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RELATIONSHIP BETWEEN MATURITY IN SUSTAINABLE INNOVATION AND BUSINESS PERFORMANCE

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ABSTRACT

Sustainable Innovation (SI) combines the creation of economic, ecological and social value, having a strong connection with the dimensions of the Triple Bottom Line (TBL) in the long-term perspective. Innovating, according to these dimensions, requires the development of new instruments, as can be verified in the models of Maturity in Sustainable Innovation (MSI), to understand the construction of a certain competence and evolution of companies in a given area. In this context, this study sought to verify the relationship between MSI and the Financial and Market Performance (FMP) of companies. The quantitative research was based on the Modeling of Structural Equations (MSE) by means of software Smart PLS. The results point out the existence of a relationship between MSI and FMP, which can be explained, in part, by strategies related to the use of resources and capacities to generate competitive advantage for companies. It was also verified that theoretical discussion about innovation with a focus on sustainability remains unfinished and that both resources and organizational capacities, compete to explain the relationship between SIs and business performance (BP).

Keywords: Sustainable Innovation. Performance. Resource Based Theory. Theory of Dynamic Capabilities.

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1 INTRODUCTION

Sustainable innovation (SI) considers the economic, social and environmental perspectives of organizational activities, providing the generation of competitive advantage and improvement of business performance (BP). The term "SI" or "Eco-innovation" has been broadly defined as the process of developing new ideas, behaviors, products and processes that contribute to reducing the environmental or ecological burden specified in corporate sustainability goals (RENNINGS, 2000).

Eco-innovation is strongly tied to environmental considerations (KEMP; PEARSON, 2008), while SI is broader, including a strong link with the Triple Bottom Line - TBL (HANSEN; GROBE-DUNKER; REICHWALD, 2009; BOCKEN et al. al., 2013, FROEHLICH, 2014). This term involves the context of future generations, that is, the long-term perspective (HALL; VREDENBURG, 2003; CHARTER et al., 2008).

Sustainable business models that incorporate TBL address a wide range of stakeholder interests, including the environment and society (BOCKEN et al., 2013). For the authors, sustainable business is important in driving and implementing corporate innovation for sustainability in business processes, serving as the primary driver of competitive advantage.

Innovation, according to the TBL dimensions, is not yet the rule, since the inclusion of social and environmental dimensions requires new tools and models of business management that only recently began to be developed more intensively (BARBIERI et al., 2010). The authors reports that meeting these dimensions makes the innovation process more sophisticated and demanding, requiring a greater effort by the organization to meet the technical requirements necessary for its management.

Among the tools of business management, the Maturity models in Sustainable Innovation (MSI) have been used as a way of understanding the construction of a certain competence in organizations (DELAI, 2014). The maturity levels aim to understand how the construction of a certain competence in organizations occurs, or to demonstrate how a company is evolved in a given area (FOLLMANN, 2012).

Studies related to the development of MSI focused mainly on environmental / ecological sustainability issues (HYNDS et al., 2014; GALVÃO, 2014). In turn, Delai (2014) created a model of evolutionary stages in SI management, demonstrating its specific characteristics and competencies, noting that innovation, according to the dimensions of sustainability, is essential for evaluating competitiveness and business success.

Although some studies have addressed specific perspectives and concepts about sustainability-related innovations, there is little research with empirical evidence on SI concepts. Some studies have examined the relationships between innovation and sustainability (FOXON, PEARSON, 2008, BARBIERI et al., 2010, FROELICH, 2014, HYNDS et al., 2014), the SI evolutionary stages (DELAI, 2014), the innovation with sustainable focus and/or IS and the BP (GUNDAY et al., 2011; GALVÃO, 2014; LOPEZ-VALEIRAS; GOMES-CONDE; NARANJO-GIL, 2015; KNEIPP, 2016), reaching different results. According to Boons and Ludeke-Freund (2013), the results of SI related research are still inconclusive and tend to overlook the need for firms to combine a proposal on the value chain in the organization, considering it upstream and downstream financial model.

In this same sense, given the different theoretical and empirical perspectives used, a limitation is identified in the current MSI measurement models, which may indicate an inadequacy of the results obtained (DELAI, 2014). According to the author, there is a need for a deeper approach that identifies the different levels at which these measurements occur in the business

context. Therefore, the main objective of the present study is to verify the relationship between MSI and the financial and market performance (FMP) of the companies.

The selection of the Amazon region for the application of this study is justified by the lack of research that contemplates the initiatives related to the preservation and maintenance of resources and biodiversity, as well as by the complex social relations that surround its historical context (PAS, 2008). This perspective considers the exploitation of regional resources and capacities, their valorization from the aggregation of value and the creation of objective opportunities for generation of employment and income.

The proposed research intends to contribute to a better understanding of the strategies that involve the SIs, using an MSI model to verify their relationship with the companies FMP. It also seeks to discuss the possible theoretical approaches that involve the theme.

The study is structured by this introduction and four more sections. In Section 2, a review of the literature on SI topics, their strategic context, the use of resources and capabilities as a source of competitive advantage and similar studies is done. Section 3 includes the presentation of the methodological procedures used. Section 4 presents and discusses the results. Finally, in section 5, the final considerations are made.

2 THEORETICAL FOUNDATION

This chapter presents a theoretical review of SI, its strategic context, the use of resources and capabilities related to obtaining competitive advantage and similar studies.

2.1 Sustainable Innovation

The complexity of the factors influencing decisions related to innovation should be linked to a theoretical framework that integrates neoclassical and evolutionary approaches, and check the specific role of regulatory instruments related to the theme (RENNINGS, 2000). In the author's view, the integration of the ecological, social and economic aspects of sustainable development is highly useful for opening research on innovation, and social and institutional changes.

Eco-efficiency or eco-innovation implies the reduction of environmental impacts (KEMP; PEARSON, 2008), trying to align the use of resources throughout the entire product life cycle to match the Earth's carrying capacity, and at the same time seeks to offer products at competitive prices, meet human needs and bring quality of life (HELLSTROM, 2007). For the authors, this term refers to incremental improvements in the processes, such as the replacement of components or incorporation of factors to existing products, using environmentally friendly alternatives.

SI goes beyond eco-innovation, because it includes social objectives linked more clearly to the long-term holistic process of sustainable development, considering the short- and long-term objectives (CHARTER et al., 2008). SI refers to a process that considers sustainability in the financial, social and environmental spheres (HANSEN; GROBE-DUNKER; REICHWALD, 2009; BOONS et al., 2013). It integrates systems for generating ideas through research and development (R&D) and commercialization of products, services and technologies, as well new business organization models (CHARTER; CLARK, 2007; CHARTER et al., 2008).

Charter and Clark (2007) define sustainability-oriented innovation as the creation of new spaces in the market, products, services or processes oriented by social, environmental or sustainability issues. According to the authors, as with general innovation, there is an emerging recognition that SI is not only about new concepts, but about the commercialization of technol-

ogies, products, services and entrepreneurship, as well as about the adoption of new processes and systems.

According to Boons et al. (2013), SI has different meanings in different contexts, such as consumer economies, emerging economies and pyramid base economies. For the authors, any significant change in the dominant economic logic necessarily involves the application of new business in the social models by actors seeking to promote ideas. They also report that this can lead to different kinds of innovations and different practices on value propositions, and reflection on the real needs of citizens, defined in categories that are not purely economic.

SI is directly related to the introduction (production, assimilation or exploitation) of new or significantly improved products, processes, methods of management or business to the organization and which brings economic, social and environmental benefits compared to relevant alternatives in which significant or non-negligible benefits are expected in TBL (BARBIERI et al., 2010). For the authors, SIs consider a broad list of secondary stakeholders, such as the local community and activist groups from various causes, which lead to the growth of the corporate social responsibility movement.

Although the term SI has been widely used, there is some limitation in its definition (BOONS et al., 2013). According to the authors, the concept offers an analytical tool that allows to evaluate the interaction between the different aspects of the companies, combining the creation of economic, ecological and social value. Thus, value creation depends on the ability of firms to build a positive reputation over time by means of the implementation of innovations (HART; MILSTEIN, 2004).

In this context, the first hypothesis is formulated (H1): SIs lead to different types of innovations that make it possible to create value for companies.

2.2 Strategic Context of Sustainable Innovation

Hall and Vredenburg (2003) advocate the need for a strategy that integrates innovation and sustainable development goals. The authors report that SI must be geared to the market by including the principles of sustainable development, seeking both the incorporation of restrictions stemming from social and environmental pressures as a vision that considers future generations in a long-term perspective.

SI can be related to a strategic and systematic attitude of the company regarding economic, social and environmental aspects, and not only to isolated actions, such as the development of new processes and environmentally correct products (SCHALTEGGER, LÜDEKE-FREUND, HANSEN, 1994; HANSEN, GROBE-DUNKER, REICHWALD, 2009; HYNDS et al., 2014; KNEIPP, 2016). For the authors, continuous guidance for innovation focusing on sustainability requires changes in the companies' business model in order to allow the management of social and environmental activities systematically.

Sustainable value must have the strategic objective of preventing companies from reducing their profits and the value generated to shareholders, since actions related to sustainability and value creation must be directly related (HART, MILSTEIN, 2004; BOONS, LUDEKE -FREUND, 2013). According to the authors, companies must create future products and services by developing the capabilities and technologies that provide the growth of the organization while maintaining business performance.

According to Oksanen and Hautamaki (2015), SI issues are complex and, in order for it to actually take place, it requires broad cooperation involving many actors. For the authors, these

innovations are based on three strategic characteristics:

1) contribute to sustainable well-being: create solutions on what everyone is able to find their role within the problem-solving network and thereby create competitive advantage;

2) be systemic: related to technological and cultural change, building the core of national innovation strategies to be implemented in the context of the organization, and

3) be inclusive: support collective wisdom and mass collaboration, on what citizens have the right to be creative and to contribute to improvements in services and products.

SI management practices contribute to the implementation of strategies that improve the company's position in the future, assuming resource mobilization, employee skills development, flexible communication, shared information, R&D investment, and the search for information sources externalities that may favor the increase of knowledge (GALVÃO, 2014). The author infers that the greater degree of mobilization of resources and capabilities propitiates the organizational learning, necessary to promote changes and innovations in sustainable processes and products.

Thus, the second hypothesis (H2) is elaborated: SIs promote a better strategic positioning in the sustainable practices implemented by companies.

2.3 Resources and Capabilities Related to Competitive Advantage

From a business perspective, there is a broad consensus that sustainability challenges offer significant potential for innovations and opportunities for generating competitive advantage (HANSEN; GROBE-DUNKER; REICHWALD, 2009). According to the authors, two arguments support this view:

1) new social and environmental regulations increase the pressure for innovation capacity;

2) new business opportunities, mainly from cost reduction by means of increased efficiency, risk reduction, planning reliability, legitimacy, attraction of new customer segments and development of new products and business segments.

Companies seek to retain resources in order to generate value to the business itself by means of association and combination of valuable features that streamline new skills and distinct innovation capabilities of high added value that can generate competitive advantage (JANG, 2013). According to the author, the ability to create / innovate is very important to strengthen the core business resources, whose dynamics result in new combinations and new features to ensure a lasting advantage over the competition.

According to the Resource-Based Theory (TBR), companies use the available resources to obtain advantages in the implementation of strategies in the market (WERNERFELT, 1984; GRANT, 1991; BARNEY; ARIKAN, 2001). Thus, the relative advantages of an enterprise, or resource endowment, depend on market factors that support differences in efficiency in organizational outcomes (LOCKHET, 2005).

In the strategic framework, the relationships between resources, competition and profitability (BARNEY, 1986) include the analysis of competitive imitation and the appropriateness of returns to innovations, through which the process of accumulation of resources can sustain competitive advantage (GRANT, 1991). This advantage can occur when a value is implemented that is rare, not simultaneously used by competitors and when other companies are unable to duplicate or replace (BARNEY, 1991).

For companies to acquire a certain resource, they depend on whether they have already developed other previous resources or have a certain capacity (HART, 1995). According to the author, this interconnectivity consists in the dependence of path (specific sequence of accumulation)

and rooting (to make difficult the development of a new resource), as a way to share the sustainable development accelerating the development of resources and entrepreneurial capacities.

In analogy with TBR, Teece and Pisano (1994) indicate the need for an expanded paradigm to explain how the source of competitive advantage is obtained and maintained. They claim that the "Dynamic Capabilities" (DC) emphasize the changing nature of the environment and the key role of strategic management in the adaptation, integration and reconfiguration of internal and external skills relating to the functionalities and responsibilities of the organizational environment.

The term "dynamic" refers to the changing nature of the environment in which certain strategic responses are needed to determine the pace of accelerated innovation and the nature of future market competition (TEECE, PISANO, 1994). According to the authors, "capacities" emphasize the fundamental role of strategic management in adapting, integrating and reconfiguring organizational skills (internal and external), functional resources and competencies.

Teece, Pisano and Shuen (1997) infer that DCs indicate the sources and methods of wealth creation for firms operating in rapidly changing technological environments where competitive advantage is shaped by (specific) asset positions, or resources. The adaptation of these resources together indicates the evolutionary path (organizational experience) that the company inherited. For the authors, the DC refers to the ability to integrate, build and reconfigure internal and external skills in rapidly changing environments, reflecting an organization's ability to achieve new and innovative forms of competitive advantage, given the dependencies of the path and the positions of the Marketplace.

McKelvie and Davidson (2009) argue that DCs can generate ideas, cause market disruption, develop innovative products, services and processes. They say that although several observations have argued that DCs are a source of competitive advantage, there is little knowledge about how access to resources affects them. In this sense, Eisenhardt and Martin (2002) indicate that DCs refer to "best practices" in companies and their value to competitive advantage lies in the configuration of resources and not in their own capacities.

The third hypothesis (H3) thus emerges: The theoretical bases of TBR and DC can help explain the competitive advantage offered by SI.

2.4 Previous Studies regarding Sustainable Innovation

Froehlich (2014) analyzed the development of innovation capacity as a means to leverage corporate sustainability, using SI to increase the capacity for innovation in the economic, environmental and social pillars of business sustainability. It proposes as the main result of the research, the need to effectively develop SI capacity to leverage the business sustainability process.

Galvão (2014) sought to understand the influence of socio-environmental management practices on the performance of corporate eco-innovation, identifying a positive influence of practices focused on resources and environmental innovation capabilities in eco-innovative performance processes of companies.

Delai (2014) proposed a MSI model to analyze the evolutionary pattern in SI management and sustainability management. The author defined four stages of innovation (operational, strategic hard, strategic soft and strategic improvement), concluding that the evolution of innovation management and sustainability was linear (stages in a sequential way), while in the case of SI management results were nonlinear.

Hynds et al. (2014) developed a model of MSI to assess and guide R&D organizations to create products and services that drive the growth of SIs, mainly related to the environmental as-

pects of sustainability. They verified the existence of a correlation between sustainable practices and operating margin, indicating that companies should establish clear and relevant metrics to track their progress based on specific strategic needs related to sustainability.

Kneipp (2016) analyzed the relationship of SI strategic management with the business model and performance of Brazilian and Spanish industrial companies. Based on the two-dimensional analysis (strategic posture and SI practices), the author demonstrated that the strategic management of SI is related to the business model and the BP.

In this context, the fourth hypothesis (H4) is elaborated: The MSI assists in the process of sustainability management, exerting influence in the BP.

3 METHODOLOGY

The quantitative research was based on the sending/application of a closed questionnaire containing five questions concerning the level of MSI in the companies ((BARBIERI et al., 2010; KNEIPP, 2016), arranged in a five-point scale, (informal or in the process of implementation), 3 (formally established), 4 (established and systemic) and 5 (established, systemic and optimized). There were also five other questions related to the FMP (PELHAM; WILSON, 1996; GUNDAY et al., 2011; CHENG; YANG; SHEU, 2014), arranged on a likert scale of 5 points, ranging from 1 (very low), 2 (inferior), 3 (average), 4 (high) and 5 (very high), compared to competitors.

The data were analyzed by means of the Modeling of Structural Equations (MSE) by the Partial Least Squares (PLS). This method allows to verify, among other factors, the Average Variance Extracted (AVE), Cronbach's Alpha (CA), the Compound Reliability (CR), the Discriminant Validity (DV) and the Student's T-Test. Hair et al. (2014) treats that the MSE is a class of multivariate techniques that combine aspects of factorial analysis and regression, allowing to examine simultaneously the relationships between Observed Variables and Latent Variables (LV).

PLS modeling uses available data to estimate the path relationships in the model in order to minimize the error terms (ie, residual variance) of the endogenous constructs, ie estimates of the coefficients that maximize the values (R2) of endogenous constructs (HAIR et al., 2014). According to the authors, the PLS aims to develop a theory and explain its variance (construction prediction). This method works efficiently on small samples of complex models and can be applied in a wide variety of research situations (HAIR et al., 2014).

3.1 Research Sample

The survey was conducted between February and June 2016, through a database containing 975 industry related entities, obtained from the Federation of Industries of the State of Rondônia (FIERO, 2016).

Sequentially, electronic and/or personal email addresses were collected via the companies linkedln sending 532 questionnaires to the managers / managers of the companies. At the end of the collection, 63 questionnaires were obtained, which, after excluding 5 answers (mistakenly completed), resulted in a final sample of 58 respondents, number considered adequate for MSE - PLS (HAIR et al., 2014).

3.2 Research Variables

The SI variables (BARBIERI et al., 2010, KNEIPP, 2016) were based on the were based

on the Actions for new processes (SINP), Actions aimed at new products and/or services (SINPS), Actions related to new methods of management or business (SINMMB), Technological process management or organizational research (SITPMO) and Process for value creation with SIs (SIVCI).

The variables of the enterprise FMP (PELHAM, WILSON, 1996, GUNDAY et al., 2011, CHENG, YANG, SHEU, 2014) were based on Total Asset (FMTA), Profit (FMP), Customer Satisfaction (FMCS) in the Market (FMM) and Value Added Product/Service (FMVAPS).

3.3 Data Analysis

According to the MSE - PLS, the following steps / procedures should be followed for the analysis of the proposed construct in the research: CA, CR, AVE, DV verification, Student 's T test, and finally, the evaluation of the structural model (RINGLE; SILVA; BIDO, 2014; HAIR et al., 2014).

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).

The CR ranges from 0 to 1 and is generally interpreted in the same way as CA. Specifically, values between 0,60 and 0,70 are acceptable in exploratory research, and in advanced stages of research may exceed 0,90 (NUNNALLY; BERSTEIN, 1994). According to the authors, CR below 0,60 indicates lack of reliability of internal consistency of the construct.

According to Hair et al. (2014, p.103), "the AVE is the mean value of the square loads of the indicators associated with the construction, that is, the sum of the square of the loads divided by the number of indicators." For the authors, the AVE is equivalent to the community of a construct, on what a value of 0,50 or greater indicates that, on average, the model explains more than half of the variance of its indicators.

DV is the extent to which a construct is truly distinct from other constructs by empirical patterns, implying that it is the only one that captures phenomena not represented by other constructs in the model (HAIR et al., 2014).

The "T" test seeks to test the hypothesis of difference between two means under the null hypothesis that they are equal, having the ability to detect significant differences between sets of data with similar means (HAIR et al., 2014). According to the authors, test values "T" equal to or above 1.96, with significance of 0,05, are acceptable.

In the evaluation of the structural model, the Pearson coefficient (R^2) evaluates the portion of the variance of the endogenous variables (RINGLE; SILVA; BIDO, 2014), being classified as having a small effect (0,02), with a mean effect (0,13) and with great effect (0,26) on the results (COHEN, 1998). There is also the R^2, Predictive Relevance (Q^2) which indicates how well the model is close to what was expected of him and the effect size (f^2) that evaluates the contribution of a building (HAIR et al., 2014).

4 RESULTS AND DISCUSSION

The verification of the consistency of the questionnaire components by means of the calculation of CA, CR and AVE indicated the following results:

Table 1: Reliability and Average Variance Statistics

Dimensions	N	Items	CA	CR	AVE
Maturity in Sustainable Innovation (MSI)	58	5	,934	,950	,792
Financial and Market Performance (FMP)	58	5	,815	,871	,575

Fonte: Dados de Pesquisa - *software Smart PLS*

Table 1 shows the total number of interviews (N = 58), the number of items of each VL (5), the results for the CA in MSI (0,934) and in the FMP (0,815), higher than 0,7 (STREINER, 2003), indicating a high correlation between the variables (CRONBACH, 1951); the CR (MSI: 0,950 and FMP: 0,872) considered acceptable and at an advanced stage of research (NUNNALLY; BERSTEIN, 1994); and AVE (MSI: 0,792 and FMP: 0,575), indicating that, on average, the model explains more than half of the variance of its indicators (HAIR et al., 2014).

The DV (cross-loading method) demonstrated that the construction of each VL is truly distinct from the other (HAIR et al., 2014), implying that the factor loads are within the scope of their respective dimensions, according to Table 2.

Table 2: Discriminating Validity

Variables	FMP	MSI	Variables	FMP	MSI
FMTA	0.846	0.569	SICVI	0.556	0.920
FMP	0.725	0.411	SINMMB	0.526	0.937
FMM	0.780	0.465	SINP	0.491	0.873
FMCS	0.680	0.340	SINPS	0.592	0.910
FMVAPS	0.748	0.419	SITPMO	0.457	0.804

Source: Research Data - Smart PLS software

The Student's "T" test, obtained by the bootstrapping module (Smart PLS), indicated in the MSI and FMP values well above 1,96 for the level of significance of 0,05, thus showing the difference between two means under the null hypothesis (HAIR et al., 2014), as shown in table 3.

Table 3: Test "T" and P-value

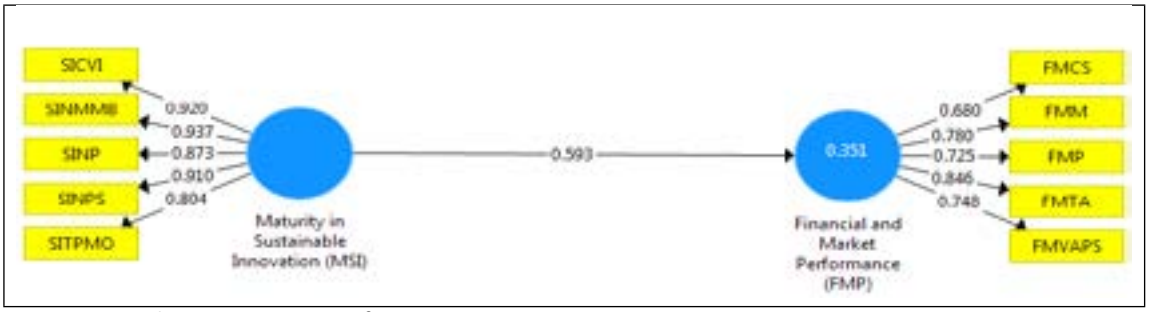
Variables	"T"	P-value	Variables	"T"	P-value
FMTA	23,567	0,000	SICVI	50,723	0,000
FMP	10,059	0,000	SINMMB	77,857	0,000
FMM	14,711	0,000	SINP	27,877	0,000
FMCS	6,863	0,005	SINPS	43,400	0,000
FMVAPS	12,753	0,000	SITPMO	12,795	0,000

Source: Research Data - Smart PLS software

Values of Q^2 (assessment for predictive relevance) were positive and above zero (0,171), indicating that the model is close to what was expected of it. The f^2 was not calculated because no constructs were included and / or excluded in the model (HAIR et al., 2014).

In the complete PLS model it is possible to verify the Beta (β) path coefficient of the relationship between MSI and FMP (0,593). In the specific case of this study, R^2 was 0,351, that is, the MSI explains about 35,1% of the FMP, indicating a great effect on the constructs (COHEN, 1998). In this way, the model demonstrates the interactive interaction capacity between the parameters (LEE et al., 2011), according to figure 1.

Figure 1: Complete Structural Model



Source: Research Data - Smart PLS software

The results obtained in the PLS-MSE, in general, corroborate with the average levels of MSI found in the research, and of the total sample, fourteen companies that presented higher levels of maturity (4 and 5) also indicated the best results in the FMP. In turn, the eight companies that reported the lowest levels of MSI (1 and 2) also had a lower FMP. It was also verified that of the ten companies that presented the average level of MSI (3), seven had an average level of FMP, while the other (12) were on a higher scale of FMP. The other companies (seventeen) alternated between the best, medium and lowest results of MSI and FMP.

The results allow to indicate that the sustainable businesses that incorporate TBL (HANSEN; GROSSE-DUNKER; REICHWALD, 2009; BOCKEN et al., 2013; FROEHLICH, 2014) related to management tools (BARBIERI et al., 2010) and corporate financial performance (GUNDAY et al., 2011; LOPEZ-VALEIRAS; GOMES-CONDE; NARANJO-GIL, 2015) are still not conclusive (BOONS; LUDEKE-FREUND, 2013), both by the limited theoretical basis on SI and by the few empirical studies on the subject (GALVÃO, 2014; DELAI, 2014; HYNDS et al., 2014; KNEIPP, 2016).

Based on this study, the development of MSI models in the strategic context of organizations (HYNDS et al., 2014, GALVÃO, 2014, DELAI, 2014, KNEIPP, 2016) can help, among other factors, in incremental process improvements (HELLSTROM, 2007; CHARTER et al., 2008), creation of new spaces in the marketplace (CHARTER; CLARK, 2007), products and services (RENNINGS, 2000; BOONS et al., 2013; BARBIERI et al., 2010), integrated into systems for generating ideas, research in R&D and technologies (CHARTER, CLARK, 2007, CHARTER et al., 2008) that combine the creation of economic, ecological and social value. Thus, H1 is accepted.

Companies should incorporate the constraints arising from social and environmental pressures (KEMP; PEARSON, 2008) and the development of new environmentally sound processes and products (SCHALTEGGER; LÜDEKE-FREUND; HANSEN, 2011; HANSEN; GROBE-DUNKER; REICHWALD, 2009; KNEIPP, 2016) in order to avoid a reduction in profits and the value created for shareholders while maintaining business performance and a better strategic positioning (HART; MILSTEIN, 2004; BOONS; LÜDEKE-FREUND, 2013) in long-term perspective (HALL; VREDENBURG, 2003). Thus, the competitive strategy related to the creation of products or processes (OKSANEN;

HAUTAMAKI, 2015) can mobilize resources, enable employees and allow companies to invest in more knowledgeable information (GALVÃO, 2014). In this sense, H2 is accepted.

The potential generation of competitive advantage from the SIs allows for new social and environmental regulations and new business opportunities (HANSEN; GROBE-DUNKER; REICHWALD, 2009), involving a wide cooperation of several actors (OKSANEN; HAUTAMAKI, 2015). These businesses reinforce the core of resources whose dynamism results in new combinations and new features (JANG, 2013) that ensure a lasting advantage for companies (BARNEY, 1991; HART; MILSTEIN, 2004).

In this context, TBR, when implementing market strategies (WERNERFELT, 1984; BARNEY; ARIKAN, 2001) and relative advantages in terms of efficiency (LOCKHETT, 2005), expresses the relationships between resources, competition and profitability (BARNEY, 1991) which can sustain competitive advantage (GRANT, 1991). Such an advantage may occur when implementing value, rarity, difficulty of imitation and not simultaneous use of competitors (BARNEY, 1991) and may involve issues related to sustainability (HART, 1995; SHRIVASTAVA; HART, 1995; RUSSIAN; FOUTS, 1997).

In addition, there is the need for theoretical expansion to explain the achievement and competitive advantage maintenance, indicating the sources and methods for the creation by either the position of the assets or resources (TEECE; PISANO, 1994; TEECE; PISANO; SHUEN , 1997), as well as the generation of ideas, the development of innovative products, services and processes (MCKELVIE; DAVIDSON, 2009). The way in which access to resources affects firms makes the competitive advantage reside in resource configurations (EISENHARDT; MARTIN, 2002) although the capabilities of firms also have the potential to generate this advantage (TEECE; PISANO; SHUEN , 1997) . Thus, H3 is accepted.

The ability of companies get involved in the sustainability process in their business models (FROEHLICH, 2014; HYNDS et al., 2014) makes the strategic management of MSI (GALVÃO, 2014; DELAI, 2014) offers better results for financial performance and market for companies that position themselves at the best levels of MSI and in contrast to those at the lowest levels (KNEIPP, 2016). In this way, H4 is accepted.

Based on these assertions, it can be verified that by means of management from the MSI models, it is possible to verify how the SIs are developed and managed, providing a source of competitive advantage and superior performance to the companies. Thus, complementarity in the use of resources and entrepreneurial capacities allow the creation of value for sustainable businesses.

5 FINAL CONSIDERATIONS

The objective of this study was to verify the relationship between Maturity in Sustainable Innovation and financial and market performance of the companies. The results indicate that, although it is not a rule, the sustainable businesses that incorporate TBL have, at present, a close relationship with business management (BARBIERI et al., 2010), either because of the strategic need to develop innovations that have some relation to socio-environmental causes in a complementary way to economic either to obtain better results from this process.

SIs comprise several processes, products and services contexts (OKSANEN, HAUTAMAKI, 2015), among other aspects, which must be integrated into a system for generating ideas, R & D research and technologies that combine value creation for companies.

In the strategic context, sustainable innovations can mobilize resources, enable employ-

ees and obtain information that allows greater internal and external knowledge (GALVÃO, 2014). Thus, the potential for generating competitive advantage from this context opens new social and environmental regulations and new business opportunities, involving a broad cooperation of several actors to reinforce the nucleus of new combinations of resources and capacities.

The strategic context of sustainability foreseen by the Resource-based Theory, regarding the generation of relative advantages in terms of efficiency for companies, must express the relations between resources, competition and profitability, by means of the insertion of value, rarity, difficulty of imitation and not substitution by competition as a way of sustaining competitive advantage (BARNEY, 1991).

In addition, there is a need for theoretical expansion of the SI related issue to explain the way of obtaining and maintaining competitive advantage, indicating the sources and methods for wealth creation by means both the position of assets or resources, as well as generation of ideas, the development of innovative products, services and processes that come from the capacities developed by the companies, that is to say, of their Dynamic Capabilities (TEECE; PISANO, 1994; TEECE; PISANO; SHUEN, 1997).

As predicted in the work related to the development of Maturity in Sustainable Innovation models, it was verified that the capacity of companies to be involved in the sustainability process in the strategic context (GALVÃO, 2014, DELAI, 2014) means that the best levels of maturity are related to the best Financial and Market Performance results and that the lower levels are related to lower financial and market performance results (KNEIPP, 2016).

In this way, Maturity in Sustainable Innovation models enable the management of sustainable innovations to provide a source of competitive advantage and improvement in economic performance. This advantage can be achieved by means of the use of resources and capabilities that create value for sustainable business.

This research had as limitation the few theoretical and empirical bases on the theme related to ISs, to analyze their implications in the economic performance, not allowing the generalization of the results. Another point worth mentioning is the fact that the sample considers a specific regional context and other works that seek to broaden this approach can obtain other results. Therefore, it is recommended to expand this research, considering other samples, to advance in this area of knowledge.

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