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KNOWLEDGE MANAGEMENT, MARKET ORIENTATION, INNOVATIVENESS AND ORGANIZATIONAL OUTCOMES: A STUDY ON COMPANIES OPERATING IN BRAZIL.

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ABSTRACT

This article analyzes the study of the relationship among knowledge management, the company's market orientation, innovativeness and organizational outcomes. The survey was conducted based on a survey held with executives from 241 companies in Brazil. The evidence found indicates that knowledge management directly contributes to market orientation, but it requires a clearly defined strategic direction to achieve results and innovativeness. It was also concluded that knowledge, as a resource, leverages other resources of the company, while it requires a direction in relation to the organizational goals in order to be effective.

Keywords: Knowledge Management; Market Orientation; Innovativeness; Organizational Outcomes; Strategy.

1. INTRODUCTION

The ability to innovate, differentiation from competitors, the sensitivity to changes that take place in their environments and consumer markets have been characterized as critical aspects for the survival and growth of companies ever since the last decade of the twentieth century. (Arthur, 1999, Grossman, 2006, Hooley, Saunders

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& Piercy, 2001). This environment influences organizations, mainly due to the information flow on a large scale, changing internal aspects, ways of doing business and the market as a whole.

In the practice of organizational management, executives have been realizing that something must be done in order to guide the internally existing knowledge, identify and capture external knowledge, create new knowledge, and apply them to improve performance, achieve innovation and competitiveness.

Directors, managers and professionals, representing companies, as well as organizational consultants and academic researchers, mainly in the area of administration, have realized the growing influence of knowledge as a new factor to be considered in the approach of management models (Fleury & Oliveira Jr., 2001). Therefore, there are several studies that have identified empirical evidence on the relationship of knowledge management with the organizational outcome. However, it is difficult to argue that organizational outcome could be affected only by knowledge management, since this practice affects and is affected by other aspects of the organization, noting that knowledge is a resource that leverages the majority of other resources in organizations.

In another line, Drucker (1954) stated that the only purpose for the existence of a company is to create a customer, and for this, two basic functions are necessary: marketing and innovation, that is, the company should be market oriented. This means that the company needs to understand the demands and opportunities offered by the market, the potential threats, the competitors' actions, trends, and develop an internal intelligence to offer the market what it demands and stay ahead of competitors. The company's orientation towards the market is constantly associated with innovation and competitiveness (Day, 2001; Deshpandé, Farley & Webster, 1993, Kohli & Jaworski, 1990, Narver & Slater, 1990), as well as learning (Day, 2001, Slater & Narver, 1995), dissemination of knowledge (Day, 2001, Kohli & Jaworski, 1990, Narver & Slater, 1990) and other processes that may be considered related to knowledge management. According to other authors (Arthur, 1999, Drucker, 1993, Hooley et al., 2001), knowledge can increase the ability of the companies to feel the market, its changes and subtleties, and thus lead companies to anticipate these changes, serving its customers in a more effective and efficient manner, in addition to providing new business opportunities. According to Quinn (1992), the development of knowledge-based factors is crucial to the value creation of products and services, and most of these factors are related to the company's orientation towards the market and its purposes.

Therefore, both knowledge management and market orientation focus on innovation as a result that leads to a better organizational performance, that is, a behavior that allows to stay ahead of competitors and anticipating the needs and desires of consumers lead to new products and services, which means innovation.

Given the above explanation, this study aims to analyze the relationship among knowledge management, the degree of orientation of the companies to the market, the ability to innovate (innovativeness) and the organizational outcomes. We sought to understand how all these variables interact, affecting them individually and collectively, and it is summarized in the following research questions: Does knowledge management contribute to the development of the company's orientation towards the market and its innovativeness? Do these factors contribute to the organizational outcome?

2. THEORETICAL FRAMEWORK

2.1. Effective Knowledge Management and form of Measurement

Knowledge as one of the key strategic resources of a company is able to generate competitive advantage, as pointed out by seminal authors and scholars of the Resource-Based View Theory, such as Barney (1991), Barney, Wright and Ketchen (2001), Grant (1996), Penrose (1959), Peteraf (1993) and Wernerfelt (1984).

Wernerfelt (1984) conceptually defined an organizational resource as something that can be thought of as a strength or weakness of a company, or how those assets (tangible or intangible) are associated in a semi-permanent manner with the company. The author also proposes a strategy for a position in resources, which it considers essential for a company.

Knowledge itself, when understood as an object, can not be administered as a variable of analysis, and it does not allow an operationalization (Ferraresi & Santos, 2006). Thus, the term 'knowledge management' is understood in this paper as a designation of 'management focused on knowledge', that is, a management philosophy of companies and organizations that understand knowledge as a strategic organizational resource. Although knowledge can not be administered, when it is understood as a resource it is able to manage the processes related to it, such as those related to capture, sharing, dissemination and use, for example. Authors such as Bukowitz and Williams (2000), McElroy (1999), Nickols (1996), Wiig (1993), Zack (1999), among others, have identified key processes for knowledge management aiming to develop a model for such practice. In another line, scholars such as Darroch (2003), Gold, Malhotra and Segars (2001), Tajeddini (2010); Tajeddini, Trueman and Larsen (2006), among others, have been conducting studies in order to assess the effectiveness of knowledge management and its implications for companies.

Among the studies carried out in order to measure and analyze the effective management of knowledge, we highlight the study of Gold *et al.* (2001), which focused on the problem from the perspective of the company's capabilities and focusing on the knowledge management processes.

Gold *et al.* (2001) grouped the key processes of knowledge management into four scales of processes that determine the effective management of knowledge: acquisition of knowledge, conversion of this knowledge into a usable form, application or use and protection of knowledge. The processes of knowledge management focused on acquisition are those aimed at obtaining knowledge, and several terms have been used to describe them, according to Gold *et al.* (2001): acquisition, search, generation, creation, capture, and collaboration, all of which have a common issue, the accumulation of knowledge. The improvement in the use of knowledge and the effective acquisition of new knowledge are essential aspects of this scale. The processes of knowledge management focused on the conversion of knowledge, according to Gold *et al.* (2001) are those that are intended to transform the existing knowledge into usable knowledge. A few processes allow the conversion of knowledge, such as the company's ability to organize (Davenport & Klahr, 1998), combine, coordinate (Nonaka, 1990,

1994) or distribute knowledge (Davenport, Jarvenpaa & Beers, 1996; Zander & Kogut, 1995).

The processes of knowledge management focused on application are those aimed at using the current knowledge. Gold *et al.* (2001) state that there is little discussion about the effective application of knowledge, and it is implicitly assumed that, once created, knowledge will be effectively applied, as it is possible to understand from the perspective of Nonaka and Takeuchi (1997), for instance. Characteristic processes, which were associated by Gold *et al.* (2001) with the scale of 'application' in the literature reviewed, include storage, retrieval, application, contribution and sharing. The same authors state that the efficient storage and access and retrieval mechanisms enable the organization to access knowledge quickly, and thus the organizational knowledge and expertise can be shared. Gold *et al.* (2001) used the Likert scale to measure the constructs involved in their survey: 12 variables to measure the effectiveness of the knowledge acquisition process; 10 variables to measure the effectiveness of the knowledge conversion process; 12 variables to measure the effectiveness of the knowledge use process; and 10 variables to measure the effectiveness of the knowledge protection process, thus totaling 44 variables.

2.2. Market Orientation and form of Measurement

Market orientation of companies were studied long ago by the academia and the surveys on the subject include the investigation of the use of market orientation, the benefits of the adoption of market orientation, its limits, and the facilitating factors and barriers to the application of this concept. According to Day (2001), companies can only create strategies that offer higher value to their customers and keep them in line with the changing market demands if they have higher qualifications to understand, attract and retain customers. These qualifications would be the characteristics of a market oriented company, and are sustained by a culture that promotes understanding and commitment to all functions within the company to create higher value to the customers (Day, 2001, Deshpandé *et al.*, 1993, Jaworski & Kohli, 1993, Kohli & Jaworski, 1990, Narver & Slater, 1990, Slater & Narver, 1994). The concept of market orientation represents, according to Kohli, Jaworski and Kumar (1993), the foundation for a marketing practice of high quality, and requires the adoption of the marketing concept, a business philosophy that understands the profit in the long term as the result of the supply of products or services that meet the consumer needs and desires.

Recognizing the existence and importance of other lines of research, such as Day (2004) and Deshpandé *et al.* (1993), the studies developed by Kohli and Jaworski (1990), Kohli *et al.* (1993), and Narver and Slater (1990), seminal authors who inspired many other researchers, were the reference for the study and choice of the scale for measuring the companies' market orientation used in this study. The justification of this choice was based on the fact that the MARKOR and MKTOR scales, developed by Kohli, Jaworski and Kumar (1993) and Narver and Slater (1990), respectively, are the most important and significant (Farrel & Oczkowski, 1997) besides being the most commonly used in research worldwide, considered the main references to the academia. However, although statistical problems were found in the two scales, as described by Farrel and Oczkowski (1997), Pelhan and Wilson (1996) demonstrated that the MKTOR scale is comparatively more reliable than the MARKOR scale, and the authors themselves, who developed such scales, admit this weakness. This led to the adoption of the MKTOR scale of Narver and Slater (1990) in this study.

The market orientation construct of Narver and Slater (1990) defines three elements, namely: consumer orientation, competitor orientation and interfunctional coordination. The use of the MKTOR scale is originally proposed using a 7-point scale for each variable. The final number that measures the intensity of the market orientation is the result of the simple average of the scores of the three components (Narver & Slater, 1990).

2.3. Innovation and Innovativeness

Drucker (1954) stated that the only purpose for the existence of a company is to create a customer, and for that, two basic functions are necessary: marketing and innovation. The meaning of this statement lies in the fact that the companies need to know the market where they operate, finding therein opportunities to offer value products to consumers in a more effective and efficient manner than their competitors. Innovating, therefore, means to act differently than competitors in offering products and services, or in other aspects of the company's management and market share, so that customers realize greater value.

The term innovativeness refers to the ability or propensity of the company to innovate or develop new products (Andreassi & Sbragia, 2004; Garcia & Calantone, 2002; Lynch, Walsh & Harrington, 2010). As pointed by Huley and Hult (1998), innovativeness means to be open to new ideas, as an internal culture of the organization. While there are numerous studies on factors that lead to innovativeness in the company, there is still no consensus on how it can be related to the maximization of the organizational performance (Tajeddini, 2011; Tajeddini *et al.* 2006). We found little variation in the literature concerning the way of measuring the company's innovativeness as it is understood in this paper. Among the studies found, addressing the ways of measuring innovativeness, we should point out Deshpandé *et al.* (1993), which used a Likert scale of 5 points with 5 variables to measure the innovativeness of the company; and also the studies of Tajeddini (2011) and Tajeddini *et al.* (2006), which related the innovativeness and organizational performance based on the customer, competitor and interfunctional coordination orientation, in a survey conducted with small and medium enterprises in Switzerland. For that, they have used a scale with five variables focusing on the behavior of people and the company.

2.4. Organizational outcome

The organizational performance or outcome were discussed together with one or more of the constructs involved in this research by Almashari, Zairi e Alathari (2002), Bogner and Bansal (2007), Darroch (2003), Deshpandé *et al.* (1993), Kohli and Jaworski (1990), Narver and Slater (1990), Pelhan and Wilson (1996), Rapp, Schillewaert and Hao (2008), Slater and Narver (1994), Tajeddini (2011); Tajeddini *et al.* (2006), Zheng (2005), Zeng, Yang and McLean (2011), among others.

The methods to assess the results found in these studies can be divided into two groups: one that uses financial criteria (objectives) and another that uses non-financial criteria (non-objectives). Some used mixed criteria. Among the measures we found: market share, percentage of sales from new products or services and rate of return on investments, in addition to measures that assess internal aspects, such as those related to the streamlining of internal processes and the reduction of the response time to the

market changes.

3. RELATIONSHIPS AMONG THE CONSTRUCTS UNDER ANALYSIS

Studies involving such constructs as 'effective knowledge management', 'market orientation of the company', 'innovativeness' and 'organizational outcomes' are relatively abundant in the literature; however, apart from the limitations of this research, we found no studies relating all these constructs together. The literature shows several evidences on the relationship of knowledge management with market orientation, and specifically, with each of the components of this construct. According to several authors (Arthur, 1999; Drucker, 1993, Hooley *et al.*, 2001), knowledge can increase the companies' ability to feel the market, its changes and subtleties, and thus lead companies to stay ahead of these changes, serving its customers in a more effective and efficient manner, in addition to providing new business opportunities. The company's orientation towards the market is also constantly associated with learning (Day, 2001, Slater & Narver, 1995), dissemination of knowledge (Day, 2001, Kohli & Jaworski, 1990, Narver & Slater, 1990) and other processes related to knowledge management.

The relationship between knowledge management and innovativeness is straightforward, since knowledge, as an element which influences competitiveness and as a raw material for innovation, is recognized by several authors, such as Arthur (1999), Bogner and Bansal (2007), Dalkir (2011), Drucker (1998; 2000), Gold *et al.* (2001), Lemon and Sahota (2004), Nonaka and Takeuchi, (1997). Empirical evidences regarding the consequences of the effective management of knowledge related to the capacity of innovation are pointed out by Nonaka and Takeuchi (1997). Many of these results support the thoughts of Nelson and Winter (1982) and Penrose (1959), which demonstrated the knowledge management rule as a coordinated mechanism, by developing incremental innovations. However, some empirical results are still contradictory, such as those found by Darroch (2003), for example.

Several authors, such as Almashari *et al.* (2002), Darroch (2003), Firestone (2006), Lemon and Sahota (2004), Nonaka and Takeuchi (1997), Teece (1998) and Wiig (1997), conducted empirical studies or established theoretical discussions aimed at identifying evidence or establish the relationship of knowledge management in the companies' results. Connor and Prahalad (1996) suggested positive impacts of knowledge management in achieving competitive advantage; Darroch (2003) and Wiig (1997) evidenced the positive financial results of knowledge management. However, the differences of the approaches and the forms of measurement do not allow any conclusion about this relationship.

The literature shows plenty of evidence regarding the relationship between market orientation and innovativeness. Innovation is a direct topic of interest of marketing, since its origins, Drucker (1954). Deshpandé and Farley (1999, 2000) state that the company must be innovative to achieve competitive advantage in order to survive and grow, and they were based on the research conducted with companies where they related innovativeness to a high level of market orientation. Evidence on the relationship between the company's market orientation and the company's innovativeness, raised by research around the world, shows conflicting results. Tajeddini *et al.* (2006) found positive results, while Baker and Sinkula (1999), Han, Kim and Srivastava (1998) did not identify statistically significant direct results between these variables.

The relationships between market orientation and organizational outcomes long ago by the seminal scholars on the subject, such as Day (2001), Jaworski and Kohli (2000), Deshpandé *et al.* (1993), Kohli; Jaworski and Kumar (1993), Kohli and Jaworski (1990), Narver and Slater (1990), among others.

Jaworski and Kohli (2000) analyzed 36 studies conducted around the world, which have related these two constructs, of which 23 studies showed a positive association; 3 did not find a significant relationship and countless others have found weak relationships. The differences, according to the authors, most likely relate to the business context and its understanding of the variables involved and the type of sample.

Innovativeness is intuitively related to the organizational outcome (Darroch, 2003). Several authors, such as Almashari *et al.* (2002), Dove (1999), Lemon and Sahota (2004), Nonaka and Takeuchi (1997), among others, theoretically or empirically related these concepts to positive results.

After showing the relationships among the constructs analyzed in this study, the next item discusses the methodology used.

4. METHODOLOGY

The study analyzed the relationship among the constructs "knowledge management", "market orientation", "innovativeness" and "organizational outcomes" in the companies, which conceptual model is shown in Figure 1, conducted based on an electronic survey.

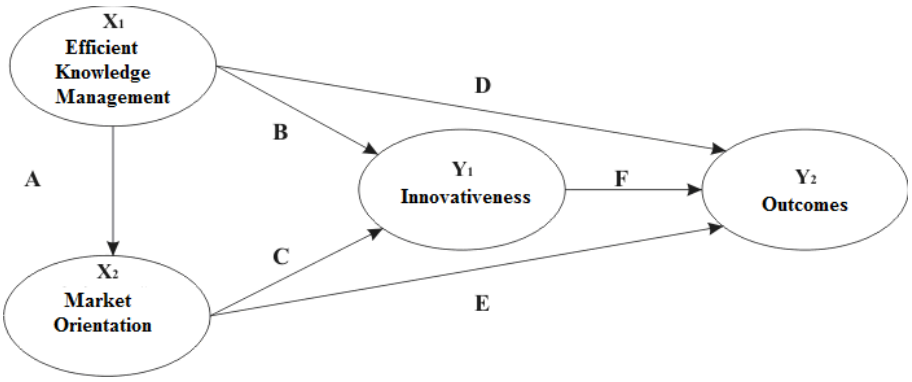

Figure 1 - Conceptual model of the research

The sample consists of a list of 6,509 companies located in Brazil, from the sectors of industry and services, with over 200 employees. This list originally comes from the study called Demography of Companies, conducted by the Brazilian Institute of Geography and Statistics [IBGE]. Data were collected through a self-administered electronic questionnaire. The respondents were directors, representing companies from the commercial/marketing, industrial or R&D; administration/financial or human resources areas, as we believed that these professionals would be those with better access to the target information of this study. The respondents were invited to

participate in the survey by email and once they accepted the invitations, they were given a password to access the questionnaire, which could be answered by steps. The software was provided by SoftResearch®, a company located in Curitiba, State of Paraná, Brazil, which managed the process. In the end, 241 questionnaires were collected, which originated the data analyzed.

The questionnaire consisted of 54 questions that used a 10-point ordinal scale, where 1 corresponded to the total disagreement on the question and 10 the full agreement with the question. The questions used were those corresponding to the scales used by various authors in other studies, namely:

The questions to measure the effective knowledge management are those of the scale developed by Gold *et al.* (2001), appropriately modified. This scale originally provided three scales to measure this construct: knowledge acquisition; knowledge conversion/sharing; knowledge application; and knowledge protection. For this study, we did not use the knowledge protection scale. Therefore, the scale to measure the construct consisted of 'effective knowledge management', 11 questions relating to the knowledge acquisition process; 10 questions related to the knowledge conversion process/knowledge sharing and 9 questions concerning the knowledge application process, thus totaling 30 questions.

The questions to measure the market orientation were those originally from the MKTOR scale of Narver and Salter (1990), without adjustments, as follows: 6 related to the 'customer orientation' scale; 4 related to the 'competitor orientation' scale; and 4 related to the 'interfunctional coordination' scale, totaling 14 questions.

The questions to measure the innovativeness were the five questions used in the study of Tajeddini *et al.* (2006), without adjustments.

To measure the organizational outcomes, we used the three questions of the scale of Tajeddini *et al.* (2006), in addition to two other questions related to the internal results of the organization, originally from the scale of Gold *et al.* (2001), thus totaling five questions.

The scales, originally written in English, were translated into Portuguese and back into English for the verification of translation errors. Once the translations were validated, they were included in the questionnaire. The data collected were subsequently analyzed based on univariate and multivariate statistics, using software SPSS 16.0 and AMOS 4.0. For the analysis of the relationships among the constructs and the confirmation of the model, we used the SEM technique *(Structural Equation Modeling).*

5. DATA ANALYSIS

Among the respondents, we observed a predominance of companies having from 200 to 1000 employees (81.3%), and 61% of these companies have from 200 to 500 employees. As for the location of the company's headquarters, the geographical distribution was concentrated in the states of the Southern region of Brazil (SP = 50.2%; MG = 16.2%; RS = 11.2%; SC = 7.9%; RJ = 4.6%; PR = 4.6%; ES = 0.4%), as well as companies in states from other regions (PE = 1,2%; SE = 0,8%; PA = 0.8%; MT = 0.8%; PI = 0.4%; DF = 0.4%; BA = 0.4%). Among these, 67.6% belonged to the industrial sector and 32.4% in the service sector. The respondents were distributed with respect to their areas, as follows: 57.7% commercial/marketing; 26.7%

administrative/financial; 11.5% industrial/R&D; 4.1% human resources.

The scales of each construct were submitted to exploratory factor analysis in order to verify a potential reduction of factors and identification of different scales of analysis, after which they were submitted to the confirmatory factor analysis, using the SEM technique *(Structural Equation Modeling).* In all scales and in the different scales of the constructs, the Kolgomorov-Smirnov test indicated the non-normality of the data distribution. As for kurtosis, it was also positively identified in the distribution of the variables in all constructs. By considering a survey that uses a progressive scale, it is expected that the data are not normally distributed and that the answers concentrate on one end of the distribution curve.

The evaluation of the colinearity was conducted based on the examination of the correlations between the various indicators, and we noted that all correlations are significant and lower than the critical value of 0.90. To offset the effects of non-normality, we used the bootstrap technique. The Bartlett's sphericity test carried out for all constructs also demonstrated that there is a sufficient relationship between the indicators for the application of factor analysis (Sig < 0.05). The identification of factors was performed through the principal components analysis and the Kaiser normalization method, and rotation through the Varimax method. The KMO test, Kaiser-Meyer-Olkin, which measures the adequacy of the sample (MSA) reached satisfactory levels in all constructs. The cumulative variance explained by the factors analyzed was always above the 60% limit suggested by the literature (Hair, Anderson, Tatham & Black, 2005). In the corroborative factorial analysis of the several constructs, the adjusting measures were considered satisfactory, and then such constructs were applied to the integrated model for the final analysis.

The adjusting measures of the integrated model, in all constructs, have not reached satisfactory levels, after which through the analysis on the offending estimates and the modification indexes (MI) offered by the software AMOS® 4.0, its re-specification was carried out. The model's re-specification process required the exclusion of 3 variables from the construct Efficient Knowledge Management; 3 variables from the construct Market Guidance; 2 variables from the construct Innovativeness; and 2 variables from the construct Results. The size of the sample (241 cases) is above the minimum of 200 cases recommended as a rule of thumb by several authors, as mentioned by Garson (2009), although with a small margin, which could have affected certain indexes, mainly due to the complexity of the model, which, most likely, would show better results with a larger sample. Despite the data's multivariate non-normality and that, traditionally, the *Maximum Likelihood* – ML estimation is provided with the normality presumption, several asymptotic robustness studies showed that the ML estimation can properly describe and evaluate the behavior of a model with non-normally distributed variables (Hu & Bentler, 1995), thus justifying the analysis carried out by this sort of estimation.

The adjustment of the model presented a $\chi^2 = 608.719$ (CMIN) for 310 degrees of freedom (DF). Despite the fact that the discrepancy value is substantial for this degree of freedom (p= 0,000), the CMIN/DF value = 1.964, much lower than the maximum limit of 5, defended by literature, proves the good quality of the product (Klyne, 2005), supported by the Bollen-Stine bootstrap test, which produced $p = 0.129$, preventing the rejection, at 0.05 of significance on the assumption that the model is not a proper representation of the data behavior. Indexes GFI = 0.856 and AGFI = 0.812 (this latter has not been checked, thus, so far) remained under the desired value, as well

as NFI = 0.873 and RFI = 0.845, however, the figures for IFI = 0.933, TLI = 0.917 and CFI = 0.932 produced good quality, above 0.90, as recommended by literature, confirming the model's stable behavior. As the IFI, TLI and CFI values take sample size into account, as opposed to GFI, AGFI, NFI and RFI, and also remarking that the sample might be deemed small for the model's complexity level, it is reasonable to expect a substantially improved behavior for the indicators that consider this aspect, which is supported by Byrne (2001). Another important point is that, according to Hu & Bentler (2001), several studies have shown a positive association of the sample distribution mean for the absolute indexes (GFI, AGFI, NFI and RFI) with the size of the sample, which corroborates the argument concerning the suitability of such indexes for the check on the model's relevance. In addition, according to Mulaike (1984 *apud* Byrne, 2001) and Byrne (2001), the AGFI values are typically lower than those of the indicators of the other constructs, and in several cases, values above 0.50 are accepted. The RMSEA = reached 0.063 and exceeded 0.05, which is the value recommended by Hu & Bentler (1999) as ideal, however, off the maximum limit of 0.08 suggested by the literature; the value of its close fit probability was p = 0.002, leading to the rejection of the null hypothesis that the model bears a low mean square error. Moreover, the confidence interval for RMSEA ranges from 0.056 to 0,071, indicating that the maximum value of the 90% confidence interval for *p* is still below 0.08, which is the value recommended by the literature. It is worth mentioning that the RMSEA is sensitive to the number of model's estimated parameters, that is, for complex models it is difficult to acquire error values that are consistent with the ones recommended by the literature (BYRNE, 2001). According to Byrne (2001), it is possible to accept RMSEA values up to 0.08 as indicators of a good population quality in the sample used. The RMR = 0.204 was considered satisfactory.

5.1. Hypotheses and Discussion Test

Given the exposure and analysis of the several indexes, the model seemed to suit the proposals of this research, and therefore, an analysis was carried out on other data arising from the evidencing factorial analysis for the hypothesis tests. For such, the values and statistical significances of the standardized regression coefficients were used. A summary of the direct, indirect and total effects can be seen in Table 1.

Table 1 – Direct, indirect and total effects amongst the constructs

Relations	Direct Effects	Indirect Effects	Total effects
F11 Efficient Knowledge Management. => F12 Market Guidance	0,928**	---	0,928*
F11 Efficient Knowledge Management => F9 Innovativeness	0,475***	0,381***	0,855**
F11 Efficient Knowledge Management => F10 Results	-0,014***	0,812*	0,798**
F12 Market Guidance => F9 Innovativeness	0,410***	---	0,410***
F12 Market Guidance => F10 Results	0,562***	0,139***	0,701*
F9 Innovativeness => F10 Results	0,340***	---	0,340***
* sig. A p < 0,05 / ** sig. a p < 0,01 / *** not substantial			

The results allowed the null hypothesis developed for the research to be checked, as follows:

- "H01 – Knowledge management does not contribute positively to a company's market orientation" has been rejected at <0.05. This result corroborates the theoretical

formulations developed by Hooley *et al.* (2001), Arthur (1999) and Drucker (1993) defending that knowledge management helps companies acquire more feeling about the market, its developments, changes, and thus, it assists their customers with more efficiency and effectiveness. Indeed, it is possible to notice in the approaches of several authors (Day, 2001, Deshpandé *et al.* 1993, Jaworski & Kohli, 1993, Kohli & Jaworski, 1990, Kholi, Jaworski & Kumar, 1993) that market orientation depends on the capture, dissemination and application of knowledge on the clients and on the market. These statements prove the complementarity of the two concepts in their distinct aspects.

- "H02 – Knowledge management does not contribute positively to the company's innovativeness" with a load of 0.475; it did not present statistical significance (p = 0.181), thus, this null hypothesis could not be rejected. The result does not corroborate the empirical evidences found by Bogner and Bansal (2007), Lemon and Sahota (2004) and Nonaka and Takeuchi (1997). The discrepancies regarding these other studies might rest in the differences of the measuring model selected for this research and its limitations, as well as in the sample's cultural aspects or idiosyncrasies. It is important to emphasize that other authors referred to knowledge as a resource that results from innovation, but have not directly mentioned the management of this resource, as affirmed by Arthur (1999), Drucker (1969; 1993; 2000) and Nonaka and Takeuchi (1997). On the other hand, this result is the same achieved by Darroch (2003), who rejected the hypothesis defending that knowledge management exerts direct impacts on the company's innovativeness. The same author evidenced that, acquiring knowledge to be innovative is as important as determining its use. Therefore, the result presented in this research is rationally explained in the literature.

"H03 – knowledge management does not contribute positively to the organizational outcome" it also cannot be rejected due to the fact the direct effect of knowledge management on the organizational outcome does not pose statistical relevance. This case also presents discrepancy with regard to the theoretical principals of Arthur and Drucker (2000). The empirical studies that we found analyzing this relation were contrary to the concept. Darroch (2003) has not proven a direct relation between these variables. Teece (1998) and Wiig (1997) have found evidences of the financial results in this relation. On the other hand, Gold *et al.* (2001) found a clear and solid relation, however, based on a non-reflective model, in which the predictive variables reverse their roles and become formative. Moreover, the empirical study carried out by Darroch (2003) also rejected the hypothesis in which knowledge management affects the organizational outcomes and emphasized the difficulty for measuring the results from such knowledge, mainly due to the fact that, as a resource, knowledge enables the company to extract more from other resources. Although the scales used by the authors who have carried out empirical studies for drafting the construct 'knowledge management' were not the same, they might be considered alike; however, the different results might also be measuring the differences between the structure of the construct in the different studies, as occurred in this research.

"H04 – The company's market orientation does not positively contribute to its innovativeness", in addition to presenting a small load for the impact of the 'market orientation' construct within the 'innovativeness' construct, it presented no statistical relevance (p = 0.158), thus, the null hypothesis could not be rejected. The result is not supported by the empirical studies of Deshpandé *et al.* (1993), Tajeddini (2011) and Tajeddini *et al.* (2006), who found direct and relevant relations between these two constructs, although this latter author has used rather different scales for measuring the

market orientation as opposed to the ones used by the other two authors. In this sense, Jaworski and Kohli (1993) understood innovativeness as a consequence of market orientation. In another example, Han *et al.* (1998) found a positive relation between these two constructs, but, with no statistical relevance. After several studies have been analyzed, the result accomplished with this research rests within the expectations, because the contradiction is evidenced by the literature.

The impact of market orientation was positively examined, however, at a significance degree of p = 0.069, leading to the rejection of the null hypothesis "H05 – The company's market orientation does not contribute positively to the organizational outcome". The result does not match most of the studies that evaluated the same relation, as listed by Jaworski and Kohli (2000), although there are several others that support the result of this research. Despite the indications of the studies, in addition to Deshpandé and Farley (1999), Jaworski and Kohli (1993) found quite different results in this relation. In a retrospective research about this relation, Langerak (2002) understood that market orientation does not directly influence the results. The empirical studies of Baker and Sinkula (1999) and Han *et al.* (1998) converge with the results acquired in this research, which identify the positive impacts of market orientation on the organizational outcomes; however, they are not statistically relevant. Then, the result acquired here finds support on the literature and strengthens the disagreements about the theme. On the other hand, although not relevant at 5%, the result acquired is relevant at 10% and, in this case, the null hypothesis would be rejected.

The null hypothesis "H06 – The innovativeness of the company does not contribute positively to the organizational outcome" presented a moderate effect (or even low), but with no statistical relevance (p = 0.217). This result is not supported by the empirical studies of Deshpandé *et al.* (1993), Gold *et al.* (2001), Rapp *et al.* (2008), Tajeddini (2011); Tajeddini *et al.* (2006), for instance, to mention the referential projects used in this research. Nevertheless, it is important to remark that, although these projects had certain items in common for measuring the results of the companies, it is not possible to affirm that the scales were the same due to differences such as the number of indicators and different indicators used in each one of them. Rapp *et al.* (2008), for instance, emphasized the sales results and found moderate relations among the variables; Tajeddini *et al.* (2006) used only four indicators against the seven used by Gold *et al.* (2001). Only the studies of Darroch (2003) were found to be in line with the results acquired here. This author analyzed specific aspects of the company's innovativeness and associated them to its results that contradict the literature, remarking that, however , it is rational to understand that innovation skills are crucial for the survival of companies.

The structural model analyzed justified the 73% variance noticed in the construct 'Organizational Outcomes', 75% in the construct 'Innovativeness' and 86% in the construct 'Market Orientation'. This demonstrated that, although the direct effects among the constructs have no statistical relevance, the total effects, which include the mediation of other constructs, are of great importance and statistically relevant, which emphasize the complexity of these relations. In this sense, the results from the total effects found justify the increased explanation power (R^2) among the constructs.

It was found that, although the Effective knowledge Management (F11) has not produced a statistically relevant direct effect on Innovativeness (F9), when analyzed at an individual level, the total effect (0.855) of the relation between Effective Knowledge Management (F11) and Innovativeness (F9) is rather important and relevant when

mediated by Market Orientation (F12). This result converges with the results found by Darroche (2003). In this case, market orientation is the meaning given to the knowledge, that is, the focus on the customer and on the competition, which are constituents of market orientation. This result disagrees with the thoughts of Christensen (1997), who defends that efficiently managed companies oftentimes are not able to innovate due to its concerns about meeting the needs of the market. In the same sense, the Effective Knowledge Management (F11) has not shown any direct effect on the Results (F10) when solely analyzed; however, this relation gains magnitude (total effect = 0.798) and statistical relevance when mediated by Market Orientation (F12) and Innovativeness (F9), however, its direct effect presented an absolute load (0.812). Darroch's study (2003) concluded that knowledge requires a sense (understood here as constituents of market orientation) and a sense of application (understood here as a sense of innovativeness) so that it can produce results for the company, corroborating what has been found in this research. Market Orientation (F12) produced a total effect (0.701) with a good magnitude and statistically relevance regarding the Results (F10) when mediated by Innovativeness (F9), although the direct and indirect effects of Market Orientation (F12) on the Results (F10) are not statistically relevant when analyzed at an individual level. This is equivalent to saying that Market Orientation (F12) only produces important effects on the Results (F10) when mediated by Innovativeness (F9). This result is compatible with the results of the research carried out by Baker and Sinkula (1999) and Han *et al.* (1998). It is also important to mention the indirect relations between the construct Effective knowledge Management (F11) and the first-order latent variables Market Orientation (F6), Competition Orientation (F7) and Inter-functional Coordination (F8), of the Market Orientation construct. The Effective Knowledge Management (F11) shows a robust total effect (0.919) regarding the Inter-functional Coordination (F8), as well as good (0.794) and moderate (0.689) total effects regarding Client Orientation (F7) and Competition Orientation (F7), respectively, whereas they are all statistically relevant and provided with good explanation power.

6. CONCLUSION, RESEARCH LIMITATIONS AND RECOMMENDATIONS

Through the research, it was possible to observe the existence of several gaps to be discussed with regard to the relations among effective knowledge management, companies' market orientation, innovativeness and their impacts on the organizational outcomes. Although several studies have been carried out, the different measuring methods and constructs involved, as well as the different cultural contexts, have hindered the comparisons between certain results. However, some contributions were registered in this research. The model analyzed, which involved effective knowledge management, market orientation, innovativeness and the organizational outcomes showed a complex relation among the constructs, which appeared to be complementary and systemic.

The evidences that show that knowledge management is part of every relation studied here corroborate the statement that defends knowledge is the organizations' primary resource, because the impact of effective knowledge management on the other constructs led to the understanding of the fact that this resource boosts the activities related to the companies' value generation. Despite the fact several authors defended

this aspect, no discussions based on empirical evidences were found in the literature thus far.

The effective knowledge management can also be perceived as the element that provides support, through its processes, for the development of a market-orientation and innovativeness culture; therefore, this is a relevant conclusion accomplished with this research. This is due to the fact that, knowledge management is commonly pointed in the literature as dependant on an internal culture favorable to its implementation, and not as a culture builder.

The positive contribution of knowledge management for the development of the companies' market orientation occurs due to the direct effects of the processes linked to knowledge management that facilitate the capture, creation, organization, dissemination, sharing and application of knowledge, all related to the aspects of the market, and that aim at improving the relationship with the customers, improving or developing new products and maintaining and reaching new markets.

The results pointed that innovativeness needs to be instigated through market orientation, which indicates a route for the applications that will generate value to the company and, therefore, influence its results. This result evidences the contradictory statements about the argument of important authors in the literature concerning innovation and innovativeness.

Similarly, the acquired results lead to the conclusion that, in order to be effective, knowledge management requires a logical alignment with the organizational goals, evidencing its strategic character. Due to the fact that knowledge is perceived as a resource and identified as a booster of other resources, it is logical to reckon that several processes thereto related, such as capture, creation, sharing, dissemination, organization, application of knowledge among others, should have a differentiated treatment in the management of companies. It is also logical to understand that the employees, who are knowledge bearers, receive the same treatment.

The managerial contributions of the results found here can be analyzed through two perspectives: On the one hand, a more generic perspective that concerns the importance of implementing knowledge management, on the other, the method for applying the techniques associated to this management method.

About the first perspective, as discussed in the literature, knowledge management is not about a fad. The empirical evidences hereof and those related to several other studies have shown that knowledge is a resource that can make the difference in the process of achieving corporate goals. Despite the fact it is not tangible or a measurable resource, one cannot deny that the impact of the management of processes that facilitate its capture and flow within the company including its application on products, services or even on improvements of the operational efficiency, it is relevant for achieving optimum results in the creation of value. In this line though, since it is evident that knowledge is created and applied by experts, which are the employees and partners of the companies, trying to understand that knowledge is limited to the management of people, after the empirical evidences found here and within other researches, would be reductionism. This is due to the fact that people work according to processes defined by the companies and within an environment that could be somewhat suitable for the processes linked to the management of knowledge to develop efficiently and effectively, not to mention the material structure (technology, mainly) for that to occur. Therefore, it is possible to affirm that the management of knowledge also handles the management of people, although not limited to this.

Through the perspective regarding its implementation, given the complexity and the systemic form of the impact caused by knowledge management, as identified here, it is logical to assume that one-off actions, devoid of goals or of a strategy for the management of knowledge, tend to achieve controversial results. In other words, knowledge management must be developed and applied on the basis of a strategic view. Although this result seems coherent, part of the literature analyzes the practice of knowledge management with basis in the application of one-off managerial practices, which, in view of the empirical results achieved here, makes little sense.

As expected, once it is generically understood that this is its primary goal, it became evident that knowledge management contributes to the company's innovativeness and to the results, however, as long as oriented towards tangible goals. This conclusion arouses important managerial implications, for, as mentioned previously, the one-off practices of managerial techniques related to knowledge management prevail among the companies.

Ultimately, although it was not possible to positively identify the contribution of the company's innovativeness to the results, at an individual level, it was possible to understand that, jointly, knowledge management, market orientation and innovativeness are determining factors for the achievement of results in the organizations.

The sample and the quantity of respondents that provided the data figure among the primary limitations of this research, which reached the minimum limit required for the statistical analyses. Furthermore, it is possible to cast doubt on the sample's representativeness with respect to the universe of Brazilian companies. On the other hand, except for the MKTOR scale, the other scales are still provided with substantial imperfections. These scales were developed to be applied to other cultures of other countries, which might have caused certain misinterpretations on the part of the respondents, despite the efforts for their adaptation. Ultimately, some of the adjustment indexes achieved lay within the threshold of the acceptance levels or slightly below, as ascertained. This result might be a consequence of data non-normality, sample size, complexity of the model tested and suitability of some variables in the scales. All of these aspects also point to further research.

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