABSTRACT

Objective: This research aims to develop a conceptual model of cooperation networks to support small businesses in registering their trademarks.

Design/Method/Approach: To achieve this, a model involving public and private institutions that support small businesses was validated. Data were collected through a structured questionnaire applied to 176 managers from these institutions. The analysis was carried out using structural equation modeling and multi-group analysis.

Originality/Relevance: This study adds to the understanding of how cooperation networks, comprising public and private organizations, can effectively facilitate the trademark registration process for small businesses.

Key Results/Findings: The results confirmed the effectiveness of the cooperation network model, demonstrating its success as a strategy for small businesses to obtain guidance for trademark registration, increase market access, and secure exclusive brand rights nationwide. Trademark registration was shown to provide legal protection by preventing competitors from using confusingly similar marks.

Theoretical and Methodological Implications: The findings highlight that cooperation networks substantially enhance the growth, competitiveness, and legal security of small businesses by making trademark registration more accessible and effective.

Contributions to Society and Organizations: Cooperation networks play an essential role in empowering small businesses. They contribute to market expansion, greater legal protection, and reinforce the value of collaboration among companies.

PALAVRAS-CHAVE

Rede de Cooperação

Modelo

Pequena Empresa

Modelo de Equações Estruturais

Análise Multigrupo

RESUMO

Objetivo: Desenvolver um modelo conceitual de redes de cooperação para apoiar pequenas empresas no registro de suas marcas.

Design/Método/Abordagem: Para isso, foi validado um modelo envolvendo instituições públicas e privadas que apoiam pequenas empresas. A pesquisa foi realizada por meio de um questionário estruturado aplicado a 176 gestores dessas instituições, com os dados analisados por meio de modelagem de equações estruturais e análise multigrupo.

Originalidade/Relevância: O estudo contribui para o entendimento de como redes de cooperação, compostas por organizações públicas e privadas, podem facilitar de forma eficaz o processo de registro de marcas para pequenas empresas.

Principais Resultados/Descobertas: Os resultados confirmaram a eficácia do modelo de rede de cooperação, demonstrando seu sucesso como estratégia para pequenas empresas obterem orientação no registro de marcas, ampliar o acesso ao mercado e garantir direitos exclusivos de suas marcas nacionalmente. O registro protege as empresas legalmente, evitando o uso indevido de sinais similares por concorrentes.

Implicações Teóricas e Metodológicas: O estudo evidencia que as redes de cooperação potencializam crescimento, competitividade e segurança jurídica das pequenas empresas ao facilitar o registro de marcas.

Contribuições para a Sociedade e Organizações: As redes de cooperação desempenham papel essencial no fortalecimento das pequenas empresas, contribuindo para sua expansão no mercado, proteção legal e ressaltando o valor da colaboração entre empresas.

1. Introduction

Brands have been studied extensively for a considerable amount of time, and numerous studies have portrayed their importance for society and organizations (Aaker, 1986; Keller & Lehmann, 2006; Oliveira & Luce, 2011; Pereira et al., 2021). For companies, the authors reported that brands represent an intangible asset that can be bought and sold, make companies more competitive, and improve financial performance.

In the planning process of opening a company, many factors are analyzed, such as the source of resources, market analysis, study of customers, competitors and suppliers, marketing plan, a survey of the main products and services, business location, and financial planning, among others (Sebrae, 2021). Nonetheless, trademark registration is not mandatory when opening a company, and many entrepreneurs, especially small business owners, delay this activity for the future and end up not doing so. Various studies in the literature have reported that small businesses register their trademarks less than their larger counterparts (Iversen, 2013; Singh, 2018; Crass, 2020).

While previous studies (Iversen, 2013; Singh, 2018; Crass, 2020) highlight the challenges small businesses face in registering their trademarks and the low engagement with the trademark system, this research addresses a critical gap by proposing and empirically validating a cooperation network model that leverages public and private institutions to directly support these businesses in overcoming such barriers.

Hence, it is important to adopt strategies that foster trademark registration by small businesses to be more competitive, have better financial performance, and protect their intangible assets. One of these strategies is creating a cooperation network with public and private institutions that support small business development to promote the registration of trademarks by these companies (Teh et al., 2008).

A Cooperation Network (CN) can be defined as a "collection of actors or nodes, with present or absent relationships between those nodes" (Pprovan & Kenis, 2008, p. 8). The greater the trust and reciprocity among the actors in a network, the greater its ability to achieve its goals (Milward & Provan, 2006). A CN is built from some essential factors that contribute to its formation and performance, which are Trust (Milward & Provan, 2006; Landspeger & Spieth, 2011; Ysa et al., 2014), Collaboration (Molina-Morales & Martínez-Fernández, 2003; Chen, 2008), and Knowledge (Verschoore & Balestrin, 2008; Choi & Ko, 2012; Ouro Filho, Olave & Barreto, 2019).

Given this context, the question that guides this study is: "Does a cooperation network made up of public and private institutions, which develop actions for small businesses, promote the registration of their trademarks?" In order to discuss this question, this study sought to validate a model of a cooperation network set up with public and private institutions to support small businesses in registering their trademarks. This theme is justified by favoring the growth of small businesses with the registration of their trademarks to protect them from unfair competition and make them more competitive in the market due to the registration of their trademarks.

2. Conceptual framework and hypotheses development

For companies, a trademark is an intangible asset and relevant due to the financial aspect. Regarding the registration of a trademark, the company has the right to the exclusive use of the brand throughout the national territory and can protect itself from unfair competition by preventing competitors from using the same or similar signs that may confuse consumers. Small companies, in particular, have difficulty registering their trademarks. Data from the Brazilian Ministry of Economy showed that micro and small businesses are essential to the Brazilian economy as they represent 99% of Brazilian businesses (Brasil, 2020); they also account for 30% of everything produced in the country and are responsible for 55% of jobs generated. Therefore, creating a cooperation network to support small businesses registering their trademarks directly contributes to the companies. Added to this scenario, to better understand and deepen the theme of the challenges faced by small businesses that distance them from the trademark system, empirical research was conducted with small businesses in Sergipe State (northeastern Brazil) that have not registered their trademarks.

2.1 Trust

"Trust is the willingness to accept vulnerability based on positive expectations about another person's intentions or behavior" (McEvily et al., 2003, p. 92); this positive assumption about other parties' motives and intentions contributes to people saving time in information processing and protective behavior.

Networks are a collection of actors or nodes with relationships present or absent between those nodes. The study examines the governance of organizational networks and the impact of governance on network effectiveness, distinguishing between three primary forms of network governance: shared governance (network participants), governance by a leading network organization, and governance by an administrative network organization (external) (Provan & Kenis, 2008). Successfully adopting a particular form of governance is based on four structural and relational factors: trust (Tru), size (number of participants), goal consensus, and the nature of the task (need for network-level competencies). Governance in the network must be consistent with the general level of trust density that occurs in the network as a whole. Thus, shared governance is more likely to be effective when trust is pervasive throughout the network (Provan & Kenis, 2008).

"The currency of a network is the trust and reciprocity that exists between its members" (Milward & Provan, 2006, p. 10), so the greater the trust and reciprocity between members of a network, the greater the network's ability to achieve its goals.

In their survey of 103 German companies in the mechanical engineering sector, Milward and Provan (2006) investigated whether balanced network management improves network retention and facilitates partner selection, resource allocation and regulation, and network evaluation. One of the research constructs was social interaction, which involves two aspects: harmony and trust that influence the behavioral culture in which network relationships operate. Trust is expressed by reliability, honesty, and the conviction that one partner does not try to take advantage of another. One of the research results confirmed the hypothesis: the higher the level of trust and harmony (level of social interaction), the higher the network retention (Landsperger & Spieth, 2011).

In a study on 119 urban renewal networks in Catalonia (Spain), the authors tested a general model to explain network performance (Ysa et al., 2014). Their results showed that network management strategies strongly affect perceived outcomes and that management strategies increase the level of trust; the results also show that trust is a necessary construct.

A study of 25 Public-Private Partnership (PPP) projects in the Netherlands and Belgium aimed to investigate how contractual and relational conditions play an essential role in successful PPP projects (Warsen et al., 2019). The results present three conditions that match with high-performing projects, and in one path, a mix of trust and risk assignment was presented. Therefore,

H1: Trust has a positive effect on Collaboration.

Trust, as highlighted by Provan and Kenis (2008), is essential in building reciprocal relationships within networks. Higher levels of trust facilitate smoother exchanges of resources and foster a culture of shared goals, which is expected to positively impact collaboration.

2.2 Collaboration

A survey of 350 Spanish companies in Valencia industrial districts sought to compare members and non-members of industrial districts in terms of value creation capacity (Molina-Morales & Martínez-Fernández, 2003). The authors proposed a set of explanatory factors: common reputation, the intensity of exchange and combination of resources, and participation of local institutions. For the authors, social interactions between actors who are part of networks dissolve the boundaries and stimulate the formation of common interests. In addition, the authors stated that trust could be considered an antecedent of cooperation because when two partners begin to trust each other, they are more likely to share

resources without being concerned with being taken advantage of by the other.

In an organization with resistance to network tie changes or difficulties that an organization faces when trying to dissolve old relationships and form new network ties, the constraints concerning network change and propose a multi-level conceptual model stand out relating the main sources of network inertia to network tie changes. The cognitive dimension involves the dimension of cultural values and goals that are shared by partners with interorganizational ties and that successful collaboration often requires cognitive integration of employees of participating organizations (Kim et al., 2006)

Chen (2008) analyzed 26 social service agencies in the Los Angeles county (USA) Family Preservation Program, which entered into 139 partnerships to provide up to eleven different family preservation services. The author aimed to evaluate collaborative processes in publicly funded interorganizational social service delivery networks. For the author, interorganizational network collaboration is an ongoing, interactive process among partners that involves negotiation, development, and evaluation of commitments and their implementation. Among the results presented, emphasizing exchanging complementary resources and building interorganizational trust were emphasized to achieve better collaboration outcomes. These two processes are considered critical to the functioning of interorganizational networks, and efforts to improve resource sharing and trust building produce additional benefits in achieving the goal of collaboration: better quality of working relationships, improved organizational learning, more opportunities for future collaborations, and more equitable influences on partnerships. Therefore,

H2: Collaboration has a positive effect on the Cooperation Network.

Collaboration integrates shared resources and common objectives, as supported by Chen (2008). The ability to collectively address challenges and exchange complementary resources enhances the effectiveness of a cooperation network, strengthening its overall structure and outcomes.

2.3 Cooperation network

Cooperation aims to explore the challenges of managing newly emerging business fields using a network perspective. Three phases of emerging new business fields are suggested to characterize the environment. The phase of exploring opportunities for future business is characterized by the exploration and sensemaking of embryonic business ideas. The mobilization for applications phase concerns the actors competing and collaborating to build dominant product designs and applications. In this phase, the formation of collaborative business networks is included. The coordination for dissemination phase covers the actors who compete and collaborate in extending production networks, efficient logistics, and marketing to create markets (Möller & Svahn, 2009).

The structuring in the formation of a Business Cooperation Network (BCN) brings positive impacts for the companies that make up the network, making them more competitive and flexible in the face of market difficulties. The structuring of a BCN acts with the endogenous aspects of the members and with the market factors intrinsic to the political and social reality that directly impact the BCN's success. The members must make the proper articulations to operationalize adequately; the constructs of a BCN are confidence, motivation, and technology (Tálamo & Carvalho, 2010).

Amaral (2014) surveyed 97 actors from public institutions and companies representing the tourism sector to analyze the role of cooperation between social actors from the public, private, and associative sectors in the tourism development of a sub-region of the Alentejo region in Portugal. In the analysis of the results, the importance of cooperation between the actors for the tourist development of the Baixo Alentejo became clear. Creating a cooperation network was considered an important way to increase the competitive capacity and the sharing of resources among tourism organizations.

In another study, four BCNs of the real estate, pharmacy, clothing industry, and construction material segments were mapped in Goiás State (central Brazil) (Fragoso, 2015). The research results presented the gains obtained at the studied BCNs: greater market power, collective learning, cost reduction, accumulation of social capital, and collaborative innovation. Regarding the trust factor of the analyzed BCNs, the author highlighted the existing trust of the associates in the presidents in office.

Lastly and Higuchi (2017) sought the role of trust in coordinated and collaborative arrangements such as networks and the impacts on interpersonal and interorganizational relationships. The analyses showed that trust could be perceived as faith or a probability of behavior and greatly influences cost reduction, increased information flow, and knowledge sharing. The author highlights that it is possible to measure trust within and between organizations using the organizational trust inventory developed by Cummings and Bromiley (1996). Therefore,

H2: Collaboration has a positive effect on the Cooperation Network.

Collaboration integrates shared resources and common objectives, as supported by Chen (2008). The ability to collectively address challenges and exchange complementary resources enhances the effectiveness of a cooperation network, strengthening its overall structure and outcomes.

2.4 Knowledge

In the studies analyzed on cooperation networks, the knowledge construct appears as one of the essential factors for a good performance of a cooperation network. The term knowledge was used in this study instead of the term learning because knowledge is the most used in organizations (Bontis, 2002); this is because it is the act of allowing understanding through reason or experience.

Inter-organizational learning is "a distinct form of learning because the organization learns from the experience of others rather than from its own experiences" (Greve, 2005, p. 1026). It can be a form of learning, which occurs through the cooperative relationships between different agents, enhancing and increasing the knowledge bases of each involved, adding the potential for creating competitive advantage individually and to a given interorganizational configuration (Leydesdorff & Meyer, 2006).

In one survey involving 443 companies participating in 120 cooperation networks in Rio Grande do Sul State (southern Brazil) (Verschoore & Balestrin, 2008), the results revealed five network management attributes: social mechanisms, contractual aspects, motivation and commitment, integration with flexibility, and strategic organization; and five benefits: gains in scale and market power, provision of solutions, learning and innovation, cost and risk reduction, and social relationships. The increase in collaborative partnerships increases performance, and this relationship is conditioned by the partners' ability to provide resources from their network of contacts with other actors. The results of this study show that trust, collaboration, and knowledge (small business and trademark registrations) imply the formation of cooperative networks, expressively affecting the performance of organizations. Therefore,

H3: Collaboration has a positive effect on Knowledge: Small Business;

Collaboration promotes interorganizational learning by leveraging collective expertise, as emphasized by Verschoore and Balestrin (2008). Through collaboration, small businesses can access diverse knowledge bases, enhancing their capacity to address trademark-related challenges effectively.

H4: Knowledge: Small Business has a positive effect on the Cooperation Network;

Knowledge about small businesses, derived from shared experiences and interactions within networks, enhances network performance (Greve, 2005). A well-informed network is better equipped to provide targeted support, which strengthens the cooperation network.

H5: Knowledge: Trademark Registrations has a positive effect on the Cooperation Network.

Knowledge specific to trademark registration empowers the network to deliver precise and actionable guidance, as suggested by Choi and Ko (2012). This specialized knowledge fosters trust and enhances the operational efficiency of the cooperation network.

Two more mediation hypotheses and a comparative hypothesis were suggested to evaluate the previous hypotheses between public and private institutions by multigroup analysis (MGA):

H6a: Collaboration influences the relationship between Trust and Cooperation Network;

Collaboration mediates the relationship between Trust and Cooperation Network. Review: Trust serves as the foundation for collaboration, which in turn strengthens the cooperation network. As shown by Provan and Kenis (2008), collaboration acts as a bridge that translates trust into actionable network outcomes.

H6b: Collaboration influences the relationship between Trust and Knowledge: Small Businesses;

Trust enhances collaborative efforts, which facilitate the transfer and creation of knowledge. This mediating role of collaboration ensures that trust is effectively translated into tangible knowledge outcomes for small businesses.

H7a-f: There is a difference between public and private institutions in research relationships.

Variations in organizational priorities and resource availability between public and private institutions may lead to differing dynamics within the cooperation network. These differences are expected to influence the strength and nature of the proposed relationships.

3. Method

3.1 Techinique

This is a quantitative study conducted through the survey method answered by managers of 124 public and 52 private institutions that develop actions for small businesses and with representation in 26 federative units of Brazil. For data collection, a questionnaire with a five-point Likert scale was used, which was validated by the Research Ethics Committee of the Universidade Federal de Sergipe (certificate no. 52615521.1.0000.5546).

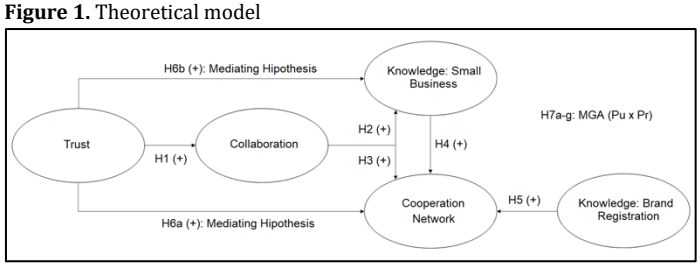
While the quantitative survey method and structural equation modeling are well-suited for evaluating hypothetical relationships and validating conceptual models, it is important to acknowledge potential limitations. These include the possibility of response bias among participants and challenges in generalizing findings beyond the context of the surveyed institutions (Muthén & Satorra, 1995; Blanco-Encomienda & Rosillo-Díaz, 2021).). These limitations were mitigated through rigorous questionnaire design and the use of robust statistical analysis techniques.

3.2 Instruments

The Trust (Milward & Provan, 2006; Landsperger & Spieth, 2011; Ysa et al., 2014), Collaboration (Molina-Morales & Martínez-Fernaández, 2003; Chen, 2008), and Knowledge (Brand and Small Business Registration) dimensions (Verschoore & Balestrin, 2008; Choi &Ko, 2012; Kim et al., 2006) are essential for the formation and performance of a Cooperation Network to support small businesses in registering their trademarks (Thalamo, 2008; Amaral, 2014; Higuchi, 2017).

The conceptual model in figure 1 suggests that Trust fosters Collaboration, which lead to Cooperation Network. In addition, we suggest that the impact of Trust on Cooperation Network and Knowledge: Small Bussiness is moderated by Collaboration. Suggests that Knowledge: Brand Registration and Knowledge: Small Business fosters Cooperation Network. To make the model more complex, the hypotheses between Public (Pu) and Private (Pr) institutions were compared.

Figure 1. Theoretical model



Source: Prepared by the authors.

3.3 Statistical analisys of data

Partial least squares structural equation modeling (PLS-SEM) was applied using the SmartPLS® software (version 4.0.8.5) using the following steps: structural model specification, measurement model evaluation, structural model evaluation, and MGA (Ringle et al., 2015; Hair et al., 2017).

4. Results

4.1 Consistency of the instrument and model fitness

The path model was fitted for 300 iterations; the bootstrapping technique was used for 5000 subsamples, and the predictive relevance criterion of the model was determined by the blindfolding technique. The model stabilized after 8 iterations, and the model fit was determined by standardized root mean square residuals (SRMR), squared Euclidean distance (SED) and geodesic distance (dG), and the normed fit index (NFI). The results confirmed that the suggested structural model fit the data with acceptable indices (e.g., SRMR = .072, DES = 3.216, dG = 1.016, NFI = .809). The SRMR value was less than .08, and the NFI value was above .8, indicating a satisfactory and adequate structural model (Henseler, Ringle & Sarstedt, 2015).

4.2 Demographic and social characteristics

Table 1 lists the characteristics of the interviewees regarding sex, education, the type of institution to which they are linked, time in the institution, position in the institution, and their geographical location. We found that 55% of the interviewees are male, 45% are female, and 73% have a college degree. As for the type of institution, 70% of the interviewees are linked to a public institution and 30% are linked to a private institution; 43% of the interviewees have worked for over ten years in the institutions surveyed. As for the geographical location, 36% are located in northeastern Brazil, 28% are in the north, 13% are in the south and southeast, and 10% are in the central west.

Table 1. Demographic and social characteristics (n = 176)

Demographic and social profile	n	%
Genre		
Female	97	55.11
Male	79	44.89
Education		
Technician	23	13.07
Graduate	128	72.72
Master	18	10.23
Doctor	7	3.98
Type of institution		
Public	123	69.89
Private	53	30.11
Time in the institution (47onve)		
Up to 1	18	10.23
1 to 5	48	27.27
5 to 10	35	19.89
More that 10	76	43.18
Brazilian region		
South	23	13.07
Southeast	23	13.07
North East	18	10.23
Midwest	63	35.79
North	49	27.84

Source: Prepared by the authors.

4.3 Evaluation of measurement model

The evaluation of internal consistency and 48onvergente validity followed the guidelines of Hair et al. (2017). All indicators presented good 48onve loading (> 0.5) with their respective dimensions as well as external collinearity, which was evaluated by the variance inflation 48onve (VIF) and obtained values below 5 (Joseph et al., 2010). The reliability of the dimensions was analyzed by Cronbach's alpha (CA) and composite reliability (CR), whose values ranged from 0.801 ≤ ≤ 0.915 (Table 2) (Hair et al., 2019). As for 48onvergente validity, the average variance extracted (AVE) revealed that all dimensions explain over 0.5 of the dimension indicators (Table 2) (Santos & Cirillo, 2021).

Table 2. Factorial Load, External Collinearity, Reliability and Average Variance Extracted

Dimensions Indicators	Loading	VIF	CA	CR	AVE
Trust (Tru)			0.768	0.854	0.546
Tru_01	0.783	20.304			
Tru_02	0.768	20.121			
Tru_03	0.537	10.873			
Tru_04	0.780	10.211			
Tru_05	0.875	10.242			
Collaboration (Col)			0.861	0.897	0.595
Col_01	0.764	10.768			
Col_02	0.758	10.784			
Col_03	0.590	10.450			
Col_04	0.797	20.046			
Col_05	0.864	20.984			
Col_06	0.826	20.618			
Knowledge Brad Registratio (KBR)			0.805	0.871	0.634
KBR_01	0.751	10.486			
KBR_02	0.603	10.349			
KBR_03	0.902	20.112			
KBR_04	0.892	20.873			
Small Business (KSB)			0.801	0.859	0.558
KSB_01	0.800	10.813			
KSB_02	0.836	20.302			
KSB_03	0.791	20.173			
KSB_04	0.576	10.403			
KSB_05	0.773	10.636			
Cooperation Network (CoNe)			0.884	0.915	0.684
CoNe_01	0.815	10.969			
CoNe_02	0.816	20.487			
CoNe_03	0.891	20.383			
CoNe_04	0.846	20.391			
CoNe_05	0.764	10.827			

Source: Prepared by the authors.

The descriptive statistics and Pearson's correlation analysis of the latent variables are presented in Table 3. The dimensions Trust (exogenous), Collaboration (mediator), and Cooperation Network (predictor) presented the highest means ($\bar{x}$=4.6), while brand registration had the lowest mean ($\bar{x}$=4.3) in the knowledge dimension. To establish discriminant validity, all correlations were lower than the square root of the AVE (Fornell & Larcker, 1981). As for the Heterotrait Monotrait Ratio (HTMT) results, we found that the upper bounds for 95% confidence are less than one, so the model showed discriminant validity (Table 3) (Henseler, Hubona & Ray, 2016).

Table 3. Discriminant validity by Fornell-Larcker and HTMT criteria
sd = standard deviation; UL = Upper Limit.

Dimensions	$\bar{x}$ (sd)	$\sqrt{VME}$	Col	CoNe	KBR	KSB	Tru
			Pearson's Correlation Matrix				
Col	4.6 (0.69)	0.771	1.000				
CoNe	4.6 (0.75)	0.827	0.668	1.000			
KBR	4.3 (1.07)	0.769	0.564	0.681	1.000		
KSB	4.5 (0.89)	0.747	0.708	0.528	0.700	1.000	
Tru	4.6 (0.74)	0.739	0.659	0.624	0.552	0.598	1.000
			UL(HTMT)97.5%				
	CoNe		0.865				
	KBR		0.790	0.878			
	KSB		0.904	0.799	0.887		
	Tru		0.900	0.872	0.821	0.870	

Source: Prepared by the authors

4.4 Structutal model assessment

To evaluate the coefficients of explanation, we used structural model analysis using PLS-SEM and bootstrapping techniques (5,000 subsamples) (Hair et al., 2017). To evaluate the predictive relevance of the endogenous variables, we used the blindfolding technique (Table 4) (Stone, 1974; Geisser, 1975). The path coefficients/hypotheses were analyzed by the Student's t-test (Table 5) (Hair et al., 2017).

By analyzing the coefficients of explanation, we observed a statistical significance in the three predictive dimensions highlighting: Cooperation Network with 55.9% intensity, Collaborattion with 57.5%, and Knowledge: Small Business with 50.1% and the predictive relevancies: Q2 = 0.379, Q2 = 0.251, and Q2 = 0.319, respectively.

Table 4. Evaluation of model coefficients

Coefficients	Predictive Dimensions		
	Col	CoNe	KSB
R2	0.575 (p < 0.001)	0.559 (p < 0.001)	0.501 (p < 0.001)
Q2	0.319	0.379	0.251

Source: Prepared by the authors.

These results strongly support the research question by demonstrating that the proposed cooperation network model effectively promotes trust and collaboration, which are key drivers for small businesses to register their trademarks.

Only one non-significant effect that could affect the confirmation of hypothesis H4: KSB CoNe was found (Table 5). As for the relationships, 6 hypotheses were confirmed, that is, between the dimensions Tru Col (β = 0.759; t = 7.160; p < 0.001), Col CoNe (β = 0.515; t = 4.451; p < 0.001), Col KSB (β = 0.0708; t = 9.272; p < 0.001), and KBR CoNe (β = 0.542; t = 5.136; p < 0.001). As for mediation effects, the Collaboration dimension mediates the relationships between Trust and the dimensions Cooperation Network (β = 0.391; t = 3.395; p = 0.001) and Knowledge: Small Business (β = 0.535; t = 4.380; p < 0.001).

Table 5. Relationship analysis through PLS-SEM.

Hipothesis	Direct Exo. → End.	β	T Statistic	p - values	Decision
H1	Tru → Col	0.759	7.160	0.000	Accepted
H2	Col → CoNe	0.515	4.451	0.000	Accepted
H3	Col → KSB	0.708	9.272	0.000	Accepted
H4	KSB → CoNe	-0.216	1.567	0.117	Declined
H5	KBR → CoNe	0.542	5.136	0.000	Accepted
	Indirect Exo. → Med. → End.				Decision
H6a	Tru → Col → CoNe	.391	3.295	0.001	Accepted
H6b	Tru → Col → KSB	0.537	4.380	0.000	Accepted

Exo. = Exogenous; Med. = Mediation; End. = Endogenous
Source: Prepared by the authors.

4.5 Multi-group analysis

The MGA technique was used to understand a possible difference between two groups, public and private managers, in relation to the hypotheses presented. Prior to conducting the MGA, measurement invariance of composite models (MICOM) was tested using the procedures proposed by Henseler, Ringle e Sarstedt (2015) and Nguyen-Phuoc et al. (2021): assessment of configurational invariance, assessment of

compositional invariance, and assessment of the difference between the means and variances between the groups, showing that the invariance of the measures of both groups was established, and the minimum requirement to assess the significant difference between the two groups using MGA was met (Hair et al., 2017). In order to assess the significant difference between the managers, Henseler's MGA (non-parametric method) and the permutation test were used (Table 6).

In the MGA, only one relation showed no significance ($p > 0.05$); in this case, H7b. However, in the permutation test, two hypotheses did not present significant differences: H7b and H7c. Therefore, differences between the betas of public and private managers were proven; consequently, an individual study must be made, showing the coefficients separately by type of manager. Table 6 and Figure 1 present the comparative final path model for the two groups analyzed: public and private managers.

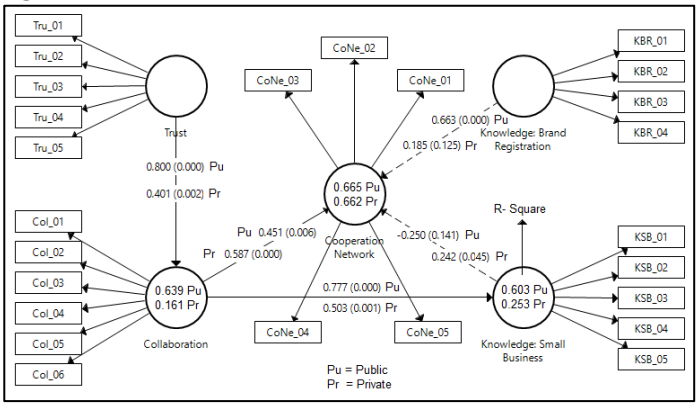
Table 6. Multigroup analysis: Public (Pu) x Private (Pr)

Hip.	Exo. → End.	β	p – values (diferences)		Support
		(Pu – Pr)	Hanseler's MGA	Permutation Test	
H7a	Tru → Col	0.398	0.022	0.087	Yes / Yes
H7b	Col → CoNe	-0.136	0.495	0.633	No / No
H7c	Col → KSB	0.274	0.048	0.122	Yes / No
H7d	KSB → CoNe	-0.491	0.024	0.032	Yes / Yes
H7e	KBR → CoNe	0.477	0.008	0.042	Yes / Yes
	Exo. → Med. → End.				
H7f	Tru → Col → CoNe	0.125	0.477	0.001	No / Yes
H7g	Tru → Col → KSB	0.419	0.012	0.000	Yes / Yes

Source: Prepared by the authors.

By analyzing Figure 2, one can observe that public managers showed the same behavior as the analyses in general; that is, hypothesis H7d was not confirmed, while hypothesis H7e was not confirmed by private managers. These differences align with the research question by highlighting how the distinct dynamics of public and private institutions can either facilitate or hinder the effectiveness of cooperation networks in supporting trademark registration.

Figure 2. Final Structural Model



Source: Prepared by the authors.

5. Discussion

The structural model was evaluated with the identification of collinearity through the VIF, which showed values below five for all dimensions, presenting no problems for the model estimation. In addition, the coefficient of determination R2 was calculated, being the measure of the model's predictive capacity, obtaining a strong result for Collaboration (R2 = 0.639 - public) and moderate (R2 = 0.639 - private), strong for Knowledge: Small Business (R2 = 0.603 - public; R2 = 0.253 - private), and strong for Cooperation Network (R2 =0.665 - public; R2 = 0.662 - private).

In the evaluation of the structural model coefficients, the Student's t-test was calculated for the original sample (n = 176), and the bootstrapping method was used for 5000 subsamples. The model was found to have convergent validity (AVE > 0.5). Finally, the blindfolding method was used to calculate the measure of predictive validity Q2 and, according to the results, the model is relevant since the Q2 values are greater than zero and greater than 0.25 (strong degree).

Given this context and the indicators used, it can be inferred that Trust relates positively to Collaboration, Collaboration relates positively to Cooperation Network, and Knowledge: Small Business and Knowledge: Brand Registration relate positively to Cooperation Network and is rejected for private employees. In contrast, Knowledge: Small Business does not relate to Cooperation Network (rejected hypothesis) and is confirmed only for private employees.

The model has five dimensions: Trust, Collaboration, Knowledge: Small Business and Brand Registration, and Cooperation Network, and a total of twenty-five indicators. In the analysis of the averages of the dimensions: Trust with 4.6 (0.74), Collaboration with 4.6 (0.69), Knowledge: Small Business with 4.5 (0.89), Knowledge: Brand Registration with 4.3 (1.07), and Cooperation Network with 4.6 (0.75), all are classified in high intensity, indicating that most respondents selected as the scale intensity "totally agree" in the questions of each of the dimensions analyzed.

Notably, 85.8% of respondents consider Trust in the actors a necessary factor in a cooperation network, corroborating other studies (Landsperger & Spieth, 2011; Milward & Provan, 2006; Provan & Kenis, 2008), in which the results indicated that Trust among the actors is an essential factor in a Cooperation Network. Additionally, Holm, Eriksson, & Johanson (1996) and Johanson & Johanson (2021), emphasize that business network connections indirectly impact cooperation in international business relationships, enhancing the profitability of these relationships. This perspective underscores the importance of dynamic alignment and synchronization within evolving networks, which can be extended to support international collaboration efforts.

This finding underscores the broader applicability of cooperation networks, particularly in fostering sustainable and profitable partnerships. In the Collaboration dimension, 80.1% of the respondents consider that collaboration between the actors of a network is a necessary factor for generating knowledge; in this same line, the results reported by Planko et al. (2017), Möller & Svahn (2009), and Chen (2008) point Collaboration as an essential factor.

This study used structural equation modeling and used the steps proposed by Hair et al. (2017) to perform the data analysis; given all the information raised and analyzed, the cooperation network model proposed to support small businesses in registering their trademarks has adherence in the view of the representatives of public and private institutions that support small businesses.

6. Conclusion

Two other hypotheses emerged in the validation model: Trust positively influences Collaboration and Collaboration positively influences Knowledge: Small Business. Furthermore, since this study was conducted with two distinct groups (public and private employees) in the multigroup analysis, it was possible to detect a difference in the Knowledge: Brand Registration dimension. The results show that it can be inferred only in the group of public employees that Knowledge: Brand Registration influences the Cooperation Network.

Therefore, after all the surveys, analysis, and considering the following points:

1. Small companies have difficulties in registering their trademarks and need support to learn about the trademark registration process;
2. Various institutions in Brazil develop actions for small companies;
3. The survey with the institutions statistically validated the proposed cooperation network model to support small businesses in registering their trademarks;
4. The Cooperation Network, when implemented, guides small companies regarding the trademark registration process. Thus, these companies will be able to obtain the concession to use their trademarks, bringing positive impacts to the companies.

Practical implementation of the cooperation network involves: (1) fostering trust among stakeholders through transparent communication and

shared objectives; (2) encouraging collaboration by aligning resources and promoting joint initiatives; (3) providing targeted training on trademark registration processes; and (4) establishing monitoring systems for continuous feedback and improvement. These steps enable public and private institutions to offer effective support to small businesses, enhancing their competitiveness and protection.

Lastly, we conclude that the creation of a Cooperation Network with public and private institutions in which collaboration and knowledge about trademark registration permeate is a valid strategy to support small businesses requiring guidance to register their trademarks, and thus target new markets, have the right to exclusive use of the mark throughout the national territory, and protect themselves from unfair competition. From a managerial perspective, the findings highlight the critical role of fostering trust, collaboration, and specialized knowledge within cooperation networks. Public and private institutions should prioritize initiatives that enhance these factors to provide small businesses with clear guidance on trademark registration, enabling them to navigate legal requirements more efficiently and compete effectively in broader markets.

For future research, we suggest investigating other institutions that may make up the Cooperation Network and deepening this study to reach the operational level, identifying which roles are to be played by each of the institutions and which are the resources needed to reach the objectives proposed in the Cooperation Network.

Referências

1. Aaker, D. A. (1996). Measuring Brand Equity across Products and Markets. California
2. Amaral, M. I. C. (2014). Importância da cooperação e das redes no desenvolvimento do turismo: o caso do Baixo Alentejo (Portugal). Conselho Editorial Editorial Board. Available in: http://hdl.handle.net/10174/9048.
3. Blanco-Encomienda, F., & Rosillo-Díaz, E. (2021). Quantitative evaluation of the production and trends in research applying the structural equation modelling method. Scientometrics, 126, 1599 - 1617. https://doi.org/10.1007/s11192-020-03794-x.
4. Brasil (2020). Ministério da Economia. Available in: https://www.gov.br/economia/pt-br/assuntos/noticias/2020/outubro/governo-destaca-papel-da-micro-e-pequena-empresa-para-a-economia-do-pais.
5. Chen, B. (2008). Assessing Interorganizational Networks for Public Service Delivery: A process-perceived effectiveness framework. Public Performance & Management Review, 31(3), 348-363. https://doi.org/10.2753/PMR1530-9576310302.
6. Chen, B. (2008). Assesing Interorganizational Networks for Public Service Delivery: A process-perceived effectiveness framework, Public Performance & Management Review, 31(3), 348-363. https://doi.org/10.2753/PMR1530-9576310302.
7. Choi, S., & Ko, I. (2012). Leveraging electronic collaboration to promote interorganizational learning. International Journal of Information Management, 32, 550-559. https://doi.org/10.1016/j.ijinfomgt.2012.03.002.
8. Crass, D. (2020). Which firms use trademarks? Firm-level evidence from Germany on the role of distance, product quality and innovation. Industry and Innovation, 27(7), 730-755. https://doi.org/10.1080/13662716.2020.1737511.
9. Cummings, L. L., & Bromiley, P. (1996). The Organizational Trust Inventory (OTI): Development and validation. https://doi.org/10.4135/9781452243610.N15.
10. Fragoso, R. C. (2015). Avaliação de redes empresariais de cooperação em Goiás. Tese – Pontifícia Universidade Católica de Goiás, Available in: http://tede2.pucgoias.edu.br:8080/handle/tede/2482.
11. Geisser, S. (1975). The predictive sample reuse method with applications. Journal of the American Statistical Association, 70(350), 320-328. https://doi.org/10.2307/2285815.
12. Greve, H. R. (2005). Inter-organizational learning and social structure. Organization Studies, 26(7), 1025-1047. https://doi.org/10.1177/0170840605053539.
13. Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM). Los Angeles: Sage publications.
14. Henseler, J., Ringle, C.M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 15-135. http://doi.org/10.1007/s11747-014-0403-8.
15. Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116(1), 2-20. https://doi.org/10.1108/imds-09-2015-0382.
16. Higuchi, A. K .(2017). Confiança nas Redes Colaborativas: O Caso das Redes de Suprimentos. REA. Revista Eletrônica de Administração, 15(1), 49-61. Available in: https://periodicos.unifacef.com.br/index.php/rea/article/view/1052/939.
17. Holm, D., Eriksson, K., & Johanson, J. (1996). Business Networks and Cooperation in International Business Relationships. Journal of International Business Studies, 27, 1033-1053. https://doi.org/10.1057/PALGRAVE.JIBS.8490162.
18. Iversen, E. J. (2003). Norwegian small and medium-sized enterprises and the intellectual property rights system: exploration and analysis. WIPO. Available in: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_890.pdf.
19. Johanson, J., & Johanson, M. (2021). Speed and synchronization in foreign market network entry: A note on the revisited Uppsala model. Journal of International Business Studies, 52, 1628 - 1645. https://doi.org/10.1057/s41267-021-00407-4.
20. Joseph, F., Barry, J. B., Rolph, E. A., & Rolph E. A. (2010). Multivariate data analysis, NJ: Pearson Prentice Hall.
21. Keller, L., & Lehmann, D. R. (2006). Brand and Branding: Research Findings and Future Priorities. Marketing Science, 25(6), 740-759. https://doi.org/10.1287/mksc.1050.0153.

22. Kim, T. -Y., Oh, H., & Swaminathan, A. (2006). Framing interorganizational network change: A network inertia perspective. Academy of management review, 31(3), 704-720. https://doi.org/10.5465/AMR.2006.21318926.
23. Klein, L. L., Pereira, B. A. D., & Quatrin, D. R. (2014). A formação, o desenvolvimento e o fortalecimento de redes de cooperação. Revista da Micro e Pequena Empresa, 8(3), 18, 2014.
24. Landsperger, J., & Spieth, P, (2011). Managing innovation networks in the industrial goods sector. International Journal of Innovation Management, 15(06), 1209-1241. https://doi.org/10.1142/S1363919611003714.
25. Leydesdorff, L., & Meyer, M. (2006). Triple Helix indicators of knowledge-based innovation systems. Research Policy, 35(10), 1441-1449. http://doi.org/10.1016/j.respol.2006.09.016.
26. McEvily, B., Perrone, V., & Zaheer, A. (2003). Trust as an organizing principle. Organization science, 14(1) 91-103. https://doi.org/10.1287/orsc.14.1.91.12814.
27. Milward, H. B., & Provan, K. G. (2006). A manager's guide to choosing and using collaborative networks. Washington, DC: IBM Center for the Business of Government. https://www.businessofgovernment.org/sites/default/files/CollaborativeNetworks.pdf.
28. Molina-Morales, F. X., & Martinéz-Fernaández, M. T. (2003). The impact of industrial district affiliation on firm value creation. European Planning Studies, 11(2), 155-170. https://doi.org/10.1080/0965431032000072855.
29. Möller, K., & Svahns, S. (2009). How to influence the birth of new business fields - Network perspective. Industrial Marketing Management, 38(4), 450-458. https://doi.org/10.1016/j.indmarman.2008.02.009.
30. Muthén, B., & Satorra, A. (1995). Complex Sample Data in Structural Equation Modeling. Sociological Methodology, 25, 267. https://doi.org/10.2307/271070.
31. Nguyen-Phuoc, D. Q., Phuong Tran, A. T., Nguyen, T., Van Le, P. T., & Su, D. N. (2021). Investigating the complexity of perceived service quality and perceived safety and security in building loyalty among bus passengers in Vietnam – A PLS-SEM approach. Transport Policy, 101, 162-173. https://doi.org/10.1016/j.tranpol.2020.12.010.
32. Oliveira, M. O. R., & Luce, F. B. (2011). O valor da marca: conceitos, abordagens e estudos no Brasil. REAd. Revista Eletrônica de Administração, 17(2), 502-529. https://doi.org/10.1590/S1413-23112011000200008.
33. Ouro Filho, A. M., MEL Olave and IDC Barreto (2020). Aprendizagem interorganizacional em redes de micro e pequenas empresas: um olhar integrativo da literatura. Cad. EBAPE.BR, 18(1), 74-90. https://doi.org/10.1590/1679-395177660.
34. Pereira, P. E. J., Ardigó, C. M., & Limberger, P. F. (2021). Reputação da marca e a relação com a fidelidade do cliente no varejo farmacêutico: um estudo de caso. Revista Brasileira de Gestão de Negócios, 23(3), 557-570. https://doi.org/10.7819/rbgn.v23i3.4120.
35. Planko, J., Chappin, M. M., Cramer, J. M. & Hekkert, M.P. (2017). Managing strategic system-building networks in emerging business fields: A case study of the Dutch smart grid sector. Industrial Marketing Management, 67, 37-51. https://doi.org/10.1016/j.tranpol.2020.12.010.
36. Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. Journal of public administration research and theory, 18(2), 229-252. https://doi.org/10.1093/jopart/mum015.
37. Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3. GmbH: SmartPLS. Available in: https://www.smartpls.com.
38. Santos, P. M., & Cirillo, M. Â. (2021). Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions. Communications in Statistics - Simulation and Computation, 1-13. http://doi.org/10.1080/03610918.2021.1888122.
39. Sebrae (2021). Seis passos para abrir seu novo negócio. Available in: https://www.sebrae.com.br/sites/PortalSebrae/sebraeaz/6-passos-para-iniciar-bem-o-seu-novo-negocio,a28b5e24d0905410VgnVCM2000003c74010aRCRD.
40. Singh, S. (2018). The State of IP protection, Exploitation and Valuation: Evidence from Select Indian Micro, Small and Medium Enterprises (MSMEs). Journal of Entrepreneurship and Innovation in Emerging Economies, 4(2), 159-176. https://doi.org/10.1177/2393957518782038.
41. Stone, M. (1974). Cross validatory choice and assessment of statistical predictions, Journal of the Royal Statistical Society, 36(2), 111-147. https://doi.org/10.1111/j.2517-6161.1974.tb00994.x.
42. Tálamo, J. R., & Carvalho, M. M. (2010). Redes de cooperação com foco em inovação: um estudo exploratório. Gestão e Produção, 17(4), 747-760, https://doi.org/10.1590/S0104-530X2010000400009.
43. Teh, C. C., Kayo, E. K., & Kimura, H. (2008). Marcas, patentes e criação de valor. RAM. Revista de Administração Mackenzie, 9(1), 86-106. https://doi.org/10.1590/s1678-69712008000100005.
44. Verschoore, J. R., & Balestrin, A. (2008). Fatores relevantes para o estabelecimento de redes de cooperação entre empresas do Rio Grande do Sul. Revista de Administração Contemporânea, 12(4), 1043-1069. https://doi.org/10.1590/s1415-65552008000400008.
45. Warsen, R., Klijn, E. K. & Koppenjan, J. (2019). Mix and match: How contractual and relational conditions are combined in successful public–private partnerships. Journal of Public Administration Research and Theory, 29(3), 375-393. https://doi.org/10.1093/jopart/muy082.
46. Ysa, T., Sierra, V. & Esteve, M. (2014). Determinants of network outcomes: The impact of management strategies. Public administration, 92(3) 636-655. https://doi.org/10.1111/padm.12076.

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