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MATURITY IN SUSTAINABLE INNOVATION AND CORPORATE SOCIAL RESPONSIBILITY: IMPLICATIONS IN BUSINESS PERFORMANCE

MATURIDADE EM INOVAÇÃO SUSTENTÁVEL E EM RESPONSABILIDADE SOCIAL CORPORATIVA: IMPLICAÇÕES NO DESEMPENHO EMPRESARIAL

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ABSTRACT

Sustainable Innovation is strategically associated with Corporate Social Responsibility (CSR), integrating the economic, social and environmental dimensions in a joint and integrated manner. As a way of verifying this association and its implications for business performance (BP), the models of Maturity in Sustainable Innovation (MSI) and Maturity of Corporate Social Responsibility (MCSR) allow us to identify how companies are evolving in a certain area and, from there, create business value and gain competitive advantage. Based on Resource-Based Theory, the present study examines the influence of MSI on MCSR and the mediator effect of MCSR on the relationship between MSI and BP. The analysis is based on Structural Equations Modeling, considering a sample of 58 companies based in the Amazon region, Brazil. The results indicate a strong relationship between MSI and MCSR; that MCSR positively influences BP; and that MCSR exerts a positive mediator effect on the relationship between MSI and BP. These results allow us to advance our strategy studies, providing mechanisms for managing sustainability-related practices as possible sources for analyzing value generation and promoting competitive advantages for companies.

Keywords: Maturity in Sustainable Innovation. Maturity in Corporate Social Responsibility. Strategy. Business Performance.

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RESUMO

A Inovação Sustentável está estrategicamente associada a Responsabilidade Social Corporativa (RSC), integrando, de forma conjunta e integrada, as dimensões econômica, social e ambiental. Como forma de verificar essa associação e suas implicações no desempenho empresarial (DE), os modelos de Maturidade em Inovação Sustentável (MIS) e em RSC (MRSC) permitem identificar como as empresas estão evoluídas em determinada área e, a partir daí, possam criar valor aos negócios e obterem vantagem competitiva em relação aos concorrentes. Este estudo verifica a influência da MIS na MRSC e o efeito mediador da MRSC na relação entre MIS e o DE, à luz da Teoria Baseada em Recursos (TBR). A análise se baseou na Modelagem de Equações Estruturais (MEE), considerando uma amostra de 58 empresas sediadas na região amazônica. Os resultados indicam uma forte relação entre a MIS e a MRSC, que a MRSC influencia positivamente o DE e que a MRSC exerce um efeito mediador positivo na relação entre a MIS e o DE. Esses resultados permitem um avanço nos estudos sobre estratégia ao oportunizar mecanismos para gerenciamento das práticas relacionadas a sustentabilidade, como possíveis fontes para análise da geração de valor e promoção de vantagens competitivas para as empresas.

Palavras-chave: *Maturidade em Inovação Sustentável. Maturidade em Responsabilidade Social Corporativa. Estratégia. Desempenho.*

1. INTRODUCTION

The need to relate economic objectives to social and environmental demands has led organizations to develop strategies to the best use of available resources and capacities. Such strategies should seek to associate innovations in sustainable practices with Corporate Social Responsibility (CSR), making them as possible sources of economic, social and environmental value creation, and competitive advantage generation. (Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011).

The CSR can be considered as an integral element of business strategies and corporate-level differentiation (McWilliams & Siegel, 2011), implying in the “ability to create added value” from specific levels and intrinsic motivations (Marrewijk, 2003). Such capacity is a form of product and process innovation (McWilliams & Siegel, 2001). Linking innovation with CSR may suggest clues for better strategy design and policy formulation in organizations, at various levels of occurrence (Mcgregor & Fontodrona, 2008). According to the authors, innovation no longer refers only to high technology and / or new products. It should be understood as a broad, continuous and systematic activity that occurs throughout the enterprise.

Considering that the relationship between innovation and CSR can be two-way (Mcgregor & Fontodrona, 2008; Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011), the breadth of the organizational environment requires that products, services, processes and business models be accompanied by sustainable innovations (Kneipp et al., 2011) and responsibility for sustainable development (Kneipp et al., 2019). Strategies related to innovation with a focus on sustainability allow interaction between the different aspects of creating economic, ecological and social value (Hall & Vredenburg, 2003; Boons et al., 2013; Lopez-Valeiras, Gomes-Conde & Naranjo -Gil, 2015).

Strategic integration of sustainability-related elements can enable the development of maturity levels in sustainable innovation (MSI), necessary to generate competitive advantage (Hynds et al., 2014). These levels allow us to understand the construction and evolution of certain competencies that promote better business performance and the generation of competitive advantage (Bacinello & Tontini, 2018). Similarly, the parameters for analysis of economic, social and environmental issues found at CSR maturity levels (MCSR) can assist in business manage-

ment (Golinska & Kuebler, 2014), demonstrating the possible degrees of performance that lead to competitive advantage (Jugdev & Thomas, 2002).

Previous researches that analyzed the relationship between MSI and BP (Assis et al., 2012; Hynds et al., 2014; Bacinello & Tontini, 2018) and between MCSR and BP (Ngai et al., 2013; Golinska & Kuebler, 2014; Machado et al., 2017) did not consider the possible effect of MSI on the MCSR, nor the possible mediation that this second element may exert on the first in its relationship with BP. This demonstrates an important bias that needs to be analyzed. Thus, we have the following research question: what is the mediating effect of MCSR on the relationship between MSI and BP? To answer this question, the present study aims to verify whether MCSR exerts a mediating effect on the relationship between MSI and BP.

This research brings contributions in the theoretical field, using the strategic perspective of Resource-Based theory (RBT) to analyze the relationship of CSR-related activities (Hart & Milstein, 2003; Husted & Allen, 2007) and innovations with a focus on sustainability (Hall & Vredenburg, 2003; Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011; Varadarajan, 2017), with value creation and competitive advantage generation. To this end, it looks at the economic implications of resources and capabilities (Grant, 1991; Barney, 1991; Bansal, 2005) coupled with the socioenvironmental factors of business activities (Hart, 1995; Russo & Fouts, 1997; Branco & Rodrigues, 2006; McWilliams & Siegel, 2011) and the elements of sustainable innovation (Barbieri et al., 2010; Boons et al., 2013).

In the empirical field, this study deals with a regional reality marked by conflicts related to sustainability, different from other approaches that investigated national or international contexts. The research was carried out in the Amazon Region of Brazil, seeking to verify how economic conflicts are associated with social and environmental demands in their various aspects, as identity constituent elements of their communities' lifestyles (Andrade, 2018).

Finally, the research makes a managerial contribution by indicating mechanisms for managing the economic and socio-environmental activities, perceived through the MCSR and MSI models. The use of these models can lead to the creation of sustainable value for businesses associated with sustainable innovations (Hynds et al., 2014; Bacinello & Tontini, 2018) and CSR (Baumgartner & Ebner, 2010; Machado et al., 2017), guiding companies to different types of competitive advantage (Jugdev & Thomas, 2002; Barney & Hesterly, 2007).

The study is structured by this introduction and five further sections. The Section 2 reviews the literature on CSR, sustainability and sustainable innovation, associated with MCSR and MSI as strategic tools for value creation and competitive advantage generation. The Section 3 comprises the presentation of the methodological procedures used. Section 4 presents the results, followed by Section 5 where they are discussed. Finally, in section 6, the final considerations are made.

2. THEORETICAL FOUNDATION

2.1 Corporate Sustainability and Corporate Social Responsibility

The definitions of CSR and corporate sustainability should express the level of development, awareness and ambition of organizations (Marrewijk & Werre, 2002). A different set of CSR / corporate sustainability definitions implies that the specific levels related to these terms are related to corresponding intrinsic motivations (Marrewijk, 2003).

The integration between CSR and the economic, social and environmental dimensions becomes a critical issue to discuss aspects from the inside out as well as from the outside in the

company. Being connected and receptive to shareholders, suppliers, communities and customers becomes necessary for a process related to sustainability to occur effectively. (Henriques & Richardson, 2004).

Economic, social and environmental factors imply three types of responsibility that are interrelated in a nonhierarchical circular way, containing their own intrinsic values (Enderle, 2004). For the author, these items (economic, social and environmental) must be analyzed privately and complementarily, and in many ways, without any order and priority.

Branco and Rodrigues (2006) indicate that corporate performance is associated with CSR to achieve economic viability, minimize environmental impacts, and take actions in accordance with social expectations, described through three pillars: a) wealth creation through assets and services produced; b) environmental sustainability, by efficient environmental management and environmental protection; and c) social sustainability, by improvement of social welfare through corporate philanthropy.

Peteraf and Barney (2003) point out, in the context of RBT, that competitive advantage is related to the creation of value from economic revenues obtained through the exploitation of critical resources. Branco and Rodrigues (2006), on the other hand, infer that CSR contributes to financial performance, increasing employee morale, corporate image, public relations and, ultimately, gaining competitive advantage. In turn, Hart (1995) emphasizes that competitive strategy must have cooperative action in the interest of social legitimacy, since environmental strategies are rooted in the reduced costs of the company's resources and capabilities. Competitive advantage seeks to reinforce social legitimacy as part of the external environment by making companies that comply with environmental policies differ in their ability to generate profits (Russo & Fouts, 1997). Both authors highlight the importance of social and environmental issues and the implementation of innovations in companies as a way of promoting competitive advantage.

2.2 Sustainable Innovation Associated with Corporate Social Responsibility

Husted and Allen (2007) argue that CSR is an opportunity for innovation and reconfiguration of the competitive landscape, as well as for developing distinctive features and capabilities. They indicate that all the company's activities can add value and generate competitive advantage, as they reduce costs, create product differentiation, or drive customers through their acquisitions. According to Macgregor and Fontodrona (2008), for CSR integration to occur, it is necessary to focus on innovation and the search for added value to the business.

Hall and Vredenburg (2003) argue about the need of a strategy that integrates innovation and sustainable development objectives, in which sustainable innovation must be marketed oriented. According to the authors, both the incorporation of constraints arising from social and environmental pressures and a view about future generations' requirements, have implications for the long-term perspective of companies.

From a business standpoint, there is broad agreement that sustainability challenges offer significant potential for innovation and opportunities for competitive advantage (Hansen, Grosse-Dunker, & Reichwald, 2009). According to the authors, two arguments support this view: 1) new socio-environmental regulations increase the pressure for innovation capacity; and 2) new business opportunities, arising primarily from increased efficiency, reduced risk, reliable planning, legitimacy, attracting new customer segments and developing new products and businesses.

Political and structural interventions are needed to increase capacity, willingness, opportunity and motivation to promote technological innovations to achieve superior environmen-

tal, economic and social goals (Ashford & Hall, 2011). According to the authors, there is a crucial problem in achieving lock-in sustainability or path dependency, which is caused by companies' failure to view, design and implement policies that simultaneously achieve these three objectives.

The concept of economic, environmental and social effects (target dimension) of companies is used for assessing the results of sustainable innovations (Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011; Kneipp et al., 2019). In this line, Kneipp et al. (2011) infer that obtaining a competitive advantage occurs from the development of innovative practices inserted in business strategies.

For Barbieri et al. (2010), strategic growth in CSR, in the context of the three dimensions of sustainability, drives sustainable innovations. The authors report that the development of tangible and intangible resources simultaneously with economic efficiency, environmental capacity and social justice can create a competitive advantage for companies.

According to Varadarajan (2017), RBT and its extensions support a positive relationship between sustainable innovation orientation, product innovation performance and process innovation performance. The author notes that a high level of sustainable innovation over time can result in an accumulation of resources and capabilities, crucial for the development and implementation of superior sustainable process and product innovations.

Hynds et al. (2014) indicate that companies should establish clear and relevant metrics to track their progress based on specific sustainability / CSR-related strategic needs. For the authors, as the organization works to implement practices to improve maturity, successive assessment charts will help managers see how these efforts are improving the organization's ability to develop innovative and sustainable products and services.

2.3 Maturity in Sustainable Innovation and Corporate Social Responsibility

Machado et al. (2017) note that an MCSR framework driven by the evolution of sustainable operations' capabilities, allows to identify an evolutionary trajectory, ranging from an initial approach focused on compliance and value protection aspects of the firm to an innovative CSR-based approach that supports integration of operations into a sustainable system and long-term development values.

Studies related to MSI management, deal in isolation with the development process evolution, without considering a systemic view of the characteristics related to management competencies, and their relationship with the evolution of innovation and sustainability in organizations, as sources of competitive advantage (Hynds et al., 2014).

Thus, the MSI framework related to innovation in corporate sustainability (Hynds et al., 2014), and integrated with MCSR as a sustainable system based on an innovative CSR approach (Machado et al., 2017), may represent sources of value creation and competitive advantage generation. These arguments lead to the following hypothesis:

H1: Maturity in Sustainable Innovation influences Maturity in Corporate Social Responsibility.

According to Jugdev and Thomas (2002), sustainability maturity models capture, in the context of RBT, project management competencies (generic resources and capabilities) related to value-creation and competitive advantage generation.

The establishment of the MCSR can determine the key issues to be implemented for effectively achieve the goals set in the strategic context of organizations and the development of specific sustainability-related profiles (Baumgartner & Ebner, 2010). For the authors, maturity

levels are useful for the process of planning sustainable business deployment and in developing and verifying business success.

Withisuphakorn, Pornsit and Jiraporn (2015) argue that the age of companies can influence BP. Mature companies already have stable performance and cash flows that accumulate reputation-related capital more sharply than younger competitors. This reputation associated with investments in MCSR can bring greater marginal benefit to companies. Thus, the second hypothesis of this study is evident:

H2: Maturity in Corporate Social Responsibility positively influences business performance.

Going sustainable involves a process comprised of stages / levels that transform the competitive landscape, forcing companies to change the way they think about products, technologies, processes and business models (Nidumolu, Prahalad & Rangaswami, 2009). According to the authors, the key to progress, particularly in times of economic crisis, is sustainability-related innovation that, if treated as a goal, can develop superior skills and provide a source of competitive advantage for companies.

Hynds et al. (2014) verify the correlation between sustainable practices and operating margin, indicating that companies should establish clear and relevant metrics to track their progress based on specific sustainability-related strategic needs. Bacinello and Tontini (2018) evaluate the relationship between MSI and BP, which can be explained, in part, by strategies related to the use of resources and capacities to generate competitive advantage.

These arguments allow us to infer that although MSI demonstrates that it can directly influence DE, the success of the implemented innovations may depend on the developed economic and socio-environmental strategies, implying a higher level of MCSR. Thus, the third hypothesis of study is formulated:

H3: Maturity in Corporate Social Responsibility has a mediating effect on the relationship between Maturity in Sustainable Innovation and corporate performance.

3. METHODOLOGICAL PROCEDURES

We conducted the survey between February and June 2016, through a database obtained from the Federation of Industries of the State of Rondônia, with a total of 975 industries, focus of the present research. Subsequently, via LinkedIn we obtained e-mail addresses of managers or collaborators who hold a trusted position in the companies, obtaining 532 contacts at all. After exhausting the returning possibilities, we obtained 63 completed questionnaires, and after the elimination of 5 considered erroneous, the final sample was of 58 respondents.

The research questionnaires were validated by six experts, with five questions for MSI analysis and nine questions for MCSR evaluation. Answers have a five-point scale: 1 (no practices and standards), 2 (informal or in the implementation phase), 3 (formally established), 4 (established and systemic) and 5 (established, systemic and optimized).

Because not having exact values, we analyze answers between levels and, in accordance with the RBT (Jugdev & Thomas, 2002; Barney & Hesterly, 2007), it was considered that levels 1 to 2 indicate a competitive disadvantage (CD); levels > 2 to 3 a Competitive Parity (CP); levels > 3 to 4 a temporary competitive advantage (TCA) and levels > 4 to 5 a sustainable competitive advantage (SCA).

In turn, the BP was rated on a 5-point likert scale: 1 (very low or poor performance) to 5 (very high / higher performance). As described in the analysis of MSI and MCSR and in line with RBT (Barney & Hesterly, 2007), results are investigated between levels, where 1 to 2 indicate a disadvantage or weakness; levels > 2 to 3 represent a force; levels > 3 to 4 a competitive strength and levels > 4 to 5 a distinct competitive strength relative to competitors.

3.1 Research Variables

Table 1 presents the variables used in the research for analysis of MSI, MCSR and BP.

Table 1: Variables Used for Analysis of MSI, MCSR and BP

Variables	Indicators of Variables	Authors
SIAS SINSP SINSPS SINSM SIRTD	Innovations adapted to society New Sustainable Processes New Sustainable Products and / or Services New Sustainable Management Methods Research and Technological Development R&D	Barbieri et al. (2010); Boons et al. (2013)
ECORMC ECORMW ECODT	Reduction of inputs management costs Waste Management Revenue Generation Derived technologies, harnessed in other areas	Bansal (2005)
SOCCR SOCDEO SOCCEOL	Corporate Reputation Diversity and Equal Opportunity Corporate Education and Organizational Learning	Branco and Rodrigues (2006)
ENVEER ENVWM ENVMEI	Reduction of emission and effluents in air, water and soil Waste Management Minimizing Environmental Impact	Hart (1995); Russo and Fouts (1997)
PERFRI PERFVM	Return on Investments Company Market Value	Torugsa, O'Donohue and Hecker (2012)
ContSI ContSEC	Size: Checked by number of employees Sectors: Branch in which companies are located	Husted and Allen, 2007; Gallego-Álvarez, Prado-Lorenzo and Garcia-Sánchez, 2011)

Nota: SI (Sustainable Innovation); ECO (Economic); SOC (Social); ENV (Environmental); PERF (Performance); Cont. (Control)

Source: Research Data

Based on the strategic perspective provided by RBT, the main economic, social and environmental aspects variables related to MSI (Barbieri et al., 2010; Boons et al., 2013) and MCSR (Hart, 1995; Russo & Fouts, 1997; Marrewijk & Werre, 2002; Marrewijk, 2003; Henriques & Richardson, 2004; Bansal, 2005; Branco & Rodrigues, 2006; Macgregor & Fontodrona, 2008).

We use two other variable controls, related to "size" and "sector", as factors that can influence innovations, CSR activities and company performance (Husted & Allen, 2007; Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011). In the present study the size was based on the number of employees of the companies in a 4 point scale (1: up to 9; 2: from 10 to 49; 3: from 50 to 99 and 4: 100 or more employees), according to Brazilian Micro and Small Business Support Service classification (trade and service), while "sector" followed the National Classification of Economic Activities. The BP analysis included one financial and one marketing variable (Torugsa, O'Donohue, & Hecker, 2012).

3.2 Data Analysis

We used the Structural Equation Modeling (SEM) by the Partial Least Squares (PLS). This method allows the analysis and development of a theory capable of explain variance (prediction

of constructs) and estimates of coefficients that maximize the values (R^2) of endogenous constructs (Hair et al., 2014).

The SEM is most appropriate when it has multiple exogenous constructs to predict and explain endogenous, each represented by several variables (Hair et al., 2005). According to the authors, the endogenous construct is the dependent variable, whereas the independent ones are the arrow constructs pointing to the endogenous. They also highlight that these representations allow all relations / equations to be simultaneously estimated.

The PLS modeling calculates a series of least squares regressions that derive from iterative parameter estimation (Lee et al., 2011), working efficiently on small samples of complex models that can be applied in a wide variety of research situations (Hair et al., 2014). This method provides the following statistics for data analysis: Cronbach's Alpha (CA), Composite Reliability (CR), Average Variance Extracted (A.V.E), Discriminant Validity (DV), Student's "T" Test and Structural Model Evaluation.

The CA is an unbiased estimator of the correlation between the answers of a questionnaire, calculated from the variance of the items evaluated (Cronbach, 1951). The minimum acceptable value is 0.70 because, below this value, the internal consistency of the scale used is considered low (Streiner, 2003). CR is generally interpreted in the same way as CA. Values between 0.60 and 0.70 are acceptable in exploratory research (Nunnally & Berstein, 1994).

Hair et al. (2014) points out that A.V.E is a measurement of the amount of variation captured by a construct in relation to the amount of variation due to measurement error, and a value of 0.50 or higher indicates that, on average, the dimension explains more than half of the variance of its indicators. The Variance Inflation Factor (VIF), whose parameter is <10 , indicates the effect that other predictor variables have on a regression coefficient (Hair et al., 2005).

The DV is the extent to which a construct is truly distinct from other constructs by empirical standards, implying that a construct is unique and captures phenomena not represented by other constructs in the model (Hair et al, 2014). Already the heterotrait-monotrait ratio of correlations (HTMT) is a new method for assessing DV.

In turn, the "t" Test seeks to test the hypothesis of difference between two averages under the null hypothesis that they are equal, and it is capable of detecting significant differences between datasets with similar averages (Atkinson & Nevill, 1998). T-test values equal to or above 1.96 with a significance of 0.05 are acceptable (Hair et al., 2014).

The Pearson's coefficient (R^2), which evaluates the variance portion of the variables (Hair et al., 2014), can be classified as small effect (0.02), medium effect (0.13) and large effect (0.26) in the results (Cohen, 1998). Predictive Relevance (Q^2), which indicates how close the model is to what was expected of it, and the Effect Size (f^2) is obtained from R^2 variations arising from the inclusion and / or exclusion of constructs in the model.

Based on the coefficients predicted in the PLS, it is intended to verify if the variables that compose the MSI can be representative in the forming variables of the MCSR. Similarly, it will be sought to identify whether MCSR mediates the relationship between MSI and BP.

4. RESULTS

Table 2 shows the research sectors and the number of employees of the companies.

Table 2: Number of Employers and Business Sector

Sectors	N	% N	Nº of Employers	N	% N
Service Activities	20	34,5%	UP to 9	14	6,5%
Accommodation and Food	7	12,2%	In 10 to 49	20	6,5%
Vehicle Repair	16	27,5%	In 50 to 99	16	38,3%
Transformation industry	9	15,5%	Over 100	8	48,7%
Water, Sewage and Waste Management	6	10,3%			

Source: Research Data

Most of the companies have between 10 and 49 employees, and regarding to the sectors investigated, most of the companies are in service activities.

In a straightforward analysis comprising the average intensity of the responses, for MSI, a higher number of companies on levels > 2 to 3 (23 companies) or Competitive Parity, followed by levels > 3 to 4 (19 companies) resulting in a temporary competitive advantage, levels > 4 to 5 (11 companies) indicating a sustainable competitive advantage, and levels between 1 to 2 (5 companies) representing a competitive disadvantage.

At MCSR, most of the sample (25 companies) had levels > 4 to 5 or sustainable competitive advantage (SCA) relative to competitors, followed by levels > 3 to 4 (21 companies) resulting in a temporary competitive advantage (TCA), levels > 2 to 3 (9 companies) indicating a Competitive Parity (CP) and levels between 1 and 2 (3 companies) representing a competitive disadvantage (CD).

In BP, however, the majority of the sample (25 companies) has successively a competitive force (levels > 3 to 4), followed by a distinct competitive force (12 companies) with levels > 4 to 5, strength (19 companies). with levels > 2 to 3 and disadvantage or weakness (2 companies) with levels between 1 and 2. Table 3 presents some statistical values of the sample, followed by values regarding the consistency of the questionnaires.

Table 3: Statistics, Reliability and Mean Variance

Dimensions	N	Questions	Mean	Deviation	CA	CR	A.V. E
MSI	58	5	3,83	1,06	0,789	0,855	0,543
MCSR	58	9	3,17	1,09	0,909	0,925	0,580
BP	58	2	3,43	0,90	0,724	0,878	0,783

Fonte: Research Data - software Smart PLS

The CA results indicated values greater than 0.7 in the MCSR, MSI and BP dimensions (Steriner, 2003), indicating a high correlation between the variables (Cronbach, 1951), as verified in the CR (Nunnally & Berstein, 1994). In A.V.E, the values indicate that, on average, the construction explains more than half (> 0.50) of the variance of the indicators (Hair et al., 2014). The Table 4 shows the VIF, DV (Fornell Larcker method) and HTMT.

Table 4: VIF, DV e HTMT

Indicator	Dimensions	MCSR	MSI	BP	SIZE	SECTOR
VIF	MCSR	1,282	1,306		1,0422	1,299
	MSI				1,027	1,027
	BP	1,286			1,048	1,270
DV	MCSR	0,761				
	MSI	0,710	0,737			
	BP	0,568	0,526	0,885		
	SIZE	-0,197	-0,179	-0,047	1,00	
	SECTOR	0,455	0,473	0,251	-0,163	1,00
HTMT	MSI	0,808				
	BP	0,678	0,706			
	SIZE	0,191	0,191	0,146		
	SECTOR	0,479	0,503	0,300	0,163	

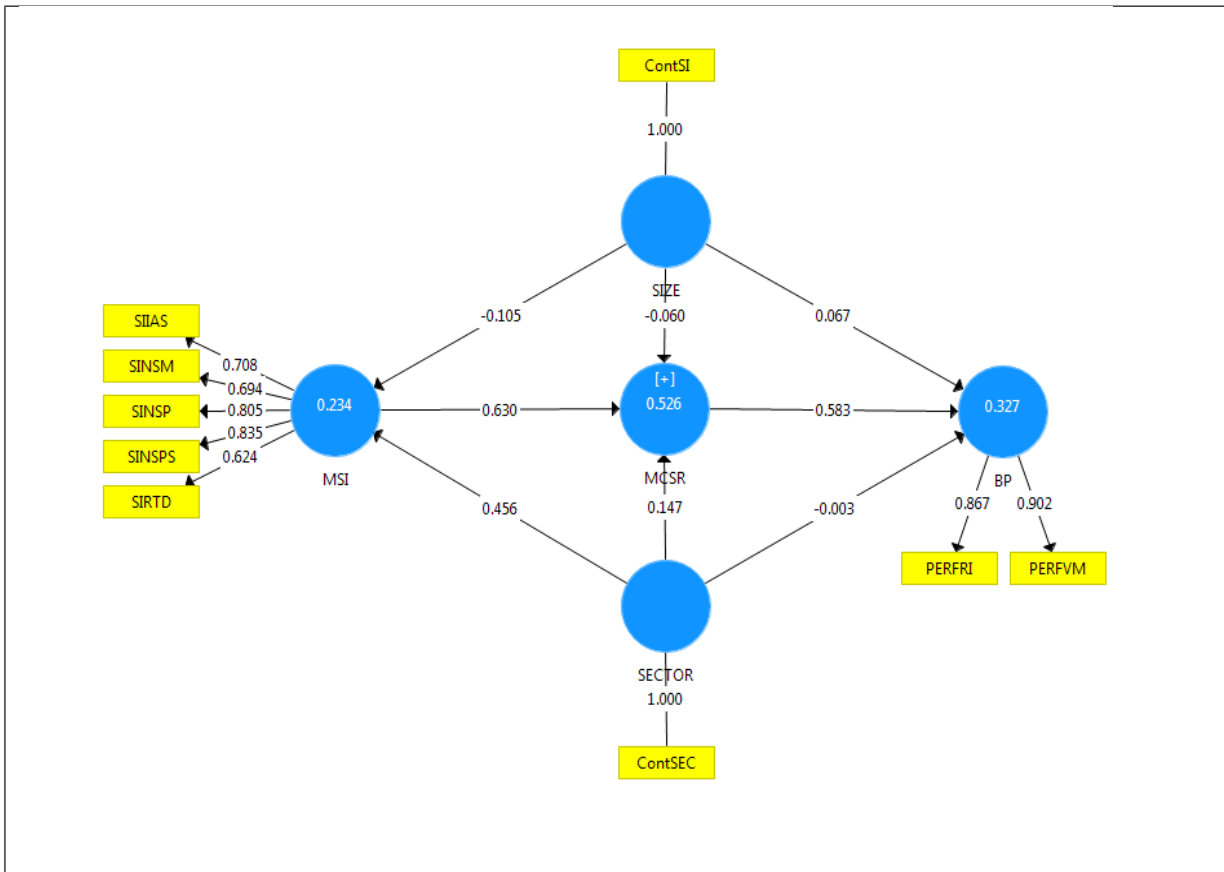
Source: Research Data - software Smart PLS

The VIF results were within acceptable levels (Wetzels, Odekerken-Schroder & Van Open, 2009) in the MSI, MCSR and BP dimensions. The DV demonstrated that the construction of each Latent Variable (VL) is distinct from the other constructions presented in the model (Hair et al., 2014). In addition, it was found in HTMT (correlations between constructs), which has as parameters levels > 0.85 (Henseler, Ringle & Sarstedt, 2015), values are within consistent and acceptable standards.

Student's "t" test (bootstrap tab) "external weights" indicated adequate values ($t > 1.96$ and $\text{sig.} < 0.05$) in all variables analyzed (Hair et al., 2014), with results that from 4.019 / $\text{sig.} = 0.000$ (in ECODT) to 8.992 / $\text{sig.} = 0.000$ (in SOCCR).

The Structural Model obtained on the PLS Modeling platform is shown in Figure 1.

Figure 1: Structural Model



Source: Research Data - software Smart PLS

As shown in Figure 1, the path coefficients (β) indicated relevant values in the relations between MSI and MCSR, and between MCSR and BP, while in the other relationships with the control variables, they showed values considered low. These relationships are confirmed by the results of R^2 in the MCSR dimension of 0.506 and in the BP of 0.327, representing a great explanation effect of the observed values (Cohen, 1998). The factor load values of the indicators show that all were within acceptable standards and greater than 0.50.

The Q^2 (blindfolding tab) values were positive and greater than zero in the dimensions MCSR (0.263), BP (0.214) and MSI (0.105), indicating that the model is close to what was expected of it. Already, the values of f^2 also indicated positive results in the dimensions MCSR (0.452), MSI (0.319) and BP (0.319), representing a great effect of exogenous construction (Hair et al., 2014).

Finally, a new “t” test (bootstrapping module) was performed, according to the same criteria previously used ($t \geq 1.96$ and $p\text{-value} < 0.05$), to test the relationships indicated in hypotheses H1, H2 and H3, as shown in table 5.

Table 5 – “t” Test - Assumption Check

Hip.	Effects		B	SD	t: β /SD	P-value	Result
H1	MSI	MCSR	0,630	0,080	7,847	0,000	Accepted
H2	MCSR	BP	0,583	0,093	6,267	0,000	Accepted
H3	MSI	BP (indirect effect)	0,367	0,075	4,902	0,000	Accepted

Note: Path Coefficient (β), Standard Deviation (SD)

Source: Research Data - *software Smart PLS*

It is noted that the observed values of β demonstrated the relationship between the investigated phenomena (Lee et. al., 2011), verifying that the MSI was influential of the MCSR with a coefficient of 0.630, that the MCSR influences the BP with a β of 0.583, and that MSI has an indirect influence on BP, through the mediation of MCSR, with a coefficient of 0.367. Likewise, the values obtained (ie sig.) indicate that all relationships were within acceptable standards ($t \geq 1.96$ and $p\text{-value} < 0.05$), confirming predicted hypotheses (Hair et al., 2014). The SECTOR control variable was shown to influence only the MSI ($t \geq 4.692$ and $p\text{-value} < 0.00$), while the SIZE did not indicate any relationship with the analyzed dimensions.

The perceived influence between SECTOR and MSI demonstrates that sustainable innovations are most often adopted by industries. According to Gallego-Álvarez, Prado-Lorenzo and Garcia-Sánchez (2011), the sustainability-related practices should be taken into account when analyzing the relationship between CSR and innovation and vice versa.

5. DISCUSSION

Based on the results obtained in the analyzed dimensions, it appears that, although most of the sample indicated in MSI a Competitive Parity, followed by temporary competitive advantage to sustainable competitive advantage. These results were lower than the MCSR with predominance of sustainable competitive advantage, followed by temporary competitive advantage and Competitive Parity. The associations with BP demonstrated, in most analyzes, a competitive strength, followed by distinct competitive strength and strength in relation to competitors. These results have associations with the findings of Jugdev and Thomas (2002) indicating that maturity levels based on the strategic business context generally result only in a firm’s temporary competitive advantage or competitive strength relative to competitors.

In response to the first study hypothesis, verifying the influence of MCSR, it is noted that the high values of β (0.712), t (10.178), as well as $p\text{-value} = 0.000$ allow us to infer that the existing association between economic, social and environmental issues with innovations developed by companies (Hall & Vredenburg, 2003; Husted & Allen, 2007; Boons et al., 2013), promote competitive strategies (Hansen, Grosse-Dunker & Reichwald, 2009; Ashford & Hall, 2011; Gallego-Álvarez, Prado-Lorenzo & Garcia-Sánchez, 2011; Lopez-Valeiras, Gomes-Conde & Naranjo-Gil, 2015) through the strategic use of crucial resources and capabilities in companies (Varadarajan, 2017).

Thus, innovations related to products, services, processes and business models (Kneipp et al., 2019) that are adapted to society and involve R&D (Barbieri et al., 2010), implement sustainable

innovations associated with CSR (Machado et al., 2017), enable the aggregation of value for the company's global capital (Kneipp et al., 2011) and necessary management skills, providing the generation of competitive advantage (Hynds et al., 2014). Based on these statements, H1 is accepted.

In response to H2, which consisted of investigating the influence of MCSR on BP, it can be seen that the values of β (0.582), t (6.682), as well as p -value = 0.000 show that the strategic association of CSR with perspectives related to sustainability (Marrewijk & Werre, 2002; Marrewijk, 2003; Henriques & Richardson, 2004; Enderle, 2004; Mcgregor & Fontodrona, 2008; Nidumolu, Prahalad & Rangaswami, 2009) enable companies to create economic (Peteraf & Barney, 2003), social (Branco & Rodrigues, 2006; McWilliams & Siegel, 2011) and environmental values (Hart, 1995; Russo & Fouts, 1997) that generate competitive advantage (Hart & Milstein, 2003).

In this context, factors related to reducing input costs, waste management and derived technologies (Bansal, 2005), corporate reputation, diversity and equality management, corporate education and organizational learning (Branco & Rodrigues, 2006), emission reductions / effluents, waste management and reduction of environmental impacts (Hart, 1995; Russo & Fouts, 1997), can cause value creation to occur on the economic, social and environmental fronts, providing a lasting advantage for companies (Husted & Allen, 2007).

In addition, a higher level of MCSR results in companies seeking to develop specific sustainability-related strategies, skills and profiles (Baumgartner & Ebner, 2010), as well as managing activities, generate value and competitive advantage over competitors (Jugdev & Thomas, 2002). Such strategies, regardless of the time of operation of companies, can bring greater marginal benefits (Withisuphakorn, Pornsit & Jiraporn, 2015). Thus, H2 is accepted.

Regarding the third hypothesis of this study, which analyzed whether MCSR mediated the relationship between MSI and BP, it was shown, based on the values of β (0.402), t (5.360) and p -value = 0.000, that the appropriation of the benefits of sustainable innovations enables the improvement of BP and the development of critical capacities (Lopez-Valeiras, Gomes-Conde & Naranjo-Gil, 2015; Varadarajan, 2017). For Barbieri et al. (2010), the wide range of secondary parts related to sustainable innovation lead to the growth of the CSR movement.

Thus, indicators of sustainable innovation can develop superior competences to companies (Nidumolu, Prahalad & Rangaswami; Hynds et al., 2014), arising from the use of resources and capacities to generate competitive advantage, which can be leveraged by the best MSI result in the BP (Bacinello & Tontini, 2018), through differentiation of strategies associated with CSR (Machado et al., 2017). These notes allow the acceptance of H3.

FINAL CONSIDERATIONS

The main objective of this study was to verify whether MCSR exerts a mediating effect on the relationship between MSI and BP. Although MSI may have shown, in principle, values below MCSR, in general companies have a competitive strength in relation to competitors.

The influence of MSI on MCSR means that the strategic context regarding the use of economic, social and environmental issues focused on higher levels of MSI, promotes a better use of resources and capacities of the companies, as well as adding value to the company. Similarly, companies are driven to direct efforts to implement sustainable innovations, as economic and socio-environmental attributes are embedded in this context.

In turn, the demonstrated influence of MCSR on BP indicates that economic, social and environmental value depends on strategies associated with CSR, so that companies should be constantly seeking better levels of MCSR and profiles associated with sustainability. Likewise, it

demonstrates that the management of the activities developed along the business processes enables the achievement of better financial and market results. In this context, companies can gain better market positions relative to their competitors to gain a competitive advantage.

Finally, the mediation exercised by MCSR in the relationship between MSI and BP denotes that the benefits of using sustainable innovations enable companies to develop critical skills and competencies to achieve higher levels of MSI. Considering that the relationship between innovations and CSR can be considered bidirectional, MSI is strategically associated with a better positioning of companies in relation to their MCSR levels, being considered in this study as a predecessor in this process, in order to provide better results in its financial and market performance.

This study contributes in the theoretical context by addressing topics related to innovation and sustainability and CSR in the strategic context of companies, considering the limited literature that involves this subject. In the empirical and managerial context, it indicates a path that can be followed in strategy research when dealing with a specific regional reality to jointly verify the economic and socio-environmental actions developed by the companies, as well as their influence on the BP. It is argued that these actions can be verified through management models to assist managers in the complex issue of value creation and competitive advantage generation.

As main limitations, we indicate the few studies that investigate the factors associated with MSI and MCSR, which, on the other hand, offer a very fertile field of investigation that deserves to be explored. Another limitation refers to the use of RBT associated with the sustainable context of companies, which may fail to capture some elements related to institutional issues or interest of stakeholder groups. Finally, it is emphasized that a sample that understands a specific regional context can lead to biases and results that other samples could obtain, making the results shown here cannot be generalized.

It is suggested as future studies, the expansion of this study, considering other samples and / or the use of other research variables that may help to explain the phenomena investigated here. Another possibility lies in analyzing the inverse path of the relationship between MSI and MCSR to verify their moderation and / or effect on BP.

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Contribution	[Author 1]	[Author 2]	[Author 3]
1. Definition of research problem	√	√	√
2. Development of hypotheses or research questions (empirical studies)	√	√	√
3. Development of theoretical propositions (theoretical work)	√	√	√
4. Theoretical foundation / Literature review	√		
5. Definition of methodological procedures	√	√	√
6. Data collection	√	√	
7. Statistical analysis	√	√	
8. Analysis and interpretation of data	√	√	√
9. Critical revision of the manuscript		√	√
10. Manuscript writing	√		