

RN

Revista de Negócios

Studies on emerging countries

Contents

Volume 23, Number 1, January, 2018

Editorial

Mohamed Amal.....	6
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Articles

Absorptive Capacity and the Internationalization Process of an Emerging Multinational	7
<i>Graciella Martignago, Silvio Antônio Ferraz Cário, Graziela Dias Alperstedt</i>	
Isomorphic relations and process of institutionalization: a study for the special coffee market in Brazil between 1990 and 2016	31
<i>Josue Pires de Carvalho, Jorge Luis Sánchez Arévalo, João Luiz Passador</i>	
Practical influence of the strategic process in organizational results	43
<i>Elizangela Maria Pas Menegon, Esmael Rossetto Bernardi, Júlio Adriano Ferreira dos Reis, Odilon Luiz Poli, Rodrigo Menegon</i>	
Human Capital and Competitiveness: Analytical Method to Strategic Management of the Man-Organization interaction	55
<i>Giovanna Garrido, Marco Antonio Silveira, Rafael Damasco Silveira</i>	

PRESENTATION

Revista de Negócios is located in Blumenau, state of Santa Catarina, Brazil, in the campus of Universidade Regional de Blumenau—FURB, post-graduate programme in Business Administration. Revista de Negócios is published quarterly in January, April, July and October on the website furb.br/rn.

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MISSION

Revista de Negócios advances the knowledge and practice of management learning and education. It does it by publishing theoretical models and reviews, mainly quantitative research, critique, exchanges and retrospectives on any substantive topic that is conceived with studies on emerging countries. Revista de Negócios is an interdisciplinary journal that broadly defines its constituents to include different methodological perspectives and innovative approach on how to understand the role of organizations from emerging countries in a globalized market.

SCOPE AND FOCUS

Revista de Negócios aims to create an intellectual and academic platform, under the perspective of Strategic Management Organization, to promote studies on Emerging Countries. The Journal looks and reviews for contributions to the debate about researches on two specific topics: innovation and competitiveness and strategic organization in emerging countries. The topic of innovation and

competitiveness covers all studies and researches related to how organizations can sustain their competitiveness, particularly focusing on innovations, entrepreneurship and performance. The second topic covers studies and researches on strategic management of organizations, more specifically on how companies can or should act at strategic level looking mainly but not only to external context, supply chain, competitive strategies in international market, and marketing approach. The editorial policy is based on promoting articles with critical perspectives seeking for the understanding of the differences and similarities among emerging countries and in comparison with experiences and theories on strategic management in developed countries. It intends to promote specific contributions of how theoretical and empirical studies on emerging economies may contribute to the advance of theories related to innovations and competitiveness and strategic management of organizations. It is welcome scholars particularly working on such topics to submit theoretical essays, empirical studies, and case studies. The Revista de Negócios is open to different methodological perspectives and innovative approaches on how to understand the role of organizations from emerging countries.

TARGET AUDIENCE

The target audience of Revista de Negócios is the Brazilian international academic community in related fields of knowledge on business management.

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Editorial Letter

In this current issue, we organized four articles that make significant contributions in topics related to international business, the process of institutionalization in special market, strategic process, and human capital and competitiveness of firms. In line with our editorial policy, we attempted to publish contributions that attempted to make theoretical and empirical contributions in the field of strategy management, entrepreneurial management and internationalization of firms from the perspective of emerging economies.

The first article **Absorptive Capacity and the Internationalization Process of an Emerging Multinational**, authored by Graciella Martignago, Silvio Antônio Ferraz Cário, and Graziela Dias Alperstedt the purpose of this study is to describe the role of absorptive capacity (AC) for the internationalization process of emerging multinational companies. Based on a case study of a leading Brazilian company, the main findings point to the existence of relationships among the elements of absorptive capacity (acquisition, assimilation, transformation, exploitation) and that these affect the internationalization process of emerging market firms.

The second article **Isomorphic relations and process of institutionalization: a study for the special coffee market in Brazil between 1990 and 2016**, authored by Josue Pires de Carvalho, Jorge Luis Sánchez Arévalo, and João Luiz Passador, has the aim to analyze the importance of isomorphic relations in the process of institutionalization of the special coffee market in Brazil. The authors highlight the importance of the commitment of agents - producer and buyer - who are proactively engaged in entrepreneurial actions, in order to adapt to the new practices and trends of the special coffee market, where quality consumption is privileged.

The third article **Practical influence of the strategic process in organizational results**, authored by Elizangela Maria Pas Menegon, Esmael Rossetto Bernardi, Júlio Adriano Ferreira dos Reis, Odilon Luiz Poli, and Rodrigo Menegon, has the purpose to verify to what extent the practice of the strategic process exerts influence in the managerial results of a garment industry of the State of Santa Catarina. The study provides tools and rationale that help to predict risks, to analyze opportunities and to provide an improved observation of the results.

The fourth article **Human Capital and Competitiveness: Analytical Method to Strategic Management of the Man-Organization interaction**, authored by Giovanna Garrido, Marco Antonio Silveira, and Rafael Damasco Silveira, suggests to merge different approaches, particularly the Triple Bottom Line concept of sustainability, the core competences of the organization and some analytical techniques, with the goal of implementing an own strategic diagnosis method to quantify the impacts of the human factor in a multinational of the electronic sector. The article shows how the proposed method has the potential to promote a qualified diagnosis by quantifying the impacts of the developers' competences on the productivity of the associated processes in the case of the electronic sector.

Before concluding this Editorial, as always, we want to express our gratitude to all reviewers that helped us to achieve this current issue. We thank you and hope we can continue to count on your contributions to our Journal in future issues.

To our readers, we hope you will enjoy reading the articles, and expect you to contribute with our Journal in future issues on business strategies and emerging economies.

Mohamed Amal
Editor

Absorptive Capacity and the Internationalization Process of an Emerging Multinational

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ABSTRACT

Knowledge is at the core of the process models of internationalization, although the impact absorptive capacity has on the internationalization is still unclear. Based on an evolutionary approach to international expansion and learning by a firm, the purpose of this study is to describe the role of absorptive capacity (AC) for the internationalization process of emerging multinational companies. A qualitative study, descriptive and longitudinal, was conducted based on a case study of the biggest cement company of South America. Our findings identified the previous knowledge about internationalization and the new knowledge that was acquired and assimilated on a need-basis case as key factors of international competition. This study showed that even a mature company, leader in its home market, with experience in competition with the main international players, needed to acquire new knowledge about internationalization. The assimilation of knowledge was hampered by the prior knowledge structure and new routines were created before the external direct investment materialized. After the acquisition in the foreign market, the adaptation of routines created in the domestic market was developed. We identify that there are relationships among the elements of absorptive capacity (acquisition, assimilation, transformation, exploitation) and that these affect the internationalization process of emerging market firms.

PALAVRAS-CHAVE

Internacionalização;
Multinacional emergente;
Capacidade absorptiva.

RESUMO

O conhecimento está no cerne dos modelos de processo de internacionalização, embora o impacto da capacidade de absorção na internacionalização ainda não esteja clara. Com base em uma abordagem evolutiva para a expansão internacional e aprendizagem por uma empresa, o objetivo deste estudo é descrever o papel da capacidade de absorção (AC) para o processo de internacionalização de empresas multinacionais emergentes. Um estudo qualitativo, descritivo e longitudinal, foi conduzido com base em um estudo de caso da maior empresa de cimento da América do Sul. Nossos resultados identificaram o conhecimento prévio sobre internacionalização e o novo conhecimento que foi adquirido e assimilado em um caso de necessidade como fatores chave para a competição internacional. Este estudo mostrou que mesmo uma empresa madura, líder em seu mercado doméstico, com experiência em concorrência com os principais players internacionais, precisava adquirir novos conhecimentos sobre internacionalização. A assimilação do conhecimento foi dificultada pela estrutura de conhecimento anterior e novas rotinas foram criadas antes que o investimento direto externo se materializasse. Após a aquisição no mercado externo, foi desenvolvida a adequação das rotinas criadas no mercado interno. Identificamos que existem relações entre os elementos de capacidade absorptiva (aquisição, assimilação, transformação, exploração) e que estas afetam o processo de internacionalização das firmas de mercados emergentes.

1 Introduction

Studies about emerging multinationals companies, as “latecomers or latemovers”, began in the 1980s (Lall, 1983; Wells, 1983; Mathews; Cho, 1999; Wilkins, 2010). With the greater relevance of these investments to the global economy, since the decade of 2000, there has been rapid growth in the literature about this phenomenon.

Various international journals have dedicated special editions to this theme and many of them have focused on the creation of capabilities and question “if” and “how” the internationalization of emerging multinationals differs from the internationalization of traditional multinationals from developed countries (Mathews, 2006; Dunning *et al.*, 2008; Luo & Tung, 2007; 2018, Guillén & Garcia-Canal, 2009; Ramamurti, 2009, 2012; Becker-Ritterspach & Gert Bruche, 2012; Cuervo-Cazurra, 2012; Meyer & Peng, 2016; Hernandez & Guillén, 2018). Nevertheless, little is still known about the internationalization process of emerging companies (Cuervo-Cazurra & Genc, 2008; Madhok & Keyhani, 2012). The core question asked by Buckley *et al.* (2007), whether the internationalization of emerging multinationals challenges what we know from developed multinational enterprises, continues to be debated (Hernandez & Guillén, 2018).

There are still many unanswered questions and it remains an issue that requires greater attention from scholars (Ramamurti, 2009; Wells, 2009; Wilkins, 2010; Cuervo-Cazurra, 2008; 2016), considering the unknown quality of the consequences of the process, to all the parties involved. Particularly needing recognition from Brazilian academics, who face a phenomenon still in development.

Brazilian multinationals are part of a group of “late globalizers”, which imposes a series of challenges on these companies, such as combatting competition in the domestic market, the need to be technologically up-to-date, have the best practices and to expand internationally. The firms that overcame these challenges did so by transforming their status as latemovers into a network of advantages, not only in other emerging economies, but also in developed countries (Fleury & Fleury, 2011).

To understand how these companies have positioned themselves in the dynamic international

market and became relevant global competitors from their base in these emerging countries requires the analysis of the absorptive capacity (AC) (Cohen, Levinthal, 1990) in the internationalization of these companies, given that knowledge is an essential resource for internationalization (Johanson & Valhne, 1977; Casillas *et al.*, 2009; Teece, 2007; 2014). As a dynamic capability, absorptive capacity allows firms to continuously upgrade their resources and gain advantage, what is critical to emerging firms that operate abroad (Bilgili *et al.*, 2016). Absorptive Capacity contributes to International Business (IB) as a major determinant of knowledge process in the multinational context and the IB scholars confirm the significance of absorptive capacity in several contexts (Apriliyanti & Alon, 2017). However, there are few studies of absorptive capability in the context of emerging market firms (Wu & Voss, 2015; Cuervo-Cazurra & Rui, 2017; Garrido *et al.* 2017). The research questions about dynamic capability of AC must address the relationship between organizational mechanisms and the AC process, as well as how a firm builds different organizational mechanisms to increase AC (Apriliyanti & Alon, 2017).

From an evolutionary approach of international expansion and firm learning, this paper assumes that emerging multinationals are able to achieve and sustain their global competitive position even in the face of the firm's limited resources and country-specific advantages (Lessard & Lucea, 2009) and aims to describe the role of absorptive capacity for the internationalization process of emerging multinational companies. Therefore, this study contributes to provide a better understanding of the internationalization process of emerging firms by providing depth to the understanding of the knowledge prior internationalization, the new knowledge acquired for internalization and the assimilation, transformation and exploitation of knowledge for internationalization.

The decision to operate in the international market requires the company to learn, acquire and absorb knowledge to achieve this strategy. If, and to what extent, new knowledge is integrated into the capabilities generated throughout the company's historical development process, will determine the position of the emerging multinational in relation to its competitors (Casillas *et al.*, 2009).

For the development of this learning process,

companies start from current capacities and generate new capacities based on the development of the international activities; therefore, the internationalization process is a dynamic of learning and capacity development. New knowledge is absorbed, shared, and built over time through organizational routines (Nelson & Winter 1982, Cohen & Levinthal, 1990).

The internationalization process begins before the first action abroad, when there is recognition that the international market is a source of opportunities for growth and increase profitability, and develops as the company seeks and acquires new knowledge, forming new routines and procedures (Casillas et al, 2009).

But this process does not occur dissociated from an external and internal context of the company, and therefore, is dependent on a path, a history developed by the organization over the years, which makes relevant the realization of the historical recovery of the company in its market source.

This research has as its objective the study of the company Votorantim Cimentos, participant in one of the largest conglomerates in Brazil, leader in its segment and one of the largest players in the world in the cement industry, with 31,8 million tons of cement produced per year and more than 11 thousand employees. The company is 100 years old (Votorantim, 2017).

Votorantim's internationalization process is a revelatory case not only for its relevance to the Brazilian and world economy, but also due to the inherent characteristics of its internationalization process: a traditional competitor in the home market, it loses its position in the world market in relation to competitors from other developing countries, and enters the foreign market as a late mover. One of the great gaps in the debates in international business (Buckley et al, 2017) remains the process of internalization of "latemovers," like Votorantim, that learned how to operate in new foreign markets based on the knowledge acquired in the home market. Votorantim is family owned, closed capital company, subsequently its internationalization process was little investigated (Santos, 2008; Furquim & Meireles, 2012; Colantuono & Pinho, 2012). This research delves mainly into the perspective of direct participants in the decision making for internationalization, introducing unique data for analysis.

Studying the role of AC for

internationalization has great relevance for companies from emerging countries and for the international business academy, which seek theoretical explanations for this new phenomenon. But above all, this new study has great pertinence for Brazilian companies, which are born in one of the most closed countries in the world, which, despite being among the ten largest global economies, accounts for 1% of world trade and 0.4% of the outward FDI issued in the world (UnctadStat, 2016).

This theme gains greater importance for contemporaneity, originality and the generation of knowledge shared with other companies of the country that aim to expand their activities abroad. The study of the process will produce knowledge about the "how to," so crucial to the practice of managers (Pettigrew, 2012) and for developing countries, which aim to expand the international insertion of their companies, still little exposed to global competition (Coutinho et al, 2008). This theme is also fundamental for public policy makers in order to facilitate internationalization.

This research will have the company as the basic unit of analysis. It is based on the assumption that firms constitute open systems, in permanent coevolution, in an iterative process between environment and organization in the development of their strategies (Chandler, 1962; Child, 1972; Nelson & Winter, 1982). The environment, in this case, acts as a constraint to management decisions, but there is room for active decisions, in which it is possible for organizational actors to determine the strategies that will ultimately define the organization's directions.

Internationalization is understood as a strategic process (Melin, 1992) and as such, it must be analyzed from a contextualist and procedural approach, as proposed by Pettigrew (1987). The relationships and interdependencies between the organizational levels belonging to the internal and external context of the organization, from a sequence of actions and events in a historical way, will be examined.

This study addresses two major trends in internationalization research: the increasing interest in 'processes' (sequence of events over time) and the focus on 'practices' (micro level actions contextually), only achievable from longitudinal studies (Blazejewski, 2011; Pettigrew, 2012).

Decisions are made within an internal

political context, and organizational actors, when defining reality according to their antecedents, values and mental models, can perceive the same phenomenon in a differentiated way, which characterizes the heterogeneity of companies (Child & Smith, 1987; Nadkarni, 2011). Therefore, for the study of business strategies not only objective conditions are important, but also the perception of social actors that create the cognitive arena (Child & Smith, 1987).

Furthermore, to internationalize, companies need to develop capabilities and obtain resources (Penrose 1959; Barney, 1991). Understanding the process of internationalization requires comprehending the process through which firms renew their competencies in response to changes in the competitive environment. Internationalization implies a reconfiguration of activities, or an incorporation of new resources and especially new routines and processes. Subsequently, the notion of "knowledge generation" becomes relevant for the adaptation of companies to a new environment, at the same time as a unique process.

It is recognized that the idiosyncratic local conditions of emerging markets are initial sources of international competitive advantage and that the development of new capabilities during the internationalization process is crucial to the sustainability of the multinational enterprise and that these two groups of capabilities, in the country of origin as well as those derived from international operations, need to be continually evaluated, adapted, integrated and disseminated through the organization (Lessard & Lucea, 2009).

In the next section, we present the theoretical background of the research. We then describe our methodology and present the results. Finally, we discuss our results and present conclusions and managerial implications.

2 Theoretical Framework

For the development of dynamic capability, it is essential to have the ability to integrate and to combine assets such as knowledge. The creation of knowledge, its sharing and the integrating procedures are critical for the performance of the firm and a key micro foundation for the dynamic capabilities (Teece, 2007).

An important dynamic capability of the organization is its ability to absorb knowledge.

Conceptualized first by Cohen and Levinthal (1990), these authors define AC as the "ability of the firm to identify, assimilate and explore knowledge of the outside environment" (p.569). This definition was elaborated on by Zahra and George (2002) who consider it as "a group of organizational routines and processes by which firms acquire, assimilate, transform and explore knowledge" (p. 186). The concept was later operationalized by various studies (Tsai, 2001; Jansen, Van Den Bosch & Volberda, 2005; Lane et al (2006); Chen et al, 2009; Camisón & Fóres, 2010; Flatten et al., 2011; Jimenez-Barrionuevo *et al*, 2011; Buckley & Park, 2014), despite its abstract, intangible essence that is difficult to measure (Szulanski, 1996).

These capacities (the ability to acquire, assimilate, transform and explore) represent four dimensions of the capability for absorption, which is a dynamic capability that influences the ability of the firm to create and employ the knowledge needed to construct other organizational capabilities. Although Zahra and George's (2002) model has provided a better understanding of the construct, at the same time, its separation into four dimensions has been criticized (Lane *et al*, 2006; Todorova & Durisin, 2007).

Todorova and Durisin (2007) affirm that the recognition and understanding of the outside knowledge value, originally defended by Cohen and Levinthal (1990), should be introduced as a component prior to acquisition. In this sense, the authors also emphasize that the relationship established between assimilation and transformation is not suitable. They thus argue that transformation should be an alternative to assimilation and not a step after it.

At the same time in which the absorption capability involves the need to acquire knowledge of the outside environment, it also focuses on the internal learning processes based on past experience and current actions (Easterby-Smith *et al*, 2008). Depending on the source of knowledge and on the previously held knowledge, AC is conditioned by the regime of appropriability (Cohen & Levinthal, 1990).

The model proposed by Todorova and Durisin (2007) captures the dynamic aspect of the phenomenon, which is in keeping with the concept of the dynamic capability that involves organizational change and with an evolutionary approach, and therefore, can constitute a basis for

the development of a framework for the role of absorptive capability in the internationalization process.

It is admitted that the first component of the absorption capability consists in the recognition of the value of outside knowledge (Cohen & Levinthal, 1990). Corroborating Teece (2014), Nonaka and Takeuchi (1997) emphasize that the most critical elements of the company strategy are the conceptualization of a vision about the type of knowledge that must be developed and the operationalization of this knowledge in a management system of implementation. Organizational intent provides the most important criterion for judging the veracity of a given knowledge. If it were not for the intention, it would not be possible to judge the value of the information or the knowledge perceived or created. At the organizational level, intention is often expressed by organizational patterns or visions that can serve to assess and justify the knowledge created. Intent is necessarily charged with value (Nonaka & Takeuchi, 1997, p.84). The role of top management should therefore be to formulate an organizational intent and to propose such an intention to employees as a way of guiding individuals and promoting a collective commitment (Takeuchi, 1997). In the specific case of the organization that intends to internationalize, it will seek knowledge about the foreign market, the institutional aspects of the exterior and internationalization itself, which is related to the experience that the company had on international activities in different countries (Erickson et al, 1997). The knowledge about internationalization is knowledge based on the company's experience in working its resources and skills to operate in the international market. It is an accumulated learning over time (Eriksson et al, 1997; Argote, 1999), derived from learning-by-doing and allows the firm to develop new routines. Throughout the experience, it can also develop learning-by-interacting, as it establishes relationships with other organizations (Zahra & George, 2002; Nelson & Winter, 2005).

The effort to acquire knowledge, according to Zahra and George (2002), has three attributes that can influence the absorptive capability: the intensity of the search, the speed and the direction. The higher the effort, the faster the firm will build the necessary capabilities, but the inherent limitations of the process, such as

learning curves, can limit speed. The direction refers to the paths that the firm will adopt in order to obtain external knowledge. Past experience tends to define the search locus for new knowledge, that is, the firm searches for information where it has succeeded in the past, which may influence the development of future capabilities (Zahra & George, 2002). According to Johanson and Vahlne (1997), the search for knowledge for internationalization tends to be greater in countries where psychic distance is lower.

As there is individual, organizational and interorganizational learning (Cohen & Levinthal, 1990), information for new knowledge can come from both the individual and organizational levels and from the interorganizational level (Casillas et al, 2009). According to Cohen and Levinthal (1990), individuals are storehouses of knowledge. This knowledge is gained by general and professional experience in different organizational and social environments that they experience throughout life. It is knowledge based on experience, which depends on one's personal history and is fundamentally tacit in nature. It is the current tacit knowledge that allows individuals and organizations to create greater future tacit knowledge through various forms of knowledge conversion (Kim, 2005). In the specific case of internationalization, therefore, firms may choose to put on the management staff people with international experience in other companies as a way of acquiring knowledge and skills that will be used to develop the firm's internationalization process. As a fundamental aspect, at the individual level, the members of an organization must have autonomy, as a way of stimulating the creation of knowledge (Nonaka & Takeuchi, 1997).

In addition to individual knowledge, collective knowledge can be generated by the communication and distribution of knowledge among management members and also through the accumulated experience of the organization through cumulative behaviour. The accumulation of decisions, actions and results creates a unique trajectory, path dependent path, developed over time (Eriksson et al 2000). According to Zahra and George (2002), the organizational memory, the depository of knowledge of the firm, is connected to experience. Absorption capability is, therefore, a path-dependent capacity,

influenced by past experiences that are internalized by organizational memory. As experience reflects past successes and failures, it influences how the firm acquires and assimilates knowledge, as well as the locus of future technological search (Zahra & George, 2002).

Cohen and Levinthal (1990) also highlight the role played by the communication structure as well as the character and distribution of experience within the organization. The communication structure consists of the transfer of knowledge between the external environment and the organization, as well as between the subunits of the organization. Young firms, with simple and more flexible structures, have a fluid exchange of information and experience between the founders and between the founders and the new senior managers. In this type of situation, which presupposes that directors have varied international experience abroad, the exchange of tacit knowledge will be more likely among members of a young organization than of an older organization with more rigid structures and where communication channels are historically more formal (Casillas et al, 2009).

Once the new information is incorporated, firms are able to generate new collective knowledge through the accumulation of experience, first in the domestic market and then in foreign markets. Different factors related to the experience in the domestic market boost the firm's propensity to begin its internationalization, such as the size of the domestic market, the presence of foreign competitors, the presence of consumers and international suppliers, the growth rate of the local market, etc (Eriksson et al 2000).

Besides the individual and organizational level, the aspect of interorganizational relations for the acquisition of knowledge can not be neglected. The individuals that make up the organizations are not isolated entities, but form an organizational and social network that contributes to the generation of knowledge for the decision to move to the international market. Directors and firms belong to international networks - through their relationships with consumers, suppliers, consultants, associations etc. - and have access to information that is relevant to identifying opportunities abroad. The literature on networks suggests that individuals and organizations access information through interaction with other

individuals and organizations (Casillas et al, 2009).

In these aspects, in which prior knowledge is relevant to the development of the capacity to internationalize, the process of internationalization is considered to start when the firm or organization recognizes that the international market is a source of growth opportunities or increased profitability, which occurs long before the first action abroad. When a company identifies an opportunity in an international market, it is unlikely that it has sufficient knowledge to make a decision about the commitment of resources to that market. The company will therefore seek new knowledge about the tastes and needs of new consumers, the size of the potential market, market entry, the nature of government institutions and competitors in that market etc (Johanson & Vahlne, 2006).

The acquisition of international knowledge is an iterative process (Knight & Liesch, 2002). The firm enters a continuous cycle of information search, translation and assimilation for internationalization. We look for existing information and evaluate whether the accumulated information is sufficient to go to the next stage (action). This first stage, according to Casillas et al (2009), corresponds to the concept of exploitation of March (1991), which is obtained through the learning process of variation, varied experimentation and action. Until this last point is reached, the firm will continue the search for information. The speed with which the firm will enter the new market is directly related to the time spent by the company to acquire and develop the knowledge needed for future launches. This is the time between the stage of exploration and exploitation (March, 1991). Two aspects affect the duration of this search process: the quantity and quality of previous knowledge and the nature of the information sources used by the company (Casillas et al., 2009). The key determinant of how long the process of pursuing the new knowledge will last is the level of prior knowledge available within the company. The firm will need two types of relevant knowledge: knowledge of the new geographic market and knowledge of certain processes related to growth management (Eriksson et al., 1997). The organization and management of business

activities related to internationalization may suffer significant influence from the experience in the domestic market. These companies that have experience in domestic acquisitions can use it in the search for possible business to acquire in the target country (Blomstermo et al, 2004).

To increase its knowledge base, the firm must have access to external and internal sources of information (Zahra, George, 2002). Internal information is gained through the organization itself - knowledge based on experience, acquired by individual managers and the organization through cumulative decisions. They are information obtained through participation in fairs, business trips and missions abroad, visits of different durations to potential markets etc (Casillas et al, 2009). External information is obtained through certain intermediaries that provide pre-developed information and coded information transferred by the company in response to specific demands. This information comes from organizations that aim to promote internationalization, both public and private, external consultants, sales agents, market researches, specialized journals (Casillas et al., 2009, Flatten et al, 2011). They also come from acquisition processes, purchase agreements, licensing and interorganizational relations, such as R&D consortiums, alliances and joint ventures. The deeper and wider the firm's exposure to knowledge sources, the more likely it will be to create new knowledge (Zahra; George, 2002).

The greater the diversity of sources, the greater the influence of the acquisition and assimilation of the absorption capacity. But this is not a guarantee that the firm will have a higher level of absorptive capacity, especially when the knowledge sources have low complementarity with the firm's knowledge base (Zahra; George, 2002). The search for knowledge will be influenced by activation triggers (Winter, 2000). These are events that encourage or compel a firm to respond to internal and external stimuli. Internal triggers may be organizational crises, such as underperformance, or events that redefine firm strategy, such as mergers (Zahra & George, 2002). Nonaka and Takeuchi (1997) denominate this phenomenon as creative chaos, in which tension is generated within the organization and the members focus attention on problem definition and crisis resolution. A crisis

of competitiveness in the market and the implementation of a strategy to reverse the situation require investments in the acquisition of new tacit and explicit knowledge, such as the hiring of new employees. It is a way for companies to turn the crisis into an opportunity. This crisis can even be intentionally generated when top management evokes the feeling of crisis by proposing challenging goals (built crisis) or when an external agent, such as the state, imposes challenging goals for companies of a chosen industrial branch (imposed crisis) (Kim, 2005). In the case of the crisis built, it is the top management, with an entrepreneurial spirit, that introduces the crisis. This forces discontinuous learning, which articulates metaphors and symbols that guide the organization, and creates work teams that control the learning process throughout the organization. It also provides the resources to support learning activities to make the crisis creative, and which removes the various obstacles to the learning process (Kim, 2005). External triggers are events that can influence the future of the industry as radical innovations, changes in government policy, environmental turbulence (Zahra & George, 2002; Volvo, Foss & Lyles, 2010).

Assimilation refers to the processes and routines that allow the firm to analyse, process, interpret and understand the information obtained externally. This capability may not be developed for a number of reasons, such as the fact that the new information is outside the search zone, involves a heuristic understanding that differs from those used by the firm or is closely related to a particular unfamiliar context (Zahra & George, 2002). The greater the effort made to assimilate the new knowledge, the more effective this knowledge will be (Cohen & Levinthal, 1990), but there are strong inertial forces that reinforce the continuity of old patterns and, therefore, the knowledge coming from experience plays a fundamental role (Eriksson et al., 1997, 2000; Johanson & Vahlne, 1977). As Kim (2005) explains, assimilation depends on the intensity of effort or commitment to new knowledge. It is not enough to expose individuals and companies to explicit knowledge, but there is a need for a conscious effort by individuals to internalize such knowledge, otherwise learning will not occur. The firm will continue its quest for

new knowledge until it feels it is ready for action (internationalization). This time will not come as management continues to regard the uncertainty as too high. The process of creating new knowledge is developed through an upward spiral that ends when organizational actors merge to accept a specific base knowledge, depending on the degree of quality and confidence of the new knowledge acquired, which consists of the justification process of Nonaka and Takeuchi (1997). The decision to launch a new country does not arise independently of prior knowledge or new knowledge acquired, but by a combination of the two. The ability to assimilate new knowledge depends on the existence of routines and procedures that allow this new information to be analysed, processed, interpreted and understood. In the same way, the company must have routines that allow to combine the previous knowledge with the new one (transformation).

The transformation dimension proposed by Zahra and George (2002) implies an ability to adjust both the new and the old knowledge chains. The ability of the company to guide the use of this knowledge in a specific international context depends on the quality of this adjustment (Casillas, et al, 2009). The transformation consists of the firm's ability to develop and refine the routines that combine existing knowledge with new knowledge. Absorption capacity also requires the company to be able to apply its new knowledge base through a chain of actions (Cohen & Levinthal, 1990; Lane et al, 2006, Zahra & George, 2002). But, as Todorova and Durisin (2007) point out, when the new information acquired fits the existing cognitive themes, the new idea is incorporated into the existing knowledge structure. Therefore, the structure of knowledge does not change and knowledge is assimilated. But alternatively, transformation occurs, that is, when new knowledge can not be assimilated because the cognitive structure of individuals must be transformed to adapt to new ideas. It is the firm's ability to recognize two groups of information and combine them. Knowledge has a cumulative nature and when new knowledge is not related to existing knowledge, the adoption of new knowledge is conditioned by unlearning. In the case of internationalization, companies in which this process occurs early in organizational life may be easier to operate abroad, since newer

firms have learning advantages (Barkema, Vermeulen, 1998).

From the assimilation of the new knowledge, the management responsible for the strategy of the company will evaluate the new situation and, depending on the result, will make particular decisions in consideration to: (1) go forward or not go ahead; (2) your preferences for geographical markets; (3) the choice of how to launch the new market. The influence of the nature of the new knowledge and the type of international behaviour depends on two subjective factors: the first is the degree to which the new knowledge is compatible with the first; the second is the degree to which any lack of information needed to enter the new country is identified (Casillas et al, 2009). Taking into account these aspects, Casillas et al (2009) propose that the speed with which the company launches in a specific international market is positively related to the capacity of absorption of knowledge.

Cohen and Levinthal (1990) not only defended the idea that learning new knowledge depends on the existence of prior knowledge, but also that the motivation to learn depends on the results of the learning process itself. It is a question of self-reinforcing behaviour related to the innovative behaviour (Cohen & Levinthal, 1990). Within the domain of internationalization, Casillas et al (2009) identify this cycle of reaffirmation through the degree to which the new knowledge is compatible with previous knowledge, allowing the company to develop new, coherent and more complete information. This compatibility depends on the degree to which the new information: (1) confirms initial expectations regarding the opportunity for international expansion; (2) adds new and non-contradictory information to prior information and (3) identifies in concrete terms what knowledge is retained - quantity, quality, and reliability - and what knowledge is missing. The ability to adjust prior knowledge to new knowledge is related to "current absorptive capacity", which reflects the company's ability to take advantage of the knowledge that has been absorbed (Zahra & George, 2002). This lack of coherence between prior and new knowledge can grow from the failure to confirm the initial assumptions, the identification of risks, a reduction in the apparent attractiveness of the

opportunity, or the identification of a lack of readiness for internationalization (the need for resources the need for disproportionate changes in the organization, etc.) (Casillas et al, 2009). When Cohen and Levinthal (1990) relate the ability to absorb the new knowledge to the existence of prior knowledge, they are implicitly assuming that the new knowledge is coherent with the previously existing one and that a process of adjustment between the two occurs. This adjustment represents an integration of both the new knowledge and the previous one, which allows for a coherent structure of knowledge, retained by both individuals and the organization, to expand. Conversely, when new knowledge can not be coherently integrated with prior knowledge, the absorptive capacity is greatly reduced. In this situation, new knowledge is rejected or, individuals have to redesign the existing knowledge structure. Given this lack of adjustment, the company will put brakes on the initial intentions, giving the project of external expansion as complete or postponed. Therefore, the degree to which the new knowledge is compatible with previous knowledge is positively related to the speed with which a company enters the international market (Casillas et al, 2009). Companies that have a high level of knowledge will choose to use methods of launching with a high level of control over international operations (greenfield investments, acquisitions, etc.). When a company has international knowledge, but lack institutional knowledge about a certain country, this deficiency can be overcome by cooperation and trade agreements with local companies and institutions that provide this information (Eriksson et al, 2000). When a company does not clearly perceive what kind of knowledge it has or what kind of knowledge it is lacking, it will tend to better understand uncertainty and try to minimize risk as much as possible by entering countries that are physically or culturally closed or using methods they represent a low commitment of resources.

Finally, exploitation is the application of knowledge. They are the routines that allow the firm to refine, extend and increase the competencies or create new ones by incorporating the acquired knowledge and its transformation. Action is a source of learning through feedback. Specific entry actions in a new country represent the primary source of learning

for a company that is internationalizing. This learning is mainly developed through the acquisition of knowledge based on the accumulation of international experience. This experience gives the company the ability to identify new business opportunities and reduces the level of uncertainty associated with the commitment in new international markets, as well as providing knowledge on how to manage international operations or knowledge about the internationalization process (Eriksson et al., 1997, 2000). There is also learning about the market and institutional knowledge. In this sense, as the firm accumulates experience, this learning process tends to gain momentum as a result of the broad knowledge base and the development of certain dynamic abilities related to information search ability, absorption capacity, etc. (Casillas et al., 2009). Studies have shown that the experience in making acquisitions (Vermeulen & Barkema, 2001) and alliances (Kale, Dyer & Singh, 2002) increase performance in the realization of new acquisitions and alliances, showing that the experience generates learning throughout history organizational structure. There is, therefore, an accumulation of capacities, such as cultural adaptability, receptivity to change (Sapienza et al, 2006).

Bingham and Eisenhardt (2011) analysed what firms learn from the explicit learning generated by the internationalization process, that is, what members of the company collectively articulate as a result of international experience. They concluded that learning goes far beyond routines. Through experience, patterns of action are formed that are repositories of lessons learned from experience. Routines and heuristics can be formed. Routines store organizational experience in a way that allows the organization to quickly transfer this experience to new situations. They are the repositories of organizational capacities (Nelson & Winter, 2005; Zollo & Winter, 2002). They allow coordinated action, but do not necessarily consist of an appropriate response to changes in the environment. Routines both preserve organizational memory and represent a source of endogenous change (Becker et al, 2005). While routines consist of detailed, almost automatic answers to particular problems, heuristics provide a common framework for a group of similar problems, but provide few details about specific solutions to problem

solving. Firms develop heuristics that are idiosyncratic and represent the particularity of the firm (Bingham & Eisenhardt, 2011).

In addition to these aspects, we highlight the contingency factors that influence the absorption capacity. An important barrier stems from social integration mechanisms. The exploitation of knowledge requires the sharing of knowledge among the members of the firm as a way to promote mutual understanding and understanding of the new. However, structural, cognitive, behavioural, and political barriers can stifle this process of knowledge sharing. It is up to the organization, therefore, to create formal and informal mechanisms to facilitate the distribution of knowledge within the organization and among organizations (Camisón & Fóres, 2010; Zahra & George, 2002; Todorova & Durisin, 2007). Not only is the ability to assimilate knowledge influenced by social interaction mechanisms, such as other components of absorptive capacity such as acquisition. The ability to identify external knowledge requires investing in social networks and social integration initiatives (Todorova & Durisin, 2007).

Todorova and Durisin (2007), when modifying the model proposed by Zahra and George (2002), added the relations of power. According to the authors, the relations of power within the organization influence the exploitation of new knowledge through the process of allocation of resources. Therefore, even if the company has the necessary knowledge for internationalization, it is in the relations of power that the strategic choices reside and, in this respect, the strategic intentionality can not be disregarded.

The above review suggests that absorptive capability is a construct with elements (acquisition, assimilation, transformation and exploitation) that affect the internationalization process.

3 Methodology

The decision was made to conduct a qualitative and longitudinal study (Denzin & Lincoln, 1994, p.23). A qualitative study adopts procedures that “are related with the meanings, not with the frequency of a phenomenon through its study in a certain social context (Marschan-

Peikkari & Welch, 2004, p.6; Van Maanen, 1983) and a longitudinal study focuses on the process and permit to answer the “how question” that is concerned with describing and explaining the temporal sequence of events (Van de Ven & Huber, 1990; Burgelman, 2011). The process analyzed the critical events that happened before the first company’s entry in the international market until to turn one of the 10th biggest cement company’s in the world, with plants in 12 countries.

In addition to being descriptive, this study is interpretive and inductive because this allowed the interpretation of the data collected and favored interaction during the interviews (Miller & Friesen, 1982; Taylor & Bogdan, 1998).

Since the reality studied is complex and poorly known, it was decided to begin with questions of broad interest, as suggested by various authors (Miles & Huberman, 1984; Eisenhardt, 1989). A “voluntary suspension of belief” was established, as Gioia et al (2012) call for, and only a theoretical structure with broad references was used, as indicated in Table 1.

Table 1. Main guiding categories of research and the authors of reference

Category	Property	Dimension	Theoretical Base
Absorptive Capacity of Knowledge to Internationalization	Knowledge prior Internationalization	Individual knowledge; Organizational knowledge; Interorganizational knowledge	Cohen & Levinthal (1990); Nelson; Winter (2005); Casillas et al (2009); Eriksson et al (2000); Zahra & George (2002); Todorova & Durisin (2007); Teece (2014)
	Acquisition - New Knowledge for Internationalization	Internal and external information sources	Casillas et al (2009); Eriksson (2000); Zahra & George (2002); Todorova & Durisin (2007); March (1991)
	Assimilation, transformation and exploitation of knowledge for Internationalization	Compatibility between new and previous knowledge. Capacity to absorb new knowledge	Cohen & Levinthal (1990); Zahra & George (2002); Casillas et al (2009); Todorova & Durisin (2007); Teece (2014)

Source: The authors.

The research strategy proposed is a simple case study. The case study is the best method for analysing the transformation of a firm, because only it allows analysing the various variables and

the dynamic involved (Child & Smith, 1987; Yin, 2009) and for this reason it was the research strategy chosen by important studies in the field of international business (Johanson & Vahlne, 1977; Mathews, 2006), which proves the relevance of the method.

In the qualitative study, the case to be analysed is defined intentionally to be able to understand a specific phenomenon, it is a “revelatory case” – that is, the information described is revealing. This situation occurs when the investigator has the opportunity to observe and analyse a previously not accessible scientific investigation (Yin, 2009; Merriam, 2002, 2009; Patton, 2015). “Outlier companies” are chosen, or situations where certain attributes are emphasized or revealed (Lervik, 2011).

For the selection of the unit studied in this research, the relevance of the company to the international process of Brazilian companies was considered. The size of the company was observed (the number of employees and assets); its level of transnationality, position in the ranking of the main international competitors in the sector; the availability of access to primary data, including key actors in the internationalization process, particularly members of the company’s top administration, given the strategic character of the data collected.

Other factors considered were characteristics unique to the international process, such as late internationalization when compared with other private Brazilian groups or with other groups in global industry, despite the privileged position in the Brazilian market and the uncommon direction of the international process (*up-ward*).

Ramamurti (2009) explains that studies that involve research about “up-ward” investments – those from developing countries to developed countries – are theoretically relevant because they go against the conventional wisdom about the direction in which capital, technology and knowledge should flow in the global economy. Studies of these cases constitute examples of situations that the traditional international business theory fail to explain well (Ramamurti, 2009; Madhok & Keyhani, 2012).

The case studied in this research was that of the company Votorantim Cimentos, one of the largest players in the global cement industry - tenth position (GCR, 2016). It is the leader in the

Brazilian cement market and a member of Brazil’s second largest private industrial group considering the value of net assets (Valor Econômico, 2013). It is among Brazil’s emerging companies listed by Global Challenger 2016, from the Boston Consulting Group (BCG, 2016) and competes with companies that are among the 100 most internationalized in the world. The biggest companies in the cement industry in the world are the Chinese firms (China National Building Materials, Anhui Conch, Jidong), the Europeans (Lafarge-Holcim and Heidelberg Cement), as well as the Mexican company Cemex.

The data collected from Votorantim appear in transcriptions of the interviews and field notes. They are based on broad questions or foci of interest, which became more direct and specific during the study. The abstractions were constructed from the data, in a bottom-to-top process.

Therefore, a rigid sequence of steps was not followed. The data collection and analysis were not conducted separately. The information collected were interpreted, which generated the need for new research for data, which is typical of qualitative research, which requires an integrated process of data collection and interpretation (Triviños, 1987; Taylor; Bogdan, 1988; Jones, 2004).

The data was collected from primary and secondary sources. A triangulation of the interviews was conducted with the secondary sources of data to maintain the integrity of the analysis (Miles & Huberman, 1994). The primary data were collected by means of interviews and in documents, as suggested by Li (2007). Primary documents were collected at the company, such as internal reports and presentations and non-structured interviews were conducted with directors of the organization being studied.

It was decided to use non-structured interviews because they provide the freedom and spontaneity needed by the informant, enriching the investigation, as indicated by Parkhe (2004) “in many areas of rigorous empirical investigation, there is simply no satisfactory substitute for interviews” (p. xviii). With the development of the study, semi-structured interviews were conducted, based on prepared questions, as indicated by Patton (2015). These were used above all to check previous affirmations of the same person or by other people interviewed, and to go more deeply

into specific issues.

The interviews, because of the strategic nature of the questions, were conducted with upper level executives of the organization or with people recognized for their considerable knowledge about the organization's internationalization process. Once the first interviews were initiated, the following ones were identified through "snowballing" (Patton, 2015).

Those interviewed included the Vice President of the Board of Directors of Grupo Votorantim, two directors of Votorantim Participações, a former president of Votorantim Cimentos, who was responsible for having initiated Votorantim's internationalization process and the first person from Votorantim Cimentos Brazil to be expatriated to Canada in the process of acquisition of the first production unit in that country.

The interviews were conducted in person and were recorded, which facilitated the data collection, because it guaranteed better fluency and total recovery of the information. The interviews totaled 16 hours of recordings.

In relation to the questions used in the interviews, it was requested that the people interviewed talk about the internationalization of the company, emphasizing its main moments. As the data collection and analysis advanced, the interviews became better organized, with a more specific focus on understanding the role of absorptive capacity for the internationalization process, as a way to validate information already received and to obtain additional information, complementing the dimensions that were not clear.

After the reading and rereading of each interview transcribed, they were codified (Strauss & Corbin, 1998), and analytical tables were prepared to navigate through the data (Eisenhardt, 1989; Miles & Huberman, 1994) with the assistance of the NVivo software.

Macro categories were developed and used as guides in the interviews and the data were chronologically organized. Within these macro-categories, smaller units of events were identified, for which reason the following steps were followed to analyse the data: a) reading of the interviews; b) codification of the interviews; c) reading and rereading of the codified interviews; d) grouping of the reports according to category; e) organization of the texts referring to each

theme; f) analysis and interpretation of the results; g) preparation of the final text.

The NVivo software helped to organize the categories (called nodes) and establish the hierarchy according to the properties and dimensions. The categories listed by the literature can be filed, together with their concepts, which facilitates codification. Another advantage of the use of the software is that it allows agglutinating various portions of the interviews about the same category, which allows the easy creation of the analytical tables proposed by Miles and Huberman (1994).

4 Analysis

Votorantim Cimentos is a late mover in the global cement industry. Contrary to companies such as Holcim, Lafarge, Heidelberg Cement and Italcementi which internationalized from their base in developed countries (Switzerland, France, Germany and Italy), Votorantim is part of a group formed by companies in developing country, such as CEMEX and Argos. These companies are leaders in their markets of origin, which did not remain regional, expanding to other markets in developing countries by conducting operations known as up-market (Ramamurti, 2009). Therefore, they have a different starting point than companies from mature economies. They are in countries with medium income levels, that have institutional fragilities and have different patterns and paths of internationalization than multinationals from developed countries, thus configuring different internationalization processes.

The process is coherent with what generally takes place within the cement industry. Since they are in oligopolistic structures, they are companies that internationalize after they have command of the market in their countries and generate enough resources to be able to realize large investments abroad, given that the internationalization of this industry follows the foreign direct investment mode, or on a smaller scale, the formation of joint-ventures, or even the acquisition of shareholder participation. The exports tend to not have an important strategic significance. But, as Dunning et al (2008) emphasized, companies of the "third wave" of internationalization tend to use various mode of entrance.

The Votorantim group underwent an intense

process of diversification over five decades. Created in the 1930s, its internationalization only gained force in the first year of the twenty-first century, when it made foreign direct investments, thus committing a larger amount of resources in the international market.

Since 2001, Votorantim Cimentos has become a global consolidator (Ramamurti & Singh, 2009). It expanded its activities internationally through acquisitions and came to compete for operational excellence in a mature industry, in both developing and developed countries, and indicated that it aspired to participate on the global stage (Lu & Tung, 2007).

It is in an industry with consolidated technology, where scale and other cost advantages are essential. But, it had still not attained the scale and scope of internationalization of a large multinational in an advanced market, although it was among the ten largest players in the global cement industry.

The characterization of Votorantim is similar to the description that Lessard and Lucea (2009) made of CEMEX: “it is a ‘middle out’ company in two senses: it has expanded up-market and down-market from a country of medium income, medium technological development, median institutional development and much of its competitive advantage is in mid-level managerial processes, as characterized by Nonaka (1988) as a “middle out process” (pág 282).

To internationalize, the company had to absorb knowledge to active its goals. The Table 2 describes the main aspects related to the knowledge prior to internationalization of Votorantim Cimentos and the main categories identified as determinant. These features were prevalent before the first entry in the international market, that occurred in 2001, when the company bought an firm in North-America and began to produce there.

So, before the first acquisition abroad, the company had capacity to search for technological knowledge, what was essential to develop excellence in production process. The first generation of the owners (this is a family company) studied abroad and the company grew up in the Brazilian import substitution process. The Brazilian big market and the presence of foreign competitors created an experience in acquisitions but it was not sufficient to internationalize. In its own country, Votorantim

developed a series of resources and capacities that have enabled it to achieve 40% of the Brazilian cement market. In Brazil, a country with a large continental dimension, with significant differences between regions (such as the differences between the operations in the South and Northeast), with the presence of relevant international competitors. In this regard, the environment of the country of origin constituted a context for the development of competencies for internationalization in the cement industry, despite the institutional voids of a Latin American country. The knowledge prior of first entry is summarized in table 2.

But, new knowledge had to be acquired to internationalize. An obstacle to internationalization was the inexperience of managers about different cultures and an advantage was to be part of a business group, a guarantee to know about the global capital market.

Table 2. Knowledge Prior to the Internationalization of Votorantim Cimentos

Categories	Knowledge prior to the internationalization
Role of the Entrepreneur. Boundary spanner. Search for knowledge.	Individual capacities that stimulate the absorption of technological development generated by countries of the center. Importation of machinery and professionals. Stock of Organizational knowledge - memory – marked by the need for technological updating. Recognition of the value of knowledge acquired outside the country.
Role of the market – size and growth rate. Presence of international competitors.	Capacity to conduct operations in different regions of the country. Ability in relationship with key competitors. The level of integration of operation in Brazil was low. Capacity that needed to be developed before the first entrance abroad. Knowledge of management practices and monitoring of strategic actions.
Experience in acquisitions in the domestic market.	Ability to identify and integrate operations in acquisitions process in the Brazilian market was not sufficient to develop routines for international acquisition. The company recognized that had to learn how to do that.

Capacity to develop efficient production process.	Ability to absorb new technology, combine resources and innovate based on the point of view of the organization process to reduce costs. Excellence in operations.
Capacity for the development of brands and reputation.	Strong brands and communication strategies in Brazil. Difficulty to transfer this capacity given the particularities of the market.
Capacity to access global capital market.	Knowledge of global capital market derived from the others companies of Votorantim Group. The role of the conglomerate. Votorantim International and other companies of the group.
Individual and organizational capacities related to live abroad.	There was no education in individual capacities or hiring of professional with command of other languages, or experience in other countries.

Source: The authors.

Concerning the search for new knowledge, in Votorantim's internationalization process there was an emphasis on the role of crises in the development of capacities. As demonstrated by the literature, crises stimulate learning by threatening the existence of the organization (Winter, 2000) and lead to exploration, acquisition, and internalization of external knowledge (Zahra & George, 2002; Kim, 2005; Volberda, Foss & Lyles, 2010). Institutional changes that took place in Brazil in the early 1990s established a new economic reality that was more dynamic and competitive, which for Votorantim stimulated the "sensing" process (Teece, 2014) for the development of capacities to operate in the international market. The "rules of the game" (North, 1990) were changed, which came to require from the Votorantim group the capacity to "guarantee its participation in the global market", to confront a "sharper competition", conditions that required companies from the group "virtues, different from those required in the earlier phase, marked by the closing of the economy and pioneerism" (Caldeira, 2007, p.243).

Nevertheless, aspects of the internal environment were important in determining the recognition of value of knowledge about the internationalization process. A fragility of the strategic intentionality was identified in relation to internationalization, an aspect that did not receive attention in traditional international business theories, such as the theory of internalization (Buckley & Casson, 1976), the eclectic paradigm

(Dunning, 1980) and vision based on knowledge (Kogut & Zander, 1993), which ignored strategic intention, entrepreneurship and other managerial aspects of decision making. In the Votorantim case, the board was very reluctant to internationalize because the nationalist view that was part of the culture of the owners family. This caused an import delay in the internationalization process when compared with the competitors and others Brazilian companies.

For us, the worst tie, I think was this [Brazilian closed economy, cost of capital very high] and the maturity of the company and the shareholders vision, in understanding that to remain as an eminently Brazilian group in businesses that are increasingly global (...) tomorrow is a weakness [second worst ties to internationalization]

When internationalization is part of the company's goals for growth, it shifts attention from the natural trend of incremental paths and encourages to take larger leaps, by considering long-term planning, which involves greater risks. For Huzschenreuter et al (2007), in the process of a search for opportunities (to seize, in the language of Teece, 2014), the values should involve something such as wanting "to be the first to move", or at least, to be among the first in this new wave, which did not occur in the case studied. The nationalist mental model developed in markets that had been closed for many years, an aspect identified within Votorantim's leadership, reinforced the belief that the domestic market was more important than the global arena. In this way, nationalist administrators tend to avoid internationalization as a strategic option, particularly in the case of direct foreign investment, a form of entrance that requires greater commitment of resources (Johanson & Vahlne, 1977) and is difficult to reverse. Nadkarni and Perez (2007) found that the mental model for the domestic market influenced internationalization, but there is still only limited empiric evidence about the relationship between the mental model and the internationalization process (Nadkarni et al, 2011) and the case of Votorantim contributes to this line of research.

Other characteristics of the process of searching for knowledge during the internationalization of Votorantim Cimentos are highlighted in Table 3. This search happened

before the first entry, too, but after the strategic intention to internationalize became stronger. This phase was a consequence of a trigger of activation but the company faced the lack of capacities and fragilities about structural organization and processes (lack of integration of units, inefficient communication channel, no sharing practices and no routines to search knowledge about foreign markets).

Table 3. Acquisition and Assimilation - Search for Knowledge in Votorantim Cimentos Internationalization Process

Categories	Search for knowledge (acquisition) during Votorantim Cimentos' internationalization process	
Role of crises – triggers of activation.	Energy Crises; CADE creation; Recession (Collor Plan)	Reveal reactive adaptive process
Recognition of the value of knowledge	Weak strategic intention	Conflict. Search for ideas consistent with the previous knowledge
Organizational structure	Poor integration between corporate units and among units of VC. Communication only at the top	Little stimuli to sharing of knowledge. Lockout in terms of internationalization
Diversity	Low diversity of work locations among members of the family owner, and without professionals with experience with other cultures	Favors the low recognition of value of knowledge and expanded barriers to searching
Locus of search for knowledge	Initially, by bordering countries, where there are export operations	Accumulative knowledge.
Boundary-spanner	Executive with international experience in the cement industry	Access to tacit knowledge, experience
Formal structure of search for knowledge	Structure with the objective of prospecting acquisition opportunities	Learning about the market, development of methodology of analysis
Types of knowledge	About the country (opportunities for growth, institutional questions, logistical conditions), companies that are targets for acquisition, search for clusters	

Sources of knowledge	Travels, visits to factories abroad, documents of companies, outside consulting, case studies	Relevant cost
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Source: The authors.

During the knowledge acquisition process, the action of a *boundary-spanner* was found to be relevant. An executive participated who had international experience as CEO of cement companies and who brought a diversity of perspectives and experiences, which allowed a gain of intensity, velocity and legitimacy to the process of searching for knowledge for internationalization. As the findings of this study suggest, the existence of people with international experience in other companies can bring significant gains by expanding the capacity to absorb new knowledge about internationalization, because they expand the locus of the search and decrease the chances that the company fall into traps of familiarity, maturity and or affinity and they facilitate the assimilation process because the new knowledge can be 'translated'. The access to these "experiences" took place via inter-organizational relationships, which shows the capacity of knowledge to be generated both by relations within the company and those with other companies.

During the learning process about internationalization was identified the need to realize structural changes in the organization based on the domestic market. Greater integration was conducted among the regions, processes that involved an expressive transfer of knowledge between units and generated the transformation of tacit knowledge developed by a region into codified knowledge, which could be transferred to others. A team of replicators was also formed. These experiences were, therefore, fundamental for internationalization, despite the greater complexity needed to conduct this transference in the international market, as the interviews revealed.

In relation to the mode of entrance, Votorantim Cimentos followed a standard established in the sector, marked by an intense process of mergers and acquisitions, either partial or total. Once the entrance in the international market began, with the first acquisition, Votorantim Cimentos created VCNA –

Votorantim Cement North America and strengthened the vision that it could grow in the market, that it had competence to do so and could practice price levels and leveraging like the large multinationals. But, they identified that they had to learn to operate in markets very different from the Brazilian market. The data revealed that it was a process of trial and error.

One example of routines that had to be developed was the distribution systems for the product, which required abilities not developed in the domestic market. They identified obstacles referring to cultural differences and difficulties in the process of knowledge transfer and they had to modify the Votorantim Cimentos Management System. An outside consulting firm was a source of knowledge for the integration process of the new subsidiary and for the initial operating studies, above all concerning the specific legislation of the country and the environmental issues and expatriates were qualified to transfer, especially, the production management knowledge.

The management system developed in Brazil proved to be very complex to be transferred to other realities, at the subsidiaries. When the integration process advanced, they saw peculiar characteristics of the mode of operation of each country. Furthermore, it was during the international management process that Votorantim Cimentos learned to get along with worker unions. Abilities in the relationship with workers also had to be developed and adapted to the local culture.

As far as the new subsidiaries were incorporated, new management tools were developed with standards of operational efficiency. A tool called optimal structural cost was created.

The acquisition, therefore, represented both exploitation – use of the base of knowledge, with a refinement of routines, as well as exploration – which allowed the firm to renovate its knowledge base (March, 1991). Each time that the knowledge base was applied, opinions about what functioned and why it functioned, were more firmly established in the minds of the administrators, and thus, the new routines were established (Nelson & Winter, 2005).

The analysis of the first outside acquisition of a productive unit showed that the knowledge that is not useful for a given reality begins to disappear from the organizational memory. Step by step, the exploitation, as well as a fine-tuning

based on the development of the internationalization process, reduced the variety of the firm's knowledge base and promoted ossification and simplicity. Acquisitions, as Vermeulen and Barkema (2001) showed, contrary to greenfields, make firms more tolerant in the sense that new ways of doing things are identified, which can be found in the case studied. The new circumstances of acquisition, in new territory, brought new information and incentives that triggered the search for and creation of new knowledge.

At the same time that the company identified the need to have a homogeneous global platform for management of operational processes and indicators, it was determined to be important to consider regional characteristics. This denotes the development of the ability to have flexibility during the internationalization process. When new routines were being established, contributing to greater rigidity, internationalization brought an infusion of new ideas and new ways of doing things.

Although the creation of routines was necessary and resulted of a learning process, it also had undesirable effects (Hannan & Freeman, 1984), which need to be transported for a better adjustment to new conditions.

Table 4 presents the main aspects related to the processes of transformation and exploitation of knowledge during the internationalization of Votorantim Cimentos.

Table 4. Transformation and Exploitation of Knowledge in Votorantim Cimentos Internationalization Process

Categories	Transformation and exploitation
Development of new abilities	Abroad conditions were unknown - (management system emphasized the short term instead of long term; perception of the employee about Brazilians ("Brazilian Indian"); profile of the employees; relationship with unions and found required new abilities - and these conditions demanded the existence of new routines "This process was slower than we imagined", said an interviewee
Creation of routines	Adaptation of the VCPS system - Votorantim Cimentos Production System Outside consulting and expatriation were participants

New technologies for management of integration of subsidiaries	Excellent structural cost – technique created during the internationalization process. Designed for comparison between units and represents the continuity in the creation of the new knowledge process
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Source: The authors.

5 Conclusion

The multinational studied internationalized to exploit advantages of ownership developed in the domestic market. These advantages include intangible assets, such as managerial ability and greater operational efficiency. Therefore, depending on the context in which the internationalization takes place (the industry), capacities can be developed in the emerging countries, which will have to transfer knowledge to subsidiaries in foreign countries, a capacity that is still being developed given the immaturity of the international process among companies from the periphery. In the case in study, this immaturity takes place in terms of internationalization because it is a mature company, well established in the market of origin and that had to make an intense effort to learn to act globally.

This case study revealed aspects of the organization's domestic environment that affected its strategic decisions referring to internationalization. The following aspects that affected internationalization stood out: its formation in a conglomerate, governance structure and the low coordination between the regions of the company.

The participation in a conglomerate, typical of companies in developing countries, which supported themselves in this configuration to fill-in institutional gaps, at the same time that it drained resources from the productive activity in question (cement, in this case) to conduct other activities, did not stimulate production abroad; in other moments, it favored the internationalization of the cement company through cultivation of access to the international capital market and the sharing of practices. Nevertheless, the interviews revealed a low coordination between the business units during the organizational history, which expanded over time.

The governance structure described revealed signs of an organization that was poorly

adapted to a market that had become unstable. The interviews showed an organization with centralized decision making and with conflicts between ownership and management, particularly concerning internationalization, which increased the time of searching for knowledge about the foreign market. The influence of a nationalist mental model was identified, in which the domestic market was perceived as a priority. Under this aspect, managerial discretion is also considered in the internationalization processes. The development of capacities are not separated from the strategy and depend on the “nature of the managerial orchestration” (TEECE, 2014).

The administrative structure of the case studied limited coordination between its units that are spread among many regions of the country, which made it difficult to establish synergies and develop a single sense of direction and strategic thinking and above all, to share best practices, and create knowledge – capacities that are fundamental to action in the global market.

Based on this contextual configuration, the company sought to develop capacities for internationalization, driven by an entrepreneurial attitude of the company administrators. The first finding was that having operational efficiency was not sufficient, operating abroad would require dynamic capacities, based on the development of new routines and processes inherent to internationalization. An acquisition process of knowledge should be developed. The administrators perceived that the company needed to learn to be global, or, in other words, needed “knowledge about internationalization”. It was in this recognition of the value of knowledge about internationalization that an intense process began to search for new knowledge, despite the fear and uncertainty that this strategic intention represented.

In this sense, it was observed that the experience developed until that time in years of exporting was not sufficient to prepare the company for production abroad. It was necessary to develop a structure with routines suitable for the acquisition and prospecting of knowledge. This process involved both internal sources, which sought knowledge abroad through travel and visits to possible acquisition targets; as well as external sources, such as consulting companies that conduct studies of best practices in

internationalization models. This search process revealed a scarcity not only of organizational knowledge, but also of individual knowledge, given that there was no one on staff with abilities inherent to experience with other cultures.

The effective entrance into the international market revealed a still unknown reality, which corroborated the literature by identifying internationalization as a source of learning. Differences were identified in the market practices from various aspects – realization of investments, labor and union relations, relations among employees and managers and in work organization. There was a transfer of the Brazilian managerial system abroad, but it proved to be incapable of being implemented as it was in Brazil, given the peculiarities of the foreign reality. Therefore, a new phase of generation of knowledge was developed, which represented both exploitation – the use of the knowledge base, with a refinement of routines, as well as - exploration – the renovation of the base of knowledge.

6 Implications and Further Research

The description of the role that knowledge exercised in the internationalization process in the case presented contributed to the literature by showing how the creation of capacities and their exploitation are enrooted in specific contextual conditions. The study contributed by showing how and why an emerging company was able to create capacities in an emerging country and expand them through an internationalization process to become a global consolidator.

The main limitation of this study refers to the method and data sources used. Despite the internationalization process being conducted by senior management, the data are limited to the view of the main drivers of the process. Similarly, when using secondary data provided by the organization, other sources of data that could assist in the process of understanding are discarded.

The authors suggest that further research explores the relation of internationalization and absorptive capacity using the categories found in this study with a quantitative method by the way of analyse others sectors in an emerging market.

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Isomorphic relations and process of institutionalization: a study for the special coffee market in Brazil between 1990 and 2016

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ABSTRACT

This study analyzes the importance of isomorphic relations in the process of institutionalization of the special coffee market in Brazil. To accomplish the objective, interviews were conducted with the various agents tied to the field. Three Brazilian regions were chosen because they are the most representative and convenient for the study, considering their high institutional development; two (Northwest of Minas and Alta Mogiana) already have Geographical Indications (GI) and the third one (Matas de Minas) is in the process of adoption. The results show the importance of the State as between promoter and inducer in relation to the adoption of GIs. In addition, it is evident the importance of the commitment of agents - producer and buyer - who are proactively engaged in entrepreneurial actions, in order to adapt to the new practices and trends of the special coffee market, where quality consumption is privileged.

PALAVRAS-CHAVE

Café especial,
Indicação Geográfica;
Campo organizacional.

RESUMO

Este estudo analisa a importância das relações isomórficas no processo de institucionalização do mercado especial de café no Brasil. Para atingir o objetivo, foram realizadas entrevistas com os diversos agentes ligados ao campo. Três regiões brasileiras foram escolhidas por serem as mais representativas e convenientes para o estudo, considerando seu alto desenvolvimento institucional; duas (Noroeste de Minas e Alta Mogiana) já possuem Indicações Geográficas (GI) e a terceira (Matas de Minas) está em processo de adoção. Os resultados mostram a importância do Estado como promotor e indutor em relação à adoção das IG. Além disso, fica evidente a importância do comprometimento dos agentes - produtores e compradores - que estão engajados proativamente em ações empreendedoras, a fim de se adaptar às novas práticas e tendências do mercado de café especial, onde o consumo de qualidade é privilegiado.

1 Introduction

This article brings to the discussion the importance of organizational studies, starting from the approach of the contributions of institutional theory on the challenges, possibilities of advancement and possible impasses of the relationship of the State with the private agents in the search to guarantee and promote adequate arrangements for socioeconomic development and permanence productive activities; In particular, those aimed at aggregating value in coffee production in Brazil, with an impact not only on the agribusiness itself but also on the medium and small family-based producers.

In the context of organizational studies, institutional theory, since the last quarter of the twentieth century, has been consolidated as an analytical tool aimed at understanding the processes of institutionalization of organizational practices involving relations and impacts between Structure and technical and socioeconomic environment, between organization and institution. Reflecting in the structuring of the governance, in the strategies, in the appearance of new arrangements, adoption of new technologies, in the intra and inter organizational relations.

Regarding the relationship between coffee and Brazil, although it is not a national native plant, since the first seedlings were brought here, it has become one of the main commodities of Brazilian agricultural production, being for several decades of economic history the main product of national to export.

In addition, due to its economic magnitude, its ability to generate employment and income in the country side and throughout its productive chain, the relevance of the debate on coffee production in Brazil, including more recently the "specialty coffees" segment, has been which underpinned for several decades by several institutions involved, especially those that make up the "Consórcio Pesquisa Café" coordinated by the Ministry of Agriculture, Livestock and Supply (MAPA). The entities that make up the consortium are: UFV, EPAMIG, UFLA, EMBRAPA, IAC, IAPAR, PESSAGRO, EBDA and INCAPER.

So-called "specialty coffees" are considered to be the products with the highest added value. The notion of specialty coffees refers to attributes related to the product itself or linked to the production process and services involved.

Specifically, in relation to the indication of special coffees by their origin, in general, the aspects that differentiate them are related to: producing region, soil, predominant climate, temperature variation, altitude, drying and roasting, mainly.

Thus, this study tries to understand in what way the organizations inserted in "regions" directed to the production of special coffees are influenced by institutional factors, mainly in its process of acquisition of a Geographical Indication as it has been disseminated, extrapolating the limits of producer organizations in isolation, and how the state fulfills a fundamental role in this context.

It should be emphasized that the process of acquiring a Geographical Indication (GI) suffers institutional influence not only in the tendency to increase its adhesion by the productive sector, but also because the adoption of GIs would imply a commitment to new rules, routines, ways of doing and acting that could even contradict previous practices.

In view of the context presented, the following research questions are raised: How do institutional aspects influence and are mobilized to acquire a geographical indication in the context of an organizational field? What role does the State play in promoting the special coffee market in Brazil? And describe the importance of isomorphism between the parties involved.

Institutionalization (based on institutional theory) is understood as the means of explaining the structure or action of organizations, through interactions that become legitimate, with the purpose of obtaining a standardization of social behavior or social relations of the interested parties, through Organizational identity can be determined. In the same context, isomorphism is a key concept for understanding the politics and rites of many modern organizations. In general, it is seen as a pressure inducer to a unit or organization to resemble other units that participate in the same set of environmental conditions.

Therefore, it is based on the theoretical approach of organizational institutionalism, more closely than its notions of Isomorphism and Institutional Field, to evidence the role of the State and other actors in this process as sources of isomorphic pressure. That, in turn, are conditioned the characteristics of institutionalization present in the structure of a field. In addition, it seeks to broaden the understanding of the phenomenon, adding to the analysis the action of the public

agents as institutional entrepreneurs.

2 Theoretical Framework

2.1 The Organizational Field

The organizational field is characterized as the conjunction of the component organizations of an institutional segment, comprising clients, suppliers, competitors and regulatory bodies, which influenced by them, are directly or indirectly impacted (Dimaggio & Powell, 1991).

In this sense, external agents to an organization or a group of them can even interfere in its behavior and structure, through norms and even the transmission of values. This process becomes more evident as the field reaches its institutionalization phase, in which case the presence of interorganizational bonds and shared values is accentuated (Yorozu, 2017; Simão et al, 2017).

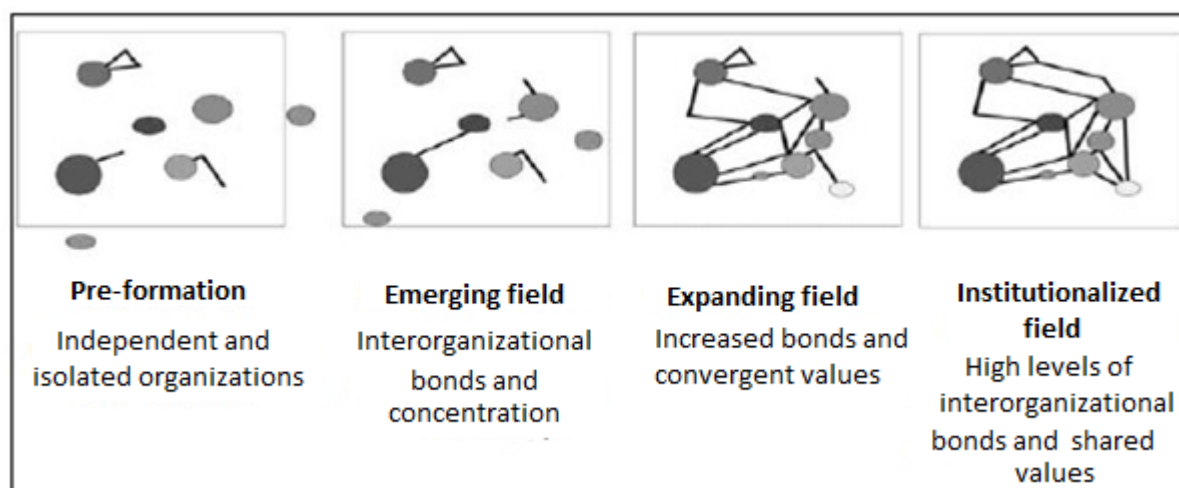
The notion of organizational field linked to organizational legitimacy, is of fundamental importance in the institutional sedimentation process (Cruz-Suarez, et al. 2014). In addition, it seeks to add a symbolic dimension in the analysis

of the exchange with the environment relation, which organizations promote in their quest for survival (Hollway, Lomi, Pallotti, 2017; Duarte, Tavares, 2012).

It is understood that, initially the organizations are in isolation, and that given the specialization and perception of belonging to a field, they tend to share values. This process tends to strengthen the field institutionalization. Evidently, organizations begin to recognize the mutual and gradual importance of the proximity. Consequently, the evolution of the relations becomes accentuated, and the points of contact tend to converge, strengthening the sharing of values (see figure 1).

In addition, organizations become more similar (isomorphic) to each other from the implication of "powerful forces" acting in a structured field. This observed process may be more relevant when it comes to the same activity sector and composed of different organizations. It is emphasized that this process tends to impact structures, work practices, organizational behavior, goals and strategies which promotes the "isomorphism" condition.

Figure 1. Formation stages of an organizational field



Source: Elaborated from Gonzalez & Martin (2017), and Gomes & Vieira (2009).

2.2 Isomorphism types

2.2.1 Coercive Isomorphism

It is the result of political influences and the legitimacy question. The organizations may suffer expressly coercive pressure or even in the persuasion form, invitation to joint participation,

manifested formally or informally arising from dominant organizations that holds some kind of demanding resource or by socially determined expectations.

Teo, Wei and Benbasat (2003), when studying the adoption of new technologies, pointed to evidence that would reinforce the perception that, through domination, resource-holding

organizations (corporate headquarters and regulators) may exert coercion in exchange relationships. The authors emphasize that customers and suppliers can exert influence for the use of a certain technology on a company when it is dependent on the first in resources. Thus, the maintenance of trade relations of mutual benefit, would then be a form of coercive pressure.

On the other hand, to link the issue with the participation of governments more closely, the state, along with the other agents, tends to coerce a number of organizations through the implementation of public policies, highlighting its role in the isomorphic changes.

For example, researches highlight the importance of the governmental hierarchy and its organs as a source of influence on organizations, considering the adoption of information technologies, through political manipulation and budgetary resources (Rodríguez et al., 2007).

Moreover, the legitimacy of standards regarding the practices, can also result from the development of public policies (Cruz-suarez, *et al* 2014; Diniz *et al.*, 2009), something determinant in the special coffee context, which is the question of study.

2.2.2 Normative Isomorphism

The source of normative isomorphic change comes mainly from the professionalization and recognition of its importance. These points act as a collective force of a profession/occupation members that defines the conditions and methods of their own work (Gamage and Gooneratne, 2017). These influences are determinant in organizations.

Although the practices of a particular profession may be different in one organization, professionals linked to a profession tend to replicate similar behavior even in different companies. This reality can derive and foster the relationship through networks of professionals that constantly update themselves and spread new work forms as they are composing their staff.

In this sense, considering the similarity in the managers' case in different organizations in relation to their networks of work/relationships and formal education, the response to problematic situations tends to be similar, given the sharing of practices. In this sense, organizations would act

isomorphically in function of problems that have not yet allowed their own coping solutions (Prado-Román *et al.*, 2018; Hüther and Krücken, 2016).

2.2.3 Mimetic Isomorphism

In this type of isomorphism, the pressures come from the positive perception that organizations have of others. Thus, in order to consider them to be more successful or legitimate, organizations perceive the need to insert itself in the context, that is, to model after other organizations. In the view of DiMaggio and Powell (1991, 1988) there are situations of an organization being taken as a model, that in reality do not result from the desire for the organization's position, but of the effort displayed, aiming at strengthening the organization in the inserted segment.

In this same context, companies use recurring imitation to produce new products, to elaborate processes and methods, to outline ways of organizing and exploiting new markets (Yorozu, 2017). At this point, the cultural-cognitive pillar associated with the mutation of the isomorphic mimetic is highlighted, where the activities of institutions are taken culturally and adhered to in the organizations' dynamics (RUPIDARA, 2017). Hence the emphasis attributed to symbols and meaning, as individuals do not absorb the external reality as given ontologically; but taking into account a socially shared structure of meanings.

Linking this part of the theory with the proposed study, it is integrative and systemic character, by considering it to be a potentiating prospect of elucidation of stakeholders. In view of this, while recognizing the challenges of time, diverse resources demanded and even dangers when relating to the epistemological context, the proposed study seek to understand the institutionalization phenomenon of the special coffee. Undoubtedly, categories such as organizational field, isomorphism, legitimacy and institutional entrepreneur, are simultaneously determinant concepts.

2.3 Formalization of research focus

Considering that an organizational field advances in its stages of institutionalization concomitant to the increase of the interactions and diffusion of shared understandings and beliefs, adopted practices, rationalized myths by the

present organizations, in order to make them more and more similar (Gamage; Gooneratne 2017; Tolbert & Zucker, 1998), we have the following propositions:

Proposition 1. The adoption of the GI registration for coffees occurs under certain structuring conditions arising from the institutionalization process of the organizational field.

Proposition 2. Organized entities in the coffee production tend to be forced to adhere to the GI registry by government agencies and organizations that have resources and power, due to coercive pressures. It is considered that the coercive pressures can come from dominant organizations, possessing resources and power present in the organizational field.

Proposition 2A. Interest in GI registration by the State and other resource-earning organizations tends to exert coercive pressures for their use in dependent coffee organizations.

Proposition 3. Coffee producers' associations that seek premium prices tend to seek GI registration in accordance with professional and governmental organizations, due to the occurrence of normative isomorphism.

Proposition 4. Coffee grower organizations tend to seek legitimacy by registering a GI as they identify an GI holding organization as a successful model in a field. Thus, use of GI by prominent organizations in the field can exert pressure of the mimetic type on the other entities.

Proposition 5. In addition to coercive pressures, the State, through its agents and agencies, engages in proactive actions of institutional entrepreneurship through the mobilization of efforts and resources, and through the sensitization discourse to adopt a GI for coffee.

The previous proposition is strengthened by the fact that the institutional entrepreneur (whether individuals or organizations) acts by mobilizing resources and elaborating discourses of persuasion, implying changes in institutions (Rahmah 2017; Rupidara, Darby, 2017; Dimaggio, Powell, 1991).

Importantly, the results using the criterion of "big influence" and "small influence" is based on the relationship observed in the research, being used to such criteria, interviews and texts related to the study.

3 Methodology

The scope of the research covers three coffee regions, namely: (a) the northwestern part of the Minas Gerais state, (b) the Zona da Mata, also in the state of Minas Gerais, and (c) the Alta Mogiana, state of São Paulo. It should be noted that the first two producing regions have GI of coffee produced by them; while the last region mentioned above is in the process of achieving geographical certification.

The choice of the above-mentioned coffee regions was due to convenience criteria, that is, to select the most profitable research *locus*; and whose actors made themselves available to collaborate with the data provision necessary for the reflections that were and are understood in the research scope. Nevertheless, it should be pointed out that the expedient of choosing certified coffee regions, and a single region that does not yet have a geographical indication, is justified by the need to have elements to compare the evident institutionalities in each of the analytical loci which covers the research.

It is important to reiterate that the coffee regions contemplated in this study are among the main poles of production of special coffees in Brazil. Thus, it is very important to undertake efforts which have the purpose to shed light to the dynamics and characteristics of these regions. Consequently, it is important to regard important elements so that the planning can be more efficient, and in turn, imply the promotion of coffee production in emerging localities, such as the states of Rondônia and Bahia, for example.

Data utilized in this study are from the following sources: (a) participant observation and systematic with leading players who are based in the special coffee producing regions; (b) documents provided by the investigated players (such as documents, minutes of meetings, statutes, photographic records, folders and the likes); (c) exploratory and in-depth interviews with players, which guided the institutions definition in the coffee regions investigated in this paper.

As an instrument for directing the in-depth interviews, a protocol with guiding questions was used to understand how institutional factors influence the adoption of geographical indication (Blakeney, *et al.* 2013) in the context of the organizational field under analysis, in each one of the coffees producing regions considered in this research.

As a subterfuge for a greater and better

approximation in relation to the subject investigated, exploratory interviews were conducted with privileged informants from the producing regions investigated. The interviews were not recorded and served to check previous information, contributing to the refinement of the protocol with guiding questions effectively engaged in data collection.

Agents interviewed effectively in this step were as follows: two pioneers of the third wave coffee branch in Brazil; two researchers who participate in projects focused on the coffee area, financed by Funcafé; a pioneer in the segment, certifier of SCAE in Brazil, producer, Q-

Grader and owner of Cafeteria; a producer and owner of an accredited warehouse, with a pioneer family in the production of coffee in the Minas Gerais *cerrado* region.

Part of the interviewees in the preliminary and exploratory stage of the research composed, in a second moment, the set of agents that were effectively interviewed with greater rigor and detail richness. Thus, interviews of this last group of agents were recorded for subsequent transcription, and to use in the research results. The agents investigated in the stage of effective data collection for the survey were the following.

INTERVIEWED AGENT	LOCATION	DURATION
1. National reference in the field of special coffee, Q-grid, owner of third wave cafeteria, producer of the cerrado	Belo Horizonte-MG	39 minutes, 02 seconds.
2. Cerrado Mineiro IG's consultant	Patrocínio-MG	37 minutes, 45 seconds.
3. Producer and vice-president "AMSC"	Alta Mogiana Region	41 minutes, 12 seconds.
4. Owner and Barista of third wave coffee shops, buyer of IG Alta Mogiana and Cerrado Mineiro coffees.	Ribeirão Preto-SP	1 hour, 56 minutes, 23 seconds.
5. Expocaccer Representative	Patrocínio-MG	18 minutes, 26 seconds.
6. SEBRAE "Matas de Minas" representative	Patrocínio-MG	1 hour, 3 minutes, 16 seconds.
7. Publisher of the "Espresso" magazine	Belo Horizonte-MG, International coffee week.	41 minutes, 03 seconds
8. Representative of the region "Alta Mogiana"	Belo Horizonte-MG, International coffee week.	27 minutes, 54 seconds.
9. Owner of accredited warehouse and producer in Minas Gerais' cerrado region	Patrocínio – MG	24 minutes, 08 seconds
10. Producer, consultant Illy and member of the Matas de Minas' Council	Belo Horizonte	60 minutes, 01 second
11. Producer and award winner in the Minas Gerais' cerrado region	Serra do Salitre – MG	1 hour, 28 minutes, 03 seconds

As can be seen in the above table, there were 11 in-depth interviews in the period of 2016 to

2017, which were later submitted to content analysis techniques - as it will be clarified soon,

still in this chapter. The ordering of the interviews, for their better analysis and comprehension were performed using the qualitative program Nvivo 12 Pro.

It should be noted that in the period of 2014 to 2017 the study's authors participated in various events and courses related to the sector. Thus, third-wave coffee shops and production properties were visited in the cities of São Paulo-SP, Brasília, Ribeirão Preto-SP, Curitiba-PR and Belo Horizonte-MG, in which it was possible to trace the image of the sector, which was further strengthened through the above-mentioned interviews.

In addition, researchers had the possibility to accompany on-site, in the years 2014, 2015 and 2016, the International Coffee Week, in which there were major "players" in the coffee industry in Brazil (including the branch of special coffee), with the city of Belo Horizonte/MG as its venue.

The agents chosen for the interview met the convenience criterion, that is, the "players" who, in addition to offering fundamental information to lighten the research problem, volunteered to participate in the research. It is worth considering, as it is appropriate, that agents were duly informed of the strictly academic and scientific character of the research, and they were guaranteed confidentiality in the treatment and analysis of information provided to researcher.

4 Organizational field: institutionalization and evolution

The figure 2 below describes the organizational field of specialty coffee in Brazil until 1991. At that time, several events occurred in the Brazilian coffee sector at the beginning of 1990, such as deregulation in the sector resulting from the end of the international coffee agreements (S) and the fall of the Brazilian Coffee Institute (IBC). In this way, the productive structure of the sector was altered, consequently a new institutional arrangement and pattern of consumption were unchanged. In fact, the production of differentiated coffees had an important player in the market, and in this context the Ernesto ILLy quality award in 1990 gained prominence, which aims to add greater value and promote product quality.

Also, Figure 2 highlights the most influential players who initiated the new wave of specialty coffees in Brazil, which are: quality awards, large buyers and state governments. It can

be verified that even with the action of these actors - with greater influence - the organizational field was still incipient, a fact explained by the little interaction with other actors potentially important to strengthen the initiative, such as: BSCA - Brazilian Association of Special Coffees, EMBRAPA - Brazilian Agricultural Research Corporation, ABIC - Brazilian Coffee Industry Association.

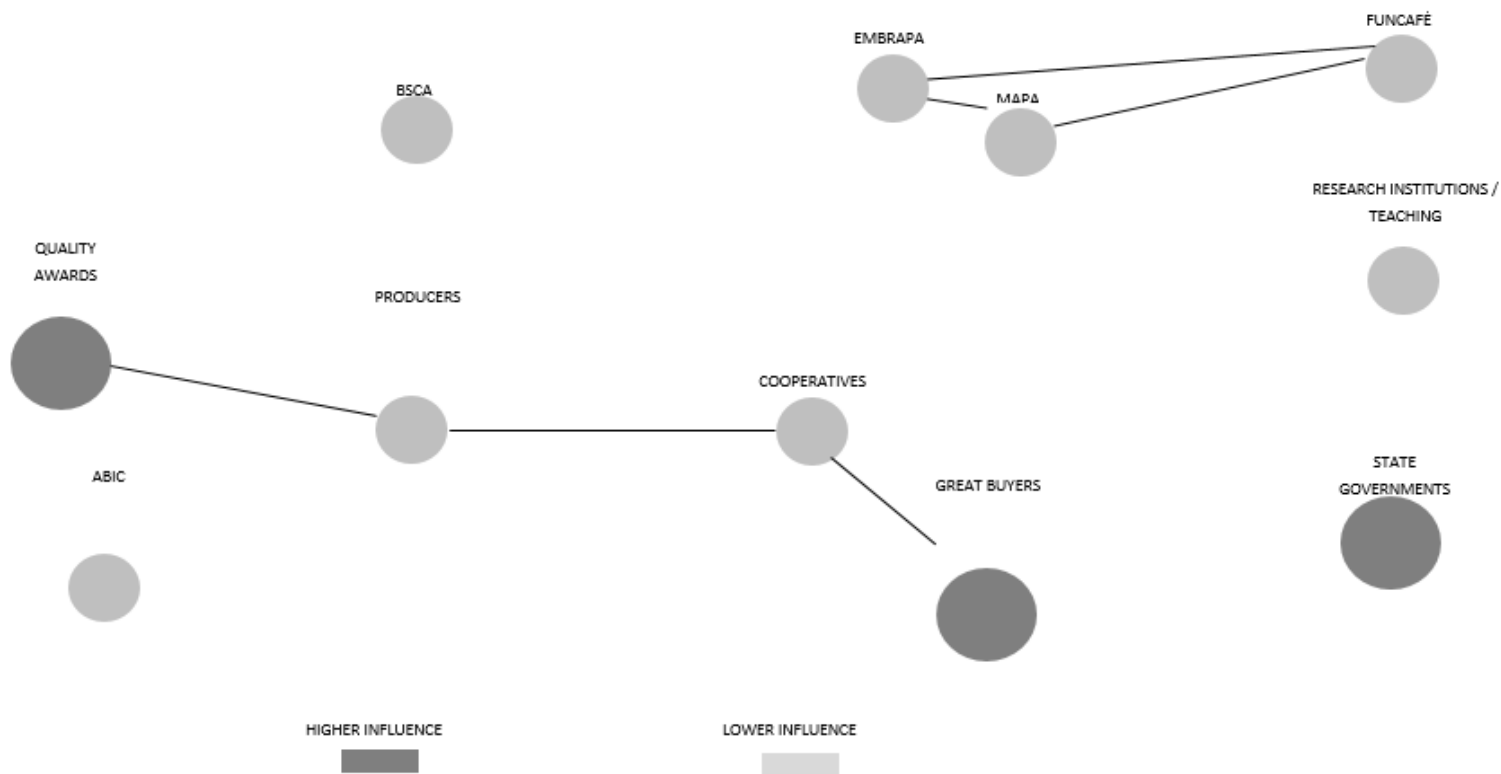
In general, figure 2 depicts the image of the coffee field, with a view to promoting the new wave of special coffee in Brazil. Outstanding, the main entities involved in the process, evidently with little participation of the State and an initial process of engagement of the other institutions. (see figure 2).

Since the beginning in 1990 until 2016, the specialty coffee market in Brazil has undergone many changes, and today tends to a sedimentation process. The Organizational Field of specialty coffees, after the nineties had several changes, nowadays the thematic competitiveness began to gain prominence (Arevalo, Arruda and Carvalho, 2016) with the impetus of two fundamental actors who began to interact with the others already involved until Then, such is the case of BSCA (Brazilian Association of Special Coffees) and teaching and research institutions. Specifically, the strict quality standard for the product makes BSCA a determining institution and, therefore, of greater influence in the improvement of the image of Brazilian coffee in the international market.

Given this new context, the wave of specialty coffees reached entities linked to the government, such as SEBRAE (Brazilian Service of Support to Micro and Small Enterprises) in different states - Minas Gerais, São Paulo, Paraná - and several producing and selling companies. The promotive action of these institutions is determinant for the development of the culture of production of specialty coffees in Brazil. To the previous sentence, it is verified with the strong growth of companies linked to the production and sale of special coffees in Brazil, spread over several states between (Figure 3).

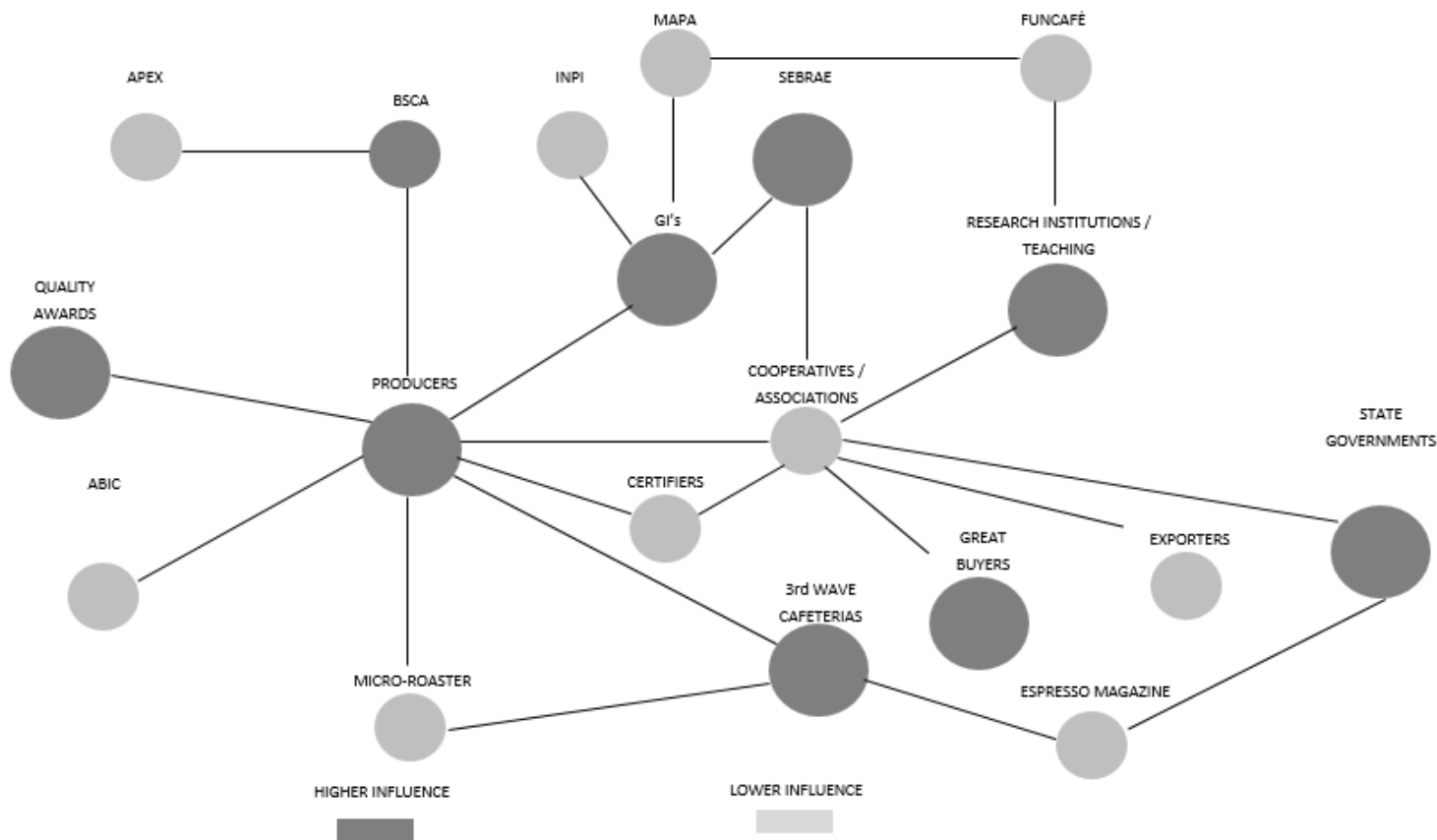
The context is reinforced by the initiative of the magazine *Expresso* in 2006, it began to play an important role in this process, and at that time the sector still lacked means of written dissemination. Little was said about quality coffee, and in fact little understood this type of coffee and what is more where to find this product. At the time two

Figure 2. Organizational field of the Special Coffee in Brazil (1990)



Source: The author (2017).

Figure 3. Organizational field of the Special Coffee in Brazil (2016)



Source: The author (2017).

important companies entered the Brazilian market, Starbucks and Nespresso, each of them with its peculiarity. Thus, registering the importance of international investment by strengthening the domestic market, which at the time was seen as a threat to the domestic market.

In 2016, the observation of the organizational field is an increasingly consolidated institutionalization of the sector involving the government (via government and directly and indirectly linked companies such as SEBRAE and EMBRAPA - Brazilian Agricultural Research Corporation) and several entities of interest (third wave coffee bars, large Buyers such as ILLy and Nespresso, producers) as well as prosecutors in the process (state governments, quality awards, research institutions).

Also, a trend of consumption change is observed, which is corroborated by the greater influence of third wave coffee shops and the importance of participation in the "International Coffee Week" in three consecutive visits between 2014 and 2016. This trend of change in consumption is linked to several factors influencing the process, such as the new consumer profile, being this consumer more demanding in the sense of being interested in knowing, among other things, the origin of the product. Consequently, one can expect a disruption of the ordinary consumer's sense of coffee with the entry and promotion of specialty coffee by third wave coffee networks.

In the same line, in the organizational field is verified the importance of the producers. This influence is understood as the interest that the producers show in relation to adapting the new trends and being able to meet the market demand, both internal and external. In this context, Brazil's participation in the world market for differentiated coffees is about 15%, in relation to the world total. It is true that the percentage is still not significant, but Brazil has the capacity to serve the market with greater participation.

With regard to teaching and research institutions, UFLA (Federal University of Lavras) has become one of the exponents of the strengthening and institutional support to the field of special coffee. He began his research and extension projects for coffee more than six decades ago; Therefore, even before the movement for special coffee, and currently has more than 100 researchers working in the Research Coffee Consortium, in 47 specific projects.

At this point, given the importance of UFLA as a research institution in the field under study, it is observed that it exerts an influence like normative isomorphism, since it emphasizes the fundamental role that professionals specialized in the subject has on the sector, besides, it should be noted that there is a limited number of trained professionals in the sector.

In 2008, the National Institute of Coffee Science and Technology - INCT Café, created by CNPq and headquartered at UFLA, was created in 2008 to highlight the initiatives and partnerships of the university aimed at strengthening the research and propagation of knowledge in coffee. Like the other INCTs in other areas, the objective of the partnership was to integrate the main research agencies focused on agribusiness coffee, in order to produce innovation, solve problems of application and improvement of the sector from the involvement of highly qualified researchers. In this context, the importance of the concept of coercive and mimetic isomorphism is pointed out, since the process of organization and legitimation of the sector through the creation of the National Coffee Science and Technology Institute (INCT) makes the other institutions and Stakeholders tend to moderate and adhere to the system.

Still in relation to UFLA, the last important initiative was the installation in its premises in June 2016 of the INOVACAFÉ Agency, under the coordination of EMBRAPA CAFÉ. It is a physical space equipped with infrastructure to support and integrate its internal organs for the research in coffee and to approach the other universities, government and productive sector.

Therefore, InovaCafé arises to house and optimize important projects such as the INCT Café itself, as well as the Technological Center for Online Marketing of Coffee and e-CAFÉ BRASIL, the Center for Market Intelligence - CIM, the Training Center in Markets, the Bureau of Information and Coffee Development and the Center for Teaching, Research and Extension of Agribusiness Café - CEPECAFÉ. All these initiatives have a direct or indirect impact on productivity, quality and knowledge production of coffee produced in the country. The funders and institutional supporters of the agency are the FUNDADOR DE RECURSOS E PROJETOS - FINEP, UFLA and the Foundation for Research Support of Minas Gerais - FAPEMIG.

The strengthening of the sector specifically

corroborates aspects discussed in the theory, such as the concept of isomorphism and organizational field, increasingly striking in the process in search of the sedimentation of the market, as several institutions strengthen the sector.

Also, important institutions in this context are the Federal University of Viçosa - UFV, the Agronomic Institute of Campinas - IAC, the Agronomic Institute of Paraná - IAPAR, the Capixaba Institute for Research, Technical Assistance and Rural Extension - INCAPER, Bahia Agricultural Development Company - EBDA, The Agricultural Research Company of the State of Rio de Janeiro - PESAGRO, which in partnership with UFLA, EMBRAPA and MAPA (Ministry of Agriculture, Livestock and Food Supply) form the "coffee research consortium", whose mission is to promote the conjunction of human, physical and financial resources in the research and development of coffee.

In view of the importance of the "coffee research consortium", state governments, especially the "Government of Minas Gerais" play an important role, as regards the Governments of São Paulo and Paraná, as promoters of the product and investors (credit institutions aimed at supporting coffee cultivation).

Thus, given the greater influence of these actors, the strengthening of GIs is a consequence. Through which the creation of value in the product is observed, the same that fulfills the role of serving / promoting the opportunity for producers to offer their products to the demanding market. The vision observed here with strengthening the GIs is an institutional effort with a vision of the future, adapting to the new trends that the market imposes. (see figure 3).

Reinforcing the previous approach, it should be noted that the event in question as a representation of the field is a heuristic resource of the researcher that is justified even with its alignment with the theory of organizational field to the media that favors the dynamic visualization of the individuals and organizations involved, Since the various segments are represented here in a detailed and agalmatized space.

Finally, Figure 3 shows the evolution of the segment, highlighting several changes, especially in relation to the proximity link between the producing regions under study. There were changes in the technical and academic programming of the event successively (in the time

evaluated) in the sense of strengthening and evidencing the GIs of the coffee.

5 Conclusion

This study aimed to analyze the importance of the adoption of geographical indication and other efforts in favor of the process of institutionalization of the special coffee market in Brazil. Several agents present in the field were interviewed for the purpose of being able to fulfill the objective and to be able to portray an accurate reality of the field.

There is a strong occurrence of coercive, mimetic and normative isomorphic pressures in the field that help to validate the proposition described in the methodology. Specifically, in talking about the International Coffee Week, it harmonizes with the context of normative isomorphism, specifically, it is verified through this initiation the establishment of conditions, methods and practices relevant to the sector. In addition, this context reinforces the discussion involving propositions 3 and 4, in which coffee producers' organizations tend to seek legitimacy, considering that the measure that identifies an organization that owns the GI is seen as a model of success in the field.

Also, it is verified how isomorphic pressures occur in the organizational field under study. The importance of the entrepreneurial role of the State and of other actors that act in the process of adoption and dissemination of GIs for coffee is highlighted. They are evidenced as state agents that proactively engage in actions as institutional entrepreneurs in the institutional change promoted in the field in question.

It is important to mention that not only the state, but also, the entities described as an integral part of the organizational field of coffee are involved proactively, evidencing a coercive isomorphism. Thus, intentional action with the objective of achieving goals, fits into a dynamic in which the interaction of entities is continuously strengthened. In short, based on what has been described, it is observed that the organizational field underwent a lot of change, being this positive factor in the sense of observing the commitment of the actors.

Finally, this study contributes to the discussion that involves the improvement of the issue of the adoption of GI, especially in the coffee sector, aiming to develop and improve not only the

public policies for the sector, but also to identify the best practices of the governmental actors in the implementation phase of the policies developed.

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Practical influence of the strategic process in organizational results

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ABSTRACT

This article proposes to verify to what extent the practice of the strategic process exerts influence in the managerial results of a garment industry of the State of Santa Catarina. The topic is discussed theoretically, however, doubts remain about the effectiveness of its purposes with the daily execution of its activities. From this premise came the question of research: in what way does the practice of the strategic process influence the organizational results of a garment industry? It presents an exploratory-descriptive approach of qualitative nature, based on the methodology of case study. Initially, a bibliographical research was done to survey the theoretical aspects about the theme. In the empirical research, an interview with the director of the company was carried out, as well as a questionnaire was elaborated applied to the responsible managers of each area. The collected data were transcribed, analyzed and refined in order to generate information relevant to the study. As a result, it was possible to verify the importance of establishing strategic processes in practice and the synergy between those involved in decision making. It also demonstrates that the use of management tools enables a clearer understanding of all the strategic processes that it influences. In addition, it helps to predict risks, analyzes opportunities and provides an improved observation of the results and ends with the proposal of future studies.

PALAVRAS-CHAVE

Planejamento estratégico;
Resultados organizacionais;
Prática estratégica.

RESUMO

Este artigo propõe verificar em que medida a prática do processo estratégico exerce influência nos resultados gerenciais de uma indústria do vestuário do Estado de Santa Catarina. O tema é discutido teoricamente, porém, subsistem dúvidas quanto à efetividade de seus propósitos com a execução diária de suas atividades. A partir dessa premissa, surgiu a questão da pesquisa: de que maneira a prática do processo estratégico influencia os resultados organizacionais de uma indústria de confecções? Apresenta uma abordagem exploratório-descritiva de natureza qualitativa, baseada na metodologia do estudo de caso. Inicialmente, foi realizada uma pesquisa bibliográfica para levantamento dos aspectos teóricos sobre o tema. Na pesquisa empírica, foi realizada uma entrevista com o diretor da empresa, bem como elaborado um questionário aplicado aos gestores responsáveis de cada área. Os dados coletados foram transcritos, analisados e refinados, a fim de gerar informações relevantes para o estudo. Como resultado, foi possível verificar a importância do estabelecimento de processos estratégicos na prática e a sinergia entre os envolvidos na tomada de decisão. Demonstra também que o uso de ferramentas de gestão permite uma compreensão mais clara de todos os processos estratégicos os quais ele influencia. Além disso, ajuda a prever riscos, analisa oportunidades e proporciona uma melhor observação dos resultados e termina com a proposta de estudos futuros.

1 Introduction

Companies in general, regardless of their size, are immersed in competitiveness in an increasingly globalized market. The development of new products, services, technologies and solutions, whatever the field of activity has worried managers and professionals, given the speed of change, where companies that do not follow these oscillations are lagged behind the competition. Milnitz and Luna (2017) highlight among the main characteristics of the Brazilian textile industry, the production of labor-intensive products with little investment in intellectual capital, which allows competition and opening of companies in regions with low labor costs. work.

Changes in the external environment bring challenges to organizations and affect them in a variety of ways, requiring definitions by managers at every turn, in pursuit of the survival of growth (Gulini, 2005). In addition to this, the current economy requires companies to take an entrepreneurial and constant innovation. Menegon (2018) provides an overview of the main innovation strategies, according to Freeman and Soete (2008), developed by firms in the west of Santa Catarina where 37.5% use traditional strategies with imitative, dependent and defensive strategies, fall to 18.75%, respectively, only 6.25% of companies use opportunistic strategy. And it is within this vision that competitive intelligence moves from strategic to entrepreneurial (PELISSARI et al, 2012). This article is justified because it considers necessary the development and application of strategic management tools in a practical way, in order to assist the decision-making process, to demonstrate credibility to all those involved, as well as to facilitate the structured development of organizations. The strategy is present in any action that managers take, regardless of the area of the company. When linking a case study based on theoretical precepts, where strategic planning is put into practice in a structured, standardized way, it is assumed to achieve relevant organizational benefits.

Following this line of reasoning, the research was developed in a garment industry located in the western region of Santa Catarina, has been in the apparel market for 26 years, specializing in men's fashion. Since 2010 the company has been investing in the professionalization of management, adding tools that support the strategy,

the budget, tend to the organizational synchronism, besides adopting the precepts of the situational leadership. The organization works through interdependent processes, acting in an integrated and synchronized way to obtain the desired final result.

In order to elucidate the practical versus strategic *modus operandi*, the article is articulated by beginning this discussion by the theoretical understanding about the strategy, the strategy formation process and its practical applicability. These initial clarifications are relevant as they form part of the concept of strategy in practice. The methodological aspects are presented, followed by the analysis of the results.

It was defined as the research problem: in what way does the practice of the strategic process influence the managerial results of a garment industry? The general objective of this study is to verify to what extent the practice of the strategic process influences the managerial results of a garment industry in the State of Santa Catarina.

2 Theoretical rationale

In this session we will discuss the scientific concepts that will support this research.

2.1 The Strategic Process and Strategy as Practice

Empirically, there is a suspicion about the process of strategy formation, that this process does not only emerge internally but is influenced by the environment (HART, 1992; HART, BANBURY, 1994). The way to develop the strategy can be influenced by diverse characteristics such as culture, manager profile and sector in which the organization is inserted (MINTZBERG; AHLSTRAND; LAMPEL, 2009), this shows that the strategic area is lacking in qualitative studies that recognize the applications of the theme in organizations and answer questions of research regarding the way the strategic phenomenon occurs in companies.

Mintzberg, Ahlstrand and Lampel (2009) categorize the studies in ten schools: three with a prescriptive approach (design, planning and positioning); and seven with a descriptive and procedural approach (entrepreneurial, cognitive, learning, power, culture and configuration). It is evident that schools aim at thinking strategically, and they vary according to the profile of the

strategist and the environment, individual or collective, analytical or action oriented.

On strategy in practice, Whittington (2006) defines as a social activity, built through actions, interventions, and multi-stakeholder negotiations and practices on something. It uses a conceptual framework for strategy in practice, based on three elements: praxis, practices and practitioners, where praxis is a term that describes the whole of human action at the social level, and the interconnections between actions, modeled flow of activities over time. Practices as routine types of behavior, and practitioners the individuals or professionals who use them. It emphasizes that there is no need to avoid the interconnection of these three issues in strategy research, in view of their interdependence. The challenge of strategy as a social practice is to understand how strategists exercise strategizing in their daily lives, based on the interaction between the strategists of the organization and the physical (objects, artifacts, tools) and social resources (practices, community, division of labor and rules) available in their social, historical and cultural environment (JARZABKOWSKI, 2010).

The strategy-as-practice approach is not limited to checking how strategists who decide strategies think and lead, but also understand how other people in the organization contribute to its execution. There is much research on the strategic process in organizations, but with little focus on the individual, that is, the research agenda is focused on strategies focused on professionals, professionals versus praxis, practices versus professionals, and methodological levels in empirical practices. From the discussion of the strategy's microprocesses, studies have emerged on the need for a more practice-based approach to strategy. This led to the emergence and partial institutionalization of a group strategy as a practice. The practice-based approach investigates the core strategy formation, budget routines, expense meetings, reports and presentations by focusing on praxis, practitioners, and practices (WHITTINGTON, 2003). From the management theories, a certain degree of ambiguity is required to maintain the flexibility of interpretations in contexts of local change.

Starbuck (1983) found a gap the discourse, action and decision in the organizations, showing that practical-level managers actually do different things than at the discursive level. To the resource group for everyday activities to do strategy,

Jarzabkowski presents the difference between practice and practice, where practice is the actual activity, events, or strategy work, while practices are the traditions, norms, rules and routines through of which strategy work is constructed (JARZABKOWSKI, 2004).

When analyzing what happens when the strategies are put into practice, and how individuals, especially managers, contribute to this process, it is evident that some companies do well without strategy, some strategies emerge from the company, while others are implemented from up. The field of strategy as the practical investigation should open itself to other areas that are not yet interconnected, for example, sometimes the unspoken is more important than what is carefully articulated, hence an analysis of the symbols, artifacts, and strategic language would be crucial to understand strategy as a practice (CLEGG et al, 2011).

Through Whittington's (2003) strategic outline, concern about understanding contemporary strategy-making activity can be broadly characterized as a means of identifying what strategists actually do. The problem is that company managers are unable to carry out the sophisticated strategies they develop from an organizational point of view. In the last 20 years, strategic thinking has distanced itself much from organizational competencies "(BARTLETT; GHOSHAL, 1998, p.

About the profile of strategists there is little information available, thinking about organizational future, decision making and resource allocation, this lack of knowledge becomes a hindrance. Clegg, Carter, and Kornberger (2004), bring a question that is worth a deep reflection: how do you form the identity of the strategists who live in a time and a space that forces them to create a future that perhaps never arrives?

The notion of a practical approach strategy, it is an activity, not only as an attribute of the company, but the work developed by employees, that is, strategy is something that people do (JARZABKOWSKI, 2010). The strategic planning cycle is a powerful practice for distributing an increasingly consistent interpretation of desirable strategic activity based on accountability and financial viability. Johnson et al. (2003, p.14) argue that "our position is different in that it addresses the enduring issues of bottom-up strategy."

For Whittington (2004: 63), "strategy as

practice allows both illumination of a significant phenomenon that has hitherto been obscure as the improvement of something in which people and society in general have great resistance." this approach, managers who create strategies in those fields where action is possible can be coordinated by these strategies. From an epistemological perspective, strategy as a practical approach seems to resemble a rough version of positivism that understands practice as being "closer" to reality, with a "more accurate" description of the real world. Strategy as a practice, in its approach, positions itself as a problem-solving tool for managerial elites.

The practical approach draws on many insights from the process school, but returns to the managerial level, concerned with the form of strategies, leaving aside the methodological challenges involved in observing a strategy within a process, the critique of the practical approach is that the structure of the process is not yet sufficiently sensitive to the microenvironment. (Johnson et al., 2003, p.5).

As noted, strategy as a practical approach does not use the concept of practice to its fullest extent. Practice seems to mean being closer to reality or being more easily applicable, in other words, practice is understood as what people actually do as strategies. Veyne (1997) suggests turning our thinking upside down: some companies do well without strategy, some strategies emerge from the company, while others are implemented from the top down. From this perspective, a strategy of practical approach would be to investigate the practices that constitute the object of the strategy. The field of strategy as the practical investigation must open up to other areas that are not yet interconnected.

Rather than replicate the conventional notion that strategy is about top management teams of the corporation, we suggest broad and inclusive conceptualizations about how the strategy could be and how it is done. Practical understanding lags far behind strategy design. From the theories that deal with management, it is necessary to maintain the flexibility of meaningful interpretations in contexts of local change. Rather than reproduce the conventional notion that the strategy the top management teams of the corporation, the article broader and more inclusive conceptualization on the practical action of applied form of strategic planning.

2.2 Clothing industry

The textile segment, worldwide, is one of the most dynamic. An example of this is the various collections released annually. World textile production is led by China, which owns 50.2% of the amount produced, and represents the largest consumer market in the world. Brazil occupies the 5th place in the world production of manufactured textiles, with 2.4% of the total (IEMI, 2013). Despite the fact that Brazil is among the five largest manufacturers of manufactured textile products in the world, its production is geared primarily to the domestic market.

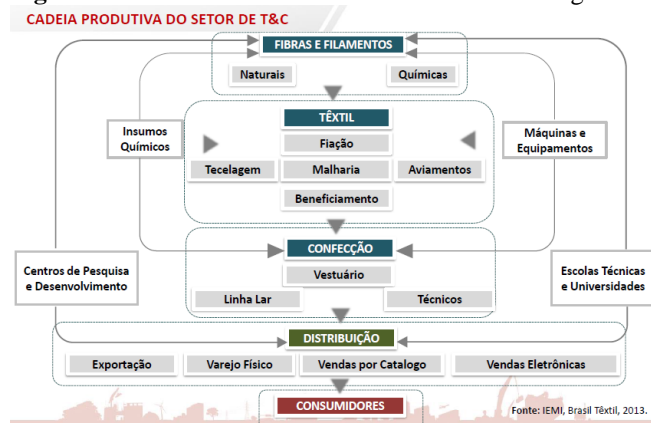
There is a need to rethink the financing structure for innovation in force in the country so that more expressive and sustainable amounts are allocated to companies in this segment that are in constant cycles of innovation. Data from the National Confederation of Industries (2017) show that between 2007 and 2016, about 30% of the collection of the National Science and Technology Development Fund (R \$ 12.2 billion) is no longer invested in research and development Innovation). Because of this, the CNI, together with entrepreneurs and the federal government, are articulating actions to ensure that resources for innovation reach companies.

The Brazilian Textile Industry is concentrated in the Southeast (52.2%) and South (28.3%) of the national production. The Northeast participates with 15.6%, while the Midwest (3.5%) and North (0.4%) are considered to be less representative in this industrial activity (ABIT, 2016). In the 1980s, the Brazilian textile industry dominated the domestic market, which was closed to imports of finished products or inputs and equipment. As a result, the production chain bases its strategy on improving productivity with the modernization of the industrial park and the development of new products, which are still out of line with the world's competitors (VIANA, 2005). Figure 1 illustrates the productive chain of the textile sector.

The sector's businesses start with the raw material (textile fibers), being transformed into yarns in the spinning mills, from where they go to weaving (that manufactures flat fabrics) or to knitwear (knitted fabrics). Afterwards, they go through the finish until finally they reach the confection. The end product of each of these phases is the raw material for the next phase. (Costa,

ROCHA, 2009, p.162).

Figure 1. Production chain of the Textile and Clothing sector.



Source: IEMI (2013)

In Brazil, the textile industry accounts for 2.0% of the Gross Value of Industrial Production (VBPI) and accounts for 3.8% of jobs in the Manufacturing Industry (IBGE, 2014). In August 2016, there was a 3.8% reduction in industrial activity, a more intense drop since January 2012 (-4.9%), where clothing and accessories made a negative result of 6.9%. According to data from IBGE (2016), the comparison of August 2016 with the same month of the previous year, the industrial sector showed a decrease of 5.2%, among activities, clothing and accessories 7.3%. This fall in industrial performance brings an alert on the level of competitiveness and innovation of the textile sector. The low productivity of the Brazilian apparel industries, needing to meet the needs of a growing market, must compete with large retail chains, which mostly work with the importation of resale products. This fact leads to the outsourcing of processes with small factions that tend to share the production with other smaller workshops and, as a consequence, the quality of the final product is impaired.

Vianna (2005) traces a panorama of the Brazilian textile industry, considering as main characteristics the technological and managerial heterogeneity. In the same segment are modern companies, with technological standards and strategies similar to the best companies in the world, and in contrast, there are partially modernized companies, with some up-to-date equipment in strategic processes and with strict quality control and design training. However, in this same segment, there are several companies with technological and managerial standards

outdated.

3 Methodology

This research adopted an exploratory-descriptive approach of qualitative nature. In Severino's view (2014), the exploratory research seeks information about a given object, delimiting the field of work and the specific conditions of that object. Triviños (2006, p. 110) states that "the descriptive study is intended to accurately describe" the facts and phenomena of a given reality ". Barros and Leheld (2007: 84) point out that in this type of research "there is a survey of data that can be compared, but not manipulated, that is, there is no interference of the researcher, he describes the object of research, discover the frequency with which a phenomenon occurs, its nature, characteristics, causes, relationships and connections with other phenomena. " Minayo (2011, 24) states that "the researcher who works with qualitative strategies acts with the raw material of experiences, everyday experiences, analyzes structures and institutions." The case study strategy is used because it is "an empirical investigation that investigates a contemporary phenomenon within its real life context" (Yin, 2015, p.17).

As for the procedures, data collection artifacts are used, through an interview, a questionnaire and a bibliographic survey. As secondary data, performed participant observation and documentary research. Researches with this design can accurately characterize the object of study, demonstrate and describe relationships between phenomena and variables, but do not propose to determine causality (GIL, 2002). The study was conducted in a garment industry, located in the city of São Carlos - SC.

Data collection was performed through interviews and questionnaires. The interview was given by the manager-financial manager of the company, in addition to the manager, there is the president, who is dedicated to the marketing area, this shares with the vision the interviewee, which is why, among them, they defined the company. The the manager took into account the proactive stance, the concern with the direction of the business and the relevance of its position, since it is a partner-owner. The interview was performed in the organization, with a semi-structured format, using a recorder, with the consent of the interviewee,

generated 42 minutes of recording, later transcribed, allowing the analysis. The semi-structured interview allows the informant to use all his creativity and spontaneity, valuing the research (Beuren, 2003). A questionnaire was sent to the managers of the organization, made available by e-mail, with the appropriate guidelines, to all 7 managers, of whom 57% handed in the forms answered, will be listed as Manager1, Manager2, Manager3 and Manager4. Managers who did not respond to the questionnaire, when approached indirectly on the subject, portrayed the perspective described here, talking about the tools used in strategy management, the format of meetings and the active participation of managers in all areas of the company.

The questions that guided the present research were based on Whittington's (2003) precepts: "Where and how is strategy creation and management really done? Who does this activity? What skills are required for this activity and how are they acquired? What are the common tools and techniques for creating and managing strategies? how is this activity performed? How are your results disclosed and used? "

The bibliographic survey was carried out taking into account the area database, books and specialized magazines, in order to present the state of the art in light of the strategy in practice. After the data collection, the results were analyzed according to the dimensions derived from the theoretical discussions, as shown in table 1 below:

Table 1. Theoretical Discussions Strategy in Practice

Authors	Strategy in practice
Reckwitz (2002)	It differs in its location from the social and its conceptualization of body, mind, things, knowledge, discourse, structure or process and agent.
Whittington (2003)	Process of interaction between people, environment, organization and strategy with their practice (praxis, practice and practitioners).
Clegg, Carter e Kornberger (2004)	Reflective and critical strategy, shaping the organization, interrelationships and additional techniques.
Jarzabkowski (2004)	Actions based on micro activities with a view to understanding the strategy.
Johnson et al. (2007)	It considers the phenomena that happen at the micro level (actors and their relationships) where processes and practices occur.

Source: Prepared by the authors (2017).

From the information collected it was possible to understand the strategic management of the business, the interaction between the areas and the tools used to translate the expected organizational objectives into practice. The survey was conducted from February to May 2016.

4 Analysis of results

The Textile and Apparel Sector is the guiding force behind this research, given the importance of this segment to Brazil. In this sense, attention is paid to the stakeholders involved in the entire production chain.

4.1 Characterization of the object of study

The company, object of study has been growing above 20% per year, (Deloitte, 2016). The positive outlook has awakened a look at the strategic management and the development of the strategic process. He has been working in the textile and clothing sector for 26 years, with headquarters in São Carlos, SC, has six production units in municipalities in the western region of Santa Catarina. It has 92% of the domestic production, with a focus on the male audience, in the last collections, started the production of juvenile children. With competitive differentials, it has been gaining space nationwide with products of high turnover, retail services, personalized service and with attractive marketing campaigns. Today it has more than 3,000 points of sales.

4.2 The practice of the strategic process

According to the administrative-financial director, the strategy structuring process is due to the need for positive results and emerges from the company's vision for the market, there is a need to understand who the competitors are, the target audience, and what are products for this audience, the price, according to the profile of the consumer, in addition to competing strategies, which culminates in a view from the outside in. It seeks incessantly for information that enables the company to find the best market positioning, through its brand, the strength it has in the market, and its perceived value by the consumer.

The business area is apparel, men's fashion, with a very specific profile. It understands that the strategy is closely linked to sociology and

psychology, given the rapidity of the behavioral changes of the individuals that directly influence in the form of consumption. Moreover, the superficiality of the use of trademark brands is observed as a determining factor in consumer habits given the hierarchy of individuals' needs, versus the financial availability to purchase clothes with higher costs.

Another situation raised by the director is the issues related to the informality of the branch of productive activity, which in many Brazilian states are several informal operators that influence in the market, generating or contributing to unfair competition, from the importation of the raw material, inputs, labor and billing itself. She notes that, over the years, the learning curve related to strategy has changed the perception of managers who make the decisions.

Among the players that discuss the strategy are the internal professionals who study the market, through the product research and development sector, the market intelligence sector, the productive, administrative, commercial, financial and results analysis (controller). The strategic decisions are discussed at the table, collectively, always observing the impact of expected results in each area. It also aggregates the knowledge acquired through international information related to the sector, research on these subjects, as well as expert opinion, sectoral and performance indicators, as well as the raw material suppliers themselves who are always anticipating trends. The company has short, medium and long-term strategy cycles.

The company has formalized the Strategic Planning process for a number of years, for a period of five years thereafter, deploying and analyzing the results annually. Among the main performance indicators are brand positioning in the market, growth and market share, and return on financial results. The process is done by analyzing the results obtained together with the management, discussion and establishment of new strategies, in a cycle of retro-analysis and with the definition by the Board of Directors. The development of the specific strategy of each area is given by its management that is responsible for contributing or developing its share so that the company's overall strategy is carried out. The strategic tools used translate strategic intentions into practical actions and projects and are used by the entire team of managers and management. The practitioners'

praxis in their practices is thus verified (WHITTINGTON, 2003), based on the significant interpretations in the different contexts and periods of change.

By questioning managers about where and how the strategy creation and management activity is actually done, they cite the strategy cycles, PEOE (Strategic Planning and Implementation) meetings, where areas are involved in order to deploy goals and objectives of the organization, with management support and participation.

In analyzing the cycle of success or failure of a particular strategy, it is observed that the fact that the company has implemented a project management cell has reduced the chances of great losses or failures. The Project Management process has helped to predict possible problems of new projects or bets of the company, and evaluate as to the continuity, reapplication, cancellation or abandonment of certain strategies, bringing maturity to those involved and faster decision making.

It is noticed that the economic-financial result is very present in the analysis of the strategies, this indicator is decisive for the decision making, and is inserted in the day-to-day of the company managers who discuss and evaluate periodically through the shared management. Data input is the first step in the strategy creation process, after analyzing the variables and alternatives with the professionals' discussion process, followed by the execution, followed by feedback.

One of the great challenges of management is the development of leaders, team managers and processes that can develop strategy in every sector of the company, every individual is in a stage of life, maturity, development and aligning all is a difficult task for the managers, there is always a continuous development in the search for professionalism and professional qualification. The most important skills for managers of the company is the analytical capacity of the scenarios, internal and external indicators, specific technical skills of each area, as well as the team's ability to lead the planned results.

There is agreement in the manager's speech when analyzing table 2, the profile of the managers of the company is basically formed by employees who started in operational activities and increased their career within the organization, ascending to the responsibilities of thinking about the future of

the company, corroborating with Clegg, Carter and Kornberger (2004), on the formation of the strategists' identity.

Table 1. Manager profile

	Manager 1	Manager 2	Manager 3	Manager 4
Genre	Male	Female	Male	Male
Age (years)	Between 35 to 45	Between 35 to 45	Between 35 to 45	Between 25 to 35
Company time	22 years	20 years	3 years	15 years
Schooling	Specialization	Specialization	Specialization	Specialization

Source: Prepared by the authors (2017).

Asked about the *growth in the professional career*, Gestor1 emphasizes that "I started the activities in the company after finishing high school, in the sector of the Court, I was changing roles, with a good job and directing the studies to the administrative area, came the invitation to assume the management of an important area of the company, this happened with challenges and projects focused on my area." The other managers affirm that they started their activities in operational areas and over the years were invited to take on new challenges in strategic areas of the company.

In general, the company always makes investments in external knowledge through consultancies, permanently maintaining market professionals that bring new work tools to help improve the company's performance. The board emphasizes that over the years they perceive the gradual progress and positive reflection of the implantation of new routines, new processes, new concepts and capacities the team, be it in industry, in finance, accounting, information technology, project management, processes, marketing and strategy, which has been instrumental to the success of the business. The managers highlight the opportunities offered by the company to perform their roles, recognize as positive the participation in management consulting, training and use of strategic tools.

On the learning curve and analysis of the flaws of the strategic process already exercised over the years, the board emphasizes that the proximity to the consumer and the understanding of their desires is a continuous process in finding how to find the best form of communication and approximation with this group and extract from it the most accurate feedback.

Managers are accustomed to planning and

strategic processes. They consider essential for the company to grow and differentiate itself in the market. They emphasize that the use of management tools, by the sectors and departments of the company, turns to goals and metrics directed to the general strategy, that is, all working in their areas with their goals and objectives aimed at the reach of the business strategy, consider, with that the achievement of objectives becomes easier to achieve. They consider that the strategy of the company is what governs all the decision making, of any collaborator.

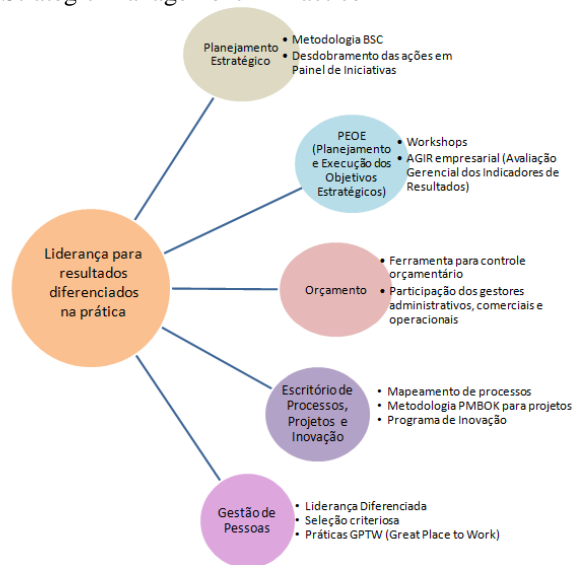
Regarding the *influence of corporate culture on the development of Strategic Planning*, Gestor 2 emphasizes that the company's ideology is very strong, mission, vision and values are in daily practice, Gestor1 corroborates in affirming "I consider that the clarity of business, , a vision allied to values, are essential factors, together with objectivity, goals, numbers, co-responsibility between management and managers, through open and shared management, and synchronization between areas are factors that add up and reflect in the result and development of strategic planning".

The director finishes the interview reporting that in analyzing the strategies adopted, the company has been growing between 25 and 30% per year in business volume and this has been a positive indicator reaffirming that the decisions and paths chosen and run by the management have been satisfactory. In relation to *common tools and techniques for creating and managing strategies*, managers cite BSC (balance score card); strategic map; strategic, tactical and operational indicators; budget; differentiated leadership; people management tools, reverberate that "the data needs to be presented so that everyone is following up and seeking improvement of results, with immediate or specific actions for each indicator."

The strategic thinking alignment between directors and managers is perceived. The tools used give the necessary subsidy to the decision making and these, as the reports have shown, are directing the growth and participation in the market by company. Figure 2 illustrates the main management strategies tools in the practice adopted by the company. From the participant observation, it was possible to perceive that the base of the leadership is oriented to results, these, are based on a strategic plan with BSC (Balance Score Card) methodology, with unfolding of the strategic actions in a panel of initiatives developed by all

areas of the company. These actions are organized from the PEOE (Planning and Execution of Strategic Objectives), in workshops held monthly, in the so-called AGIR (Managerial Assessment of Results Indicators). Control tools are used for a participatory budget, besides the company count on an office of processes, projects and innovation, that is responsible for the process mapping, the project management and the innovation program developed by the company. Still, people management values differentiated leadership, with careful selection of the human resources and humanized practices of the best companies to work for.

Figure 2. Strategic Management in Practice



Source: Prepared by the authors (2017).

In view of the results obtained, it can be observed that the levels of growth of the company surveyed, in the face of the crisis period established in the current economic situation, in relation to the productivity of the segment in the country over the last decades, have been differentiated. In the set of internal factors that allowed the company to reach this differentiated level, we can mention: I) the strategic planning with the use of structured tools and the use of the BSC methodology; II the unfolding of the planning in strategic actions, in the format of panel of initiatives, with responsible for each action, indicators, metrics and well-defined goals; III strategic agenda of meetings, entitled PEOE (planning and execution of the strategic objectives), which are disaggregated to the tactical areas in AGIR's (Managerial evaluations of results indicators) and workshops with training on actions that need review and replanning; IV budget

controlled and defined with the participation of the areas, using access tools interconnected with the enterprise ERP; V process, project and innovation office that provides assistance to the areas in the mapping of processes, use of the project methodology in the PMBOK model, with scheduling control and indicators through a specific tool, in addition to using the CANVAS method to present the approval of the projects for multidisciplinary budgetary team; has an innovation program in the operational areas; VI management of people with premises of situational leadership, method of careful selection with the participation of managers requesting the vacancies in conjunction with the management of people, use of *great place to work* practices.

The theoretical precepts exposed on strategy in practice speak about an integrative structure developed from strategy as practice, which defines its general parameters of research as: practitioners (those people who do the work of strategy); practices (the social, symbolic, and material tools through which strategy work is done); and praxis (the flow of activity in which the strategy is performed) (Jarzabkowski, 2004, Johnson et al., 2003; Whittington, 2006). These three elements represent the study of strategic activity that differs from top-down approaches and that work with rectified notions of company and strategy.

Thus, in the case study, the influence of the practices used by the company to execute the strategic process, which are positively driving managerial results, was verified. As advocated by Jarzabkowski (2004), Whittington (2006) and Johnson et al (2007), strategy as practice emphasizes explicit links between micro-action perspectives, that is, the deployment of strategic planning for areas, what people actually do and how they influence teams in the end product of their process, to the macro perspective, taking into account the context in which they are inserted.

In the meantime, strategic planning, in the format adopted by the company has positively influenced its results. The practice, as advocated by Reckwitz (2002), by mentioning the routine types of behavior that consist of several elements, interconnected to each other, being things and their use, culminating in the form of understanding, know how, make the act of managing the areas, according to the strategy, a preponderant factor that has led them to support the business. Professionals are the individuals who translate into practices to

act the format delimited by the strategists of the organization.

5 Conclusion

This paper presents a brief overview of the textile sector, which shows the difficulties faced by the current economic situation, which led to a decline in industrial performance, a factor that directly affected the level of competitiveness and innovation in the sector, which is reflected in technological and managerial diversity, where some are the best companies on a world scale, while others are outdated.

In the study company, it was verified that the activities are carried out based on the actions, interactions and negotiations of multiple actors, the approaches used are united by the proposition that the practical understanding and the strategic intelligibility are articulated in the daily situations in relation to the variety of its activity.

It is noticed that the tools used to formalize the strategy process have been of great value, that is, positively influenced the results of the business. The learning curve reported by the director shows that mistakes are part of the constant revisions of daily management activities. The growth bias of the company, contrary to the pessimistic forecasts of the market, shows us that the methodologies adopted underpin professional management.

In this way, the factors under the decision-making perspective are in accordance with the actions practiced, the alignment of procedures and methods, the initiatives of performance improvements implemented, forecast delivery and controls account for meeting the strategy defined according to the methodology. In addition, the company's growth indicates the satisfaction of the customers in relation to the products offered following the standards and market trends.

6 Implications and future studies

As a suggestion for future studies, it is recommended the comparative view among companies of the same segment, in order to analyze the format of strategic management, the effective use of management tools, and to correlate organizational practices with growth outcomes in the light of strategic planning definitions. The expectation of the delimitation of this study is to provide information in a practical, structured way,

with a view to contributing to the academy and promoting the scientific knowledge alluding to the strategic practices of companies. In addition, encourage new forms of work, be it in the textile segment or in other areas of activity.

The contribution brought by this research is in the indication of opportunities in aligning the strategic planning in order to be perceived in the execution of the daily activities. That is, the use of management tools, in a structured way, leads to professional management to mitigate measurable results. The role of managers is to translate business objectives into structured processes, to involve the different actors in the discussions about the necessary updates when correcting the organization's directions and, mainly, to understand that practitioners are essential in the execution of the praxis required by the business strategy with a view to understand the actions and routines that constitute the competitive advantages of the business.

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Human Capital and Competitiveness: Analytical Method to Strategic Management of the Man-Organization interaction

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ABSTRACT

One of the management challenges is to understand the mutual relations between individuals and organizations, which promotes the emergence of methods that allow diagnosing and quantifying the impacts of the human factor in the organization. This challenge has been defining a new area of knowledge known as People Analytics, Human Resources Analytics, among other denominations. Thus, having People Analytics as the main subject of research, this study merges the Triple Bottom Line concept of sustainability, the core competences of the organization and some analytical techniques, with the goal of implementing an own strategic diagnosis method to quantify the impacts of the human factor in a multinational of the electronic sector. Aiming at integrating the technological, human and sociotechnical domains, this method integrates variables related to people, processes and competences. The correlation between these three elements with people management methodologies and analytical techniques facilitates the obtaining of quantitative information about the human factor in organizations, contributing to human management becoming assertive, strategic and oriented to the sustainable development of the business. The implementation was directed to the strategic improvement of competence management in the software development sector, aiming to improve the productivity of its developers. The method showed its potential to promote a qualified diagnosis by quantifying the impacts of the developers' competences on the productivity of the associated processes, enabling the improvement in the functional aspects of the area and subsidizing strategies of success for the company in terms of the assertive management of human capital.

PALAVRAS-CHAVE

People Analytics, Capital Humano, Método Analítico, Desenvolvimento de Competências, Retorno sobre Investimento (ROI).

RESUMO

Um dos desafios de gestão é compreender as relações mútuas entre indivíduos e organizações, o que promove o surgimento de métodos que permitem diagnosticar e quantificar os impactos do fator humano na organização. Este desafio tem definido uma nova área de conhecimento conhecida como People Analytics, Human Resources Analytics, entre outras denominações. Assim, tendo o People Analytics como objeto principal de pesquisa, este estudo funde o conceito de sustentabilidade Triple Bottom Line, as competências centrais da organização e algumas técnicas analíticas, com o objetivo de implementar um método de diagnóstico estratégico próprio para quantificar os impactos do fator humano em uma multinacional do setor eletrônico. Com o objetivo de integrar os domínios tecnológico, humano e sociotécnico, este método integra variáveis relacionadas a pessoas, processos e competências. A correlação entre esses três elementos com metodologias de gestão de pessoas e técnicas analíticas facilita a obtenção de informações quantitativas sobre o fator humano nas organizações, contribuindo para que a gestão humana se torne assertiva, estratégica e orientada para o desenvolvimento sustentável do negócio. A implementação foi direcionada para o aprimoramento estratégico da gestão de competências no setor de desenvolvimento de software, visando melhorar a produtividade de seus desenvolvedores. O método mostrou seu potencial para promover um diagnóstico qualificado, quantificando os impactos das competências dos desenvolvedores sobre a produtividade dos processos associados, possibilitando a melhoria nos aspectos funcionais da área e subsidiando estratégias de sucesso para a empresa em termos da assertiva gestão do capital humano.

1 Introduction

Due to changes in the global organizational scenario and the recognition of intellectual capital as a strategic asset of organizations (Hota & Ghosh, 2013), the opportunities associated with the strategic management of the human factor in the last decades are greater than ever (Huselid, 2015). Consequently, the understanding of the mutual relations between the organization and the individuals for the competent management of human capital constitutes one of the key factors in generating competitive advantages.

Based on the axiom of managerial sciences “what can not be measured it can not be adequately managed” (Breyman & Dolinskiy, 2016), the development of knowledge, tools and analytical methods that allow a quantitative approach for the human capital management constitutes one of the major challenges both academic and business. As resources become increasingly scarce and competition increasingly fierce, the guarantee of benchmark in the marketplace is in disposing of beliefs and empiricism and to increasingly ground on data and metrics for decision-making (Huselid, 2015; Shah *et al.*, 2015).

This scenario propitiates the emergence of methods to diagnose and quantify the impacts of the human factor in the organization, defining a new area of knowledge known as People Analytics, Human Resources Analytics, among others denominations, whose interest has been growing dramatically among scholars and practitioners (Huselid, 2018). As one of the most promising areas in the current corporate world for generation of competitive differential (Bodie *et al.*, 2016), People Analytics constitutes a revolutionary approach with potential to improve the results of business through an assertive human capital management.

However, the current studies on the subject reveal that this area of knowledge has its limits still unexplored. Although it is recognized the capability of People Analytics to provide better decisions about the human capital, applications of strategic value are still insufficient in the organizations. The diagnosis and quantification of the impacts of human factor, when applied, still represent a tactical or limited value, being focused on supporting the human resources functions and optimizing the operationalization and the solution of specific problems in the area. Consequently,

they remain little aligned to the strategic management of human capital in favour of organizational sustainability (Angrave *et al.*, 2016; Handa & Garima, 2014; Huselid, 2015; Minbaeva, 2017; Rasmussen & Ulrich, 2015; Schiemann, Seibert, & Blankenship, 2018; Wang & Cotton, 2018).

Paraphrasing Wang and Cotton (2018) and Angrave *et al.* (2016), the current reality reveals a scientific opportunity of advocating more strategic approaches of People Analytics, as well as to influence its use and implementation through studies that grant it a multivariate denotation, integrate its strategic content to the business ideals, offer new approaches and methodologies about it and consider ways to diagnose, quantify and improve the human capital of organizations.

This context has made the claim of this study an initiative with scientific and organizational relevance. Having People Analytics as the main subject of research, this study merged the Triple Bottom Line concept of sustainability (Elkington, 1999), the core competences of the organization (Prahalad & Hamel, 1990) and some analytical techniques, with the goal of implementing an own strategic diagnosis method to quantify the impacts of human factor in a multinational of the electronic sector.

Recognized worldwide as a leader in the technology sector and one of the top ten global brands, the company claimed to notice the low productivity among professionals of the software development area. Thus, the proposal of implementation of the method was focuses on the strategic enhancement of competence management in the area, prospecting improvements in the productivity of its developers.

The proposed approach was justified by the fact that People Analytics constitutes an area of knowledge that allows to diagnose and quantify the impacts of the human factor in the organization and enable effective solutions with high added value in human capital management. Therefore, it requires a direction of its potential not only in subsidizing human resources functions, but also in approaching it in a comprehensive way as a supporting tool to the human capital strategic management for organizational sustainability (Angrave *et al.*, 2016).

For confidentiality reasons, organizational data used in the analyses have not been presented in this study. A few demonstrative graphics are

presented, since the intent of the study was to reveal the logical implementation of the proposed method and its results, in order to verify its viability of being explored in a useful way to diagnose and quantify the human factor impacts in organizations.

2 Theoretical Framework

2.1 Organizational Sustainability: The challenge of the 21st century

Due to the 21st century's economic scenario, organizations have been required to develop competences in order to act and survive in competitive environments. The dynamic nature of markets and the increasing availability of information and technology impose to organizations the necessity to innovate continuously, aiming to increase competitiveness and focusing their efforts on organizational sustainability.

Elkington (1999) proposes a wide approach for the sustainability idea through the Triple Bottom Line concept (TBL), which denotes the ideal that a system only becomes sustainable when there is a dynamic balance of social, economic and environmental objectives. Since this approach to sustainability has as its underlying principle the pursuit of continuity of positive business results (Silveira, 2012), the managing challenge for sustainability implies dealing with multiple variables linked to tangible and intangible factors, of human, technological and organizational nature. In this context, the "profit by profit" has become a high-risk strategy, while intellectual capital becomes a strategic organizational asset (Hota & Ghosh, 2013).

The intellectual capital can be understood as the set of intangible resources that organizations have at their disposal, which allows them to produce in an efficient and effective way. It is composed by three components: The structural capital, which involves organizational assets related to the intellectual property category; the relationship capital, that corresponds to the generation of knowledge resulted from relations with other organizations, clients and suppliers; and human capital, its main component that represents the knowledge and skills of employees at the disposal of the organization (Edvinsson & Malone, 1998; Sveiby, 1998).

The emphasis given to human capital is due

to its consideration as the basis of all intellectual capital. This consideration derives from its potential of improving the structural capital, internalizing the rewards of relationship capital in order to boost the coming results, and, more importantly, generating new knowledge and applying it through innovations.

Therefore, the capability to mobilize the generation and sharing of the human capital consists in a very important managerial task. Since the early days of studies on the organizational theory, it is known that people and organization participate in a symbiotic relationship, in which one does not exist without another and the behaviour of one modifies the behaviour of the other. Namely, organizations are environment of human transformation and people are their agents of transformation. (Silveira *et al.* 2015).

In this way, efforts for maintain the organizational sustainability over time should consider the importance of strategic alignment of human capital to the ideals of the organization and, at the same time, the need of a proficiency in its management (Momim & Mishra, 2015; Silveira *et al.*, 2015).

2.2 Diagnosis and quantification of human factor impacts

Due to the ultracompetitive nature of markets and the increasing availability of information and technologies, the demand for the strategic integration of human capital into organizational actions – as a way to increase competitiveness with quality of life – makes the understanding of mutual relations between individuals and organizations one of the key factors in generating competitive advantages (Silveira, 2012).

Based on the axiom of managerial sciences "what can not be measured it can not be adequately managed" (Breyman & Dolinskiy, 2016), the necessity of using data and analytical techniques to support decision-making has become evident to companies that are looking for a strategic management of the human capital. This need derives from its potential of improving both organizational competitiveness, since that leads to greater confiability of results and better management of investments in human capital, and individual performance and development, due to the consistent approach to people (Bassi, 2011; Bodie *et al.*, 2016; Fitz-Enz, 2010; Gustafsson,

2012; Handa & Garima, 2014; Mishra, Lama, & Pal, 2016; Momim & Mishra, 2015; Shah *et al.*, 2015).

Given the scientific and technological difficulty of measuring many of the phenomena related to human capital, the development of knowledge, tools and analytical methods that allow a quantitative approach to the management of this asset constitutes one of the major academic and business challenges. This propitiates the emergence of methods that allow diagnosing and quantifying the impacts of the subjective variables set – conceptualized as Human Factor – on the main objective variables of organization, defining a new area of knowledge known as People Analytics, Human Resources Analytics, among other denominations, whose interest has grown dramatically among scholars and practitioners (Huselid, 2018).

Denoting the data science applied to the human factor, People Analytics is adept at a strategic vision of human capital management and it brings answers to the limits imposed on organizational sustainability. Based on correlations between human factors – for example, motivation, knowledge, cooperation, competences, etc. – and the competitive performance of organizations, this area of knowledge allows diagnosing and quantifying the impacts of individuals in the organization in order to improve assertiveness in human capital management.

Thus, as one of the most promising tendencies in the current corporate world (Bodie *et al.*, 2016), with high potential in terms of scientific, economic and social benefits, People Analytics consists in a quantitative approach to the human capital management (Fitz-Enz, 2010; Gustafsson, 2012; Handa & Garima, 2014; Mishra, Lama, & Pal, 2016; Shah *et al.*, 2015). By associating knowledge to analytical methods, it ensures quality and strategic design to decisions related to the human side of organizations (Gustafsson, 2012; Mishra, Lama, & Pal, 2016).

It is considered that, by associating knowledge related to the human factor to the possibility of quantifying its impacts on the organization as a whole, People Analytics represents an area of knowledge that reaches the current state of art in the organizational management field. For organizations searching for better managing the returns on human capital investments, People Analytics appears as a new

domain, abolishing hunches and intuition and cherishing decision-making based on data and evidences (Shah *et al.*, 2015). Containing elements of business intelligence, this approach of human capital quantification goes from a systematic process of reporting human resources metrics to a process of combining analytical techniques for the establishment of predictive models to support decisions (Bassi, 2011; Mishra, Lama, & Pal, 2016; Momim & Mishra, 2015) and people development.

Thus, since People Analytics increases the credibility and effectiveness of human resources policies and practices, it constitutes an approach that enhances the strategic role of the human resources area, the human capital management and, at the same time, the organizational results (Lins *et al.*, 2015). Namely, People Analytics consists in a source of competitive advantages to organizations that have it as a main management competence (Bassi, 2011; Bersin *et al.*, 2016; Breyman & Dolinskiy, 2016; Fitz-Enz, 2010).

Therefore, there is a consolidation of a human capital management approach encompassed for an ideal of sustainable development, which is able to provide companies competitiveness with quality of life. Namely, an approach of management and people development at the same time profitable and illuminated, cherishing gains to the organization, people and society (Bassi, 2011).

2.3 Strategic diagnosis method: Rationale and formulation

Although People Analytics is moving towards a new corporate mainstream and denotes the state of art in people management, there are still few international groups with relevant academic studies (Gustafsson, 2012; Lins *et al.*, 2015). The main references in this area of knowledge are the American universities Harvard and Wharton and the British one King's College London.

Furthermore, even though the capability of People Analytics to provide better decisions about the human capital is known, its prevailing approach still represents a tactical or limited value. When applied, it remains focused on diagnosing and quantifying the impacts of the human factor in order to support the human resources functions and the solution of specific problems in the area. Preponderantly focused on the optimization of these processes, People Analytics remains little aligned to a strategic management of the human

capital in favour of organizational sustainability (Angrave *et al.*, 2016; Handa & Garima, 2014; Huselid, 2015; Minbaeva, 2017; Rasmussen & Ulrich, 2015; Schiemann, Seibert, & Blankenship, 2018; Wang & Cotton, 2018).

Commonly, the use of People Analytics is limited to conventional metrics that answer questions of historical nature, with low predictive potential of future events. In solving human capital problems, organizations persist in a reactive circle that is limited to operational report, underutilizing the potential of People Analytics as a strategic and proactive tool for decision-making (Angrave *et al.*, 2016; Handa & Garima, 2014).

It is certain that the prevailing approach already favours competitive gains in human resource actions. However, there is a risk of People Analytics becoming another management praxis of unknown real value to organizations (Rasmussen & Ulrich, 2015).

Thus, People Analytics should not be restricted to the human resources functions. Its potential use must be inherent to a quantitative approach to manage the questions related to the human capital with objectivity and method – as well as it is done with other resources of the organization – and also to promote its integration and strategic alignment in the business as a whole.

Basing on the opinion of Momim e Mishra (2015) in which every strategy related to the human resources should be aligned with business strategy, People Analytics needs to transcend the functional boundaries of human resources. Its sustainable approach requires developing a strategic understanding about the contribution of human capital for the organization (Angrave *et al.*, 2016).

Therefore, it is required a People Analytics approach that prioritizes the alignment of analytical techniques to people management methodologies as well as their application to a logical structuring of data analysis (Fitz-Enz, 2010), in order to understand the correlations between human capital, productivity and organizational competitiveness. This approach makes feasible effective and high-added value solutions in human capital management, which not only referring to the human resources management but also enabling organizational sustainability.

For this reason, a strategic insertion of People Analytics must reference it as a fusion of quantitative and qualitative information and data to support people management (Handa & Garima,

2014). Unlike the traditional vision that considers its application only requires statistical skills, since predictive models dispense any qualitative analysis, the benefits of quantifying the human factor impacts are linked to multidisciplinary analyses of the gained results and decisions taken.

For this reason, qualitative analyses are also required for the diagnosis of human factor impacts, not only for arranging data into information, but also for generating knowledge from them and for designing decisions according to all influence factors. Namely, analytical methods and techniques must subsidize decisions and guide them to results, and not simply dictate an absolute course of action in a way that qualitative analytical competences be banned (Bidwell, 2016; Spears & Bolton, 2015).

In summary, by addressing the ideology of quantification of the human factor keeping it oriented to results, the greater is the time spent. However, it is a way to position the human capital management alongside the sustainable challenge of organizations, managing the elements of this asset throughout the value chain (Rasmussen & Ulrich, 2015).

2.3.1 The essential of simplicity: Processes, Competences & People

Once exposed that the comprehension and measurement of human factor impacts in the organization and in its competitive performance are fundamental issues for a sustainable management of this valuable resource, an approach of human capital management that aligns such necessity to the sustainability notion in its wider scope (Elkington, 1999) is considered crucial. After all, human capital is per se a strategic resource to overcome unsustainable organizational models (Silveira, 2012).

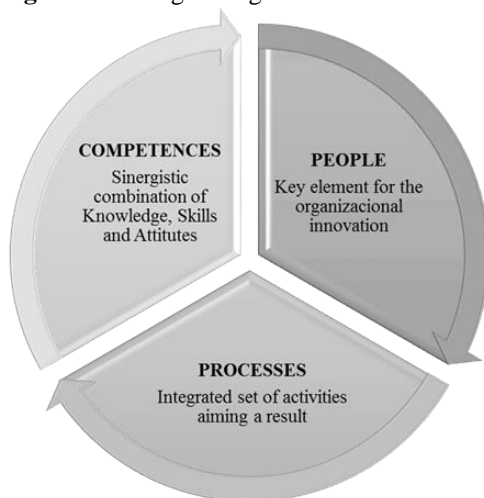
Since human capital represents the knowledge and competences at the disposal of the organization (Silveira, 2012), a human capital management as basis for organizational sustainability requires an approach that also incorporates the core competences theory, proposed by Prahalad and Hamel (1990). After all, being crucial for the formulation of strategies, the key organizational competences are the basis of the generation of competitive advantages.

Therefore, a sustainable management of this valuable resource requires approaching it

according to the strategic alignment between the Triple Bottom Line concept of sustainability, the core competences of the organization and analytical techniques.

In this way, this study is based on the principle that an assertive management of human factor requires an integrated knowledge about the factors related to the human capital and the assessment of its impacts. Therefore, it links its purpose to an own strategic diagnosis method for a sustainable human capital management based on three key organizational elements, namely, processes, competences and people (Figure 1).

Figure 1. Strategic Diagnosis Method



Source: Elaborated by the authors.

The reason for a method based on these three elements is due to logical cadence of this combination. It is known that the fundamental purpose of organizations is to guarantee their success over time. Therefore, in order to generate sustainable competitive advantages, the organization must act in a way that its product or service adds enough value to satisfy the customers and, at the same time, brings it positive returns on investments

For this reason, knowing that a product or service is a result of a series of processes, many authors, especially those who present the systemic approach of organizations (Gonçalves, 2000; Maranhão & Macieira, 2004; Maximiano, 2000; Schoderbek, Schoderbek, & Kefalas, 1980; Senge, 2013; Silveira, 2006; Tachizawa & Scaico, 2006), they consolidate a vision of processes as being the fundamental components of an organization. Such vision is based on three perspectives:

a) Any system can be seen as a circular relation between purpose, environment and functions that correspond to the processes;

b) Based on the process perspective as a transformation that adds value, it is evident that only through its network of processes that an organization can transform a set of Inputs – materials, information or clients – in Outputs – final or intermediary results – that fulfill the organizational purposes;

c) The process perspective presents a similar complexity to organizations, as it is compounded of multidimensional factors associated to physical dimensions (equipments, infrastructure, materials, so on), organizational (procedures, information flow, decision-making, so on) and human dimensions – knowledge, competences, cooperation, so on.

Therefore, the organization is consolidated per se as a network of processes. It is compounded of integrated sets of activities that are sequenced in a coordinated manner – not always linear – in order to produce specific results to satisfy the clients (Gonçalves, 2000). Thus, the method proposed considers that the guarantee of success over time includes a good management of the **processes**.

In this aspect, the logical combination between the processes and others elements of the method is due to the pretension of emphasizing that the effectiveness of a process, as well as the satisfaction of their related necessities (Silveira, 2006), depend on the capability of that who runs it. Therefore, since they boost the processes and, consequently, the organizational essence, the competitiveness is also linked to the management of the **competences** – a synergistic combination of Knowledge, Skills and Attitudes expressed by professional performance in a particular organizational context (Perrenoud, 1999; Silveira, Maia, & Fioravanti, 2012).

Hence, the cycle of the proposed methodology advocates that the guarantee of organizational sustainability lies in the strategic management of **people**, a key element for the organizational innovation that is constituted as the bearer of necessary competences to execute the organizational processes.

Therefore, the sustainability of an organization depends on its strategic action on what is under its governability. The organizational success is consequence of a jointed work of elements and variables that, being guided by

strategy, allow a coherent set of **people, competences and processes**. Hence, the human dimension consists in a focus to be explored.

The logical cadence of this combination reveals the inherency of this method's foundation to the People Analytics approach. Since the competences are considered as the basis of the organization's strategic performance, being up to them to define the productivity and the level of competitiveness, changes, innovation and the reduction of costs (Shah *et al.*, 2015), the positive relation between a strategic approach of human capital management and the organizational performance depends on the data collected, information generated, available knowledge and individual competences to be aligned with the organization's core competences.

Thus, the method is based on the alignment of data, information, knowledge and competences. It consolidates an approach of technological, human and sociotechnical domain, involving the gathering of internal and market data, the organization of these data into information, the reflection and generating of knowledge and the management of knowledge and competences of interest.

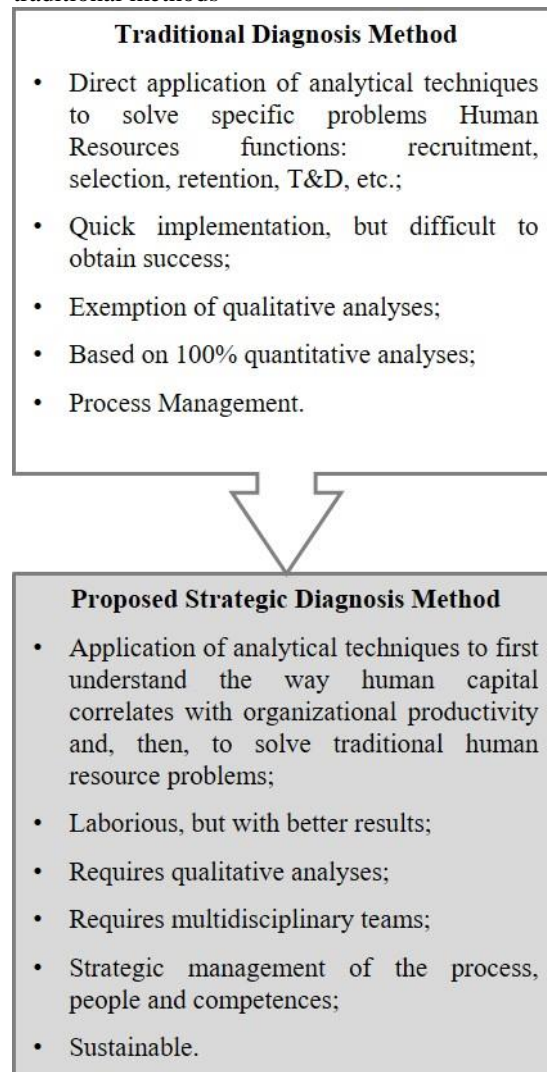
This rationale is aligned to the consideration of processes, people and competences as the main organizational components and, therefore, as crucial basis for a strategic business diagnosis. The synergistic correlation between such components with methodologies of people management and analytical techniques enables obtaining quantitative information about the human factor in organizations and contributes to human management becoming strategic and oriented to the sustainable development of the business.

Constituted by a comprehensive vision that includes components of the organization as a whole, such method allows approaching the human capital management in a more assertive way, allowing the understanding and measurement of its relations to organizational performance and productivity.

The strategic value of the proposed method is linked to its potential of diagnosing organizational elements that subsidize not only the human resources area and the improvement of its respective functions, but also the empowerment of its role to similar levels to other organizational areas. The method's comprehensiveness allows overstepping boundaries of the human resources

area. Propitiating a qualified diagnosis of aspects related to the human factor, the method enables deeper investigations, instigates new reflections and delimits assertive solutions, in order to minimize flaws in the assessment of value.

Figure 2. Proposed strategic diagnosis method versus traditional methods



Source: Elaborated by the authors.

In summary, Figure 2 presents the way that the proposed strategic diagnosis method differs from traditional methods. By dealing with the human capital in a measurable way, it consists in a quantitative management approach that allows bringing innovative elements to human capital management, influencing the organizational sustainability in a positive way.

Wherefore, since its main proposal is to implement the aforementioned method in a business practice, the following topic describes the study's methodological details.

3 Methodology

Basing on Gil (2002), the study was exploratory. Such classification is due to the study has approached People Analytics as an area of knowledge which there are still few relevant academic studies about and its intention of exploring the human factor diagnosis and quantification as an approach whose potentialities exceed its current focus on human capital management.

Therefore, looking to position it as a potential ideal to provide organizations competitiveness with quality of life, the study bibliographically mapped People Analytics as area of knowledge. Its proposal was to approach the subject according to the alignment between the Triple Bottom Line notion of sustainability (Elkington, 1999), the core competences of the organization (Prahalas & Hamel, 1990) and analytical techniques, in order to guide the implementation of its own strategic diagnosis method – reasoned and described in the previous session – in a multinational of the electronic sector. The company is recognized worldwide as a leader in the technology sector and one of the top ten global brands.

The study was focused on the software development area of the organization, which is composed of a team of sixteen developers. Although in a subjective way, the organization claimed to notice a low productivity among these professionals. Hence, the proposal was to implement the aforementioned method in order to improve the competence management in the area.

Therefore, the purpose of this study involved the quest for quantifying the impact of the developers' competences on productivity in order to prospect improvements in their performance.

For confidentiality reasons, organizational data used in the analyses have not been presented in this study. A few demonstrative graphics are presented, since the intent of the study was to reveal the logical implementation of the proposed method and its results, in order to verify its viability of being explored in a useful way to diagnose and quantify the human factor impacts in organizations.

3.1 Mapping the software development area

The studied organization already claimed to have a strategic management of human capital. The required competences in the developer position had

already been mapped, totalling a set of twenty-one competences.

Based on the CHA Model of competence management – a model aligned with the vision of specialists on competences development (Perrenoud, 1999) which is based on the notion of competences as synergetic combinations of Knowledge, Skills and Attitudes expressed by professional performance in a particular organizational context (Silveira, Maia, & Fioravanti, 2012) – it was identified that the developer position required ten kinds of Knowledge and eleven Skills and Attitudes, as shown in Table 1.

Table 1. Current mapping of the competences of the Software Developer job position

Knowledge	Skills and Attitudes
Technical Knowledge 1	English
Technical Knowledge 2	Alignment/Standardization
Technical Knowledge 3	Strategic Orientation
Technical Knowledge 4	Problem Solving
Technical Knowledge 5	Interpersonal Relationship
Technical Knowledge 6	Cooperation/Teamwork
Technical Knowledge 7	Communication
Technical Knowledge 8	Leadership
Technical Knowledge 9	People Management
Technical Knowledge 10	Customer focus
	Response Time

Source: Elaborated by the authors.

Likewise, the Key Performance Indicators (KPI) of each developer had already been mapped by the organization's system and they were measured based on time. In other words, Time was the key performance indicator and it consisted in a fundamental element of the organization's Management Information System.

The area grouped developers as Junior, Full-fledged and Senior. The grouping criterion was based on the period of experience.

3.2 Application of the method

The method formulated in this article is based on the application of own algorithms which use Analysis of Variance (ANOVA) and Cluster Analysis techniques to correlate data referred to people, competences and processes, crucial elements for the business diagnosis.

As usual in the corporative world, the information provided by the organization were not stored into one place. The mapping of the competences constituted the human resources area database, while details about processes performance were stored in software development area database.

Thereby, since disintegrated information sources difficult the data analysis (Visier, 2014), the first action was to integrate both bases in a way that subsequent analyses could be facilitated. Afterward, the study looked to understand the relations between the collected data, aiming to diagnose the impacts of each competence on the productivity.

For this purpose, according to its own statements, the implementation of the method allowed to consider that, in order to measure the impact of the mapped competences on the process, the key factor was to obtain data referring to the developers, intermediary agents of this relation.

Therefore, the study sought to investigate the differences between developers in terms of competence level to the extent of influencing the required time for execution of their activity. Through 360° performance evaluation methodologies – evaluation by superior, peers, subordinates and own developer – the level of each developer for each mapped competence was evaluated, being assigned Level 1 (low), Level 2 (medium) or Level 3 (high).

In summary, approaching the developer's Competence Level and Productivity as variables of interest and investigating the relation between them in an analytical way, strategic improvements in the competence management of the area were suggested, prospecting enhancements in developer's performance. By the synergy between the method's components, people management methodologies and analytical techniques, the study considered its analyses in subsidy to strategic management of human capital and to the improvements in the procedural functions of

human resources area, in terms of recruitment and selection, training and retaining talents.

4 Analyses

Through its adequacy to the fundamentals of the aforementioned strategic diagnosis method, the proposed implementation was potential to solve problems pointed as important by the organization and to reach the established objectives.

Based on integrated analysis of the three elements that compound the implemented method, when correlating the competence level of each developer and their performance in the process, it was possible to quantify the impact of each kind of knowledge, skill or attitude on the developer's productivity. This action allowed to better understand which competences added value to the position and generated significant changes in the results, as well as how to manage them in an assertive, strategic and oriented to the business's sustainable management way.

The measurability of the method has shown potential to make explicit aspects that had not been considered by the organization. As mentioned above, the mapping of the competences followed subjective standards and their relevance for improvements in productivity was unknown.

Therefore, by allowing approaching the human factor in an analytical way, the implementation of the method subsidized strategies of success for the organization in terms of human capital management. Even though the study has been focused on an area whose processes involved high complexity, its foundation on the synergistic relations between three aforementioned organizational elements, human management methodologies and analytical techniques, has favoured strategic enhancements in the competence management of the area, prospecting improvements in the developers' productivity.

Furthermore, the assertiveness conferred by the method on human capital management has propitiated improvements in the functional aspects of the human resources area, allowing the strategic establishment of new foundations for recruitment and selection, training and retaining developers. By correlating competence level and productivity – both variables of interest – this study allowed determining which competences should be considered in the recruitment and selection,

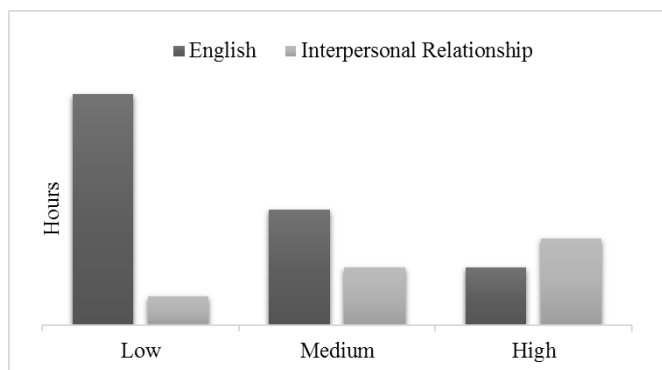
training and retention processes, as detailed in topics 4.1, 4.2 and 4.3.

4.1 Recruitment and selection of software developers

The established parameters for the recruitment and selection of software developers followed the subjective mapping of competences considered important for these professionals (Table 1). However, through application of statistical techniques, in order to understand the relations between competence level and the productivity of processes, it was found that some mapped competences generated significant improvements in productivity as far as their level increases, while others declined. Therefore, there were identified competences that impacted the performance in a directly proportional manner and competences that impacted performance in an inversely proportional manner.

The Figure 3 illustrates this occurrence, considering the levels of English and Interpersonal Relationship and the amount of required hours to execute a given activity. According to the Figure, high levels of English improved the performance, while high levels of Interpersonal Relationship decreased the developer’s performance.

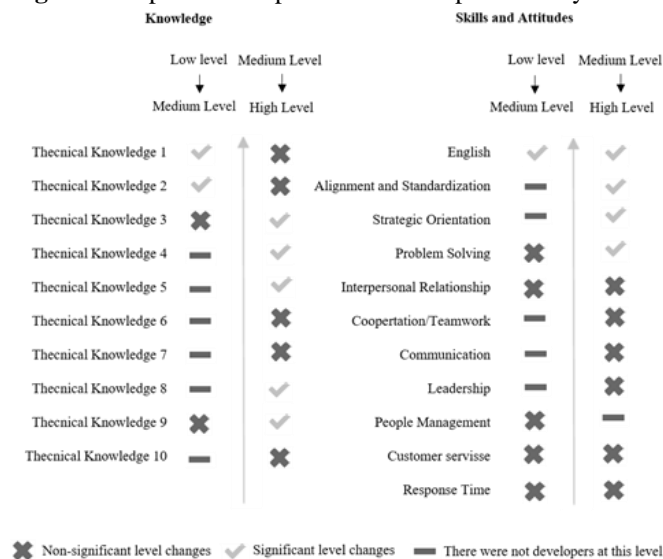
Figure 3. Levels of English / Interpersonal Relationship versus Productivity



Source: Elaborated by the authors.

Hence, based on the way that each competence level influenced productivity, it was possible to extract from the mapped competences those that really should be considered in a recruiting and selection process and those that could be disregarded (Figure 4). It is important to know that the impact of some levels of competence on productivity could not be measured, since there were not developers with the respective level.

Figure 4. Impact of competence level on productivity



Source: Elaborated by the authors.

According to Figure 4, the level of English, for example, is an important consideration when recruiting a candidate to the developer position. Changes on the level of this skill generate significant impacts on productivity, in which the higher level of developer, more efficient will be his productivity. On the other side, the level of Interpersonal Relationship, for example, unlike it seems, is not seen as potential for developers’ productivity.

Figure 4 also presents cases where a competence only becomes relevant to productivity when its level is higher or lower. For example, Technical Knowledge 9 is relevant for developer’s productivity solely in cases that he has it in a higher level, while Technical Knowledge 2 only shows potential when he has in a lower level.

Therefore, the fact of appealing to analytical techniques allowed a more assertive mapping of competences that were more important to the position and that, for this reason, they should be considered in the recruitment and selection processes of the area. Justified by Figure 4, the new mapping of knowledge, skills and attitudes for the developer position is shown on the Table 2.

Table 2. Proposed mapping of the competences of the Software Development job position

Knowledge	Skills and Attitudes
Technical Knowledge 1	English
Technical Knowledge 2	Alignment/Standardization

Technical Knowledge 3	Strategic Orientation
Technical Knowledge 4	Problem Solving
Technical Knowledge 5	
Technical Knowledge 8	
Technical Knowledge 9	

Source: Elaborated by the authors.

4.2 Retaining talent

As previously mentioned, the software development area grouped developers as Junior, Full-fledged or Senior. The grouping criterion was based on the period of experience in the organization. However, it was observed that there were developers in the current grouping who, although theoretically considered Junior, they produced just as a Senior, and vice-versa.

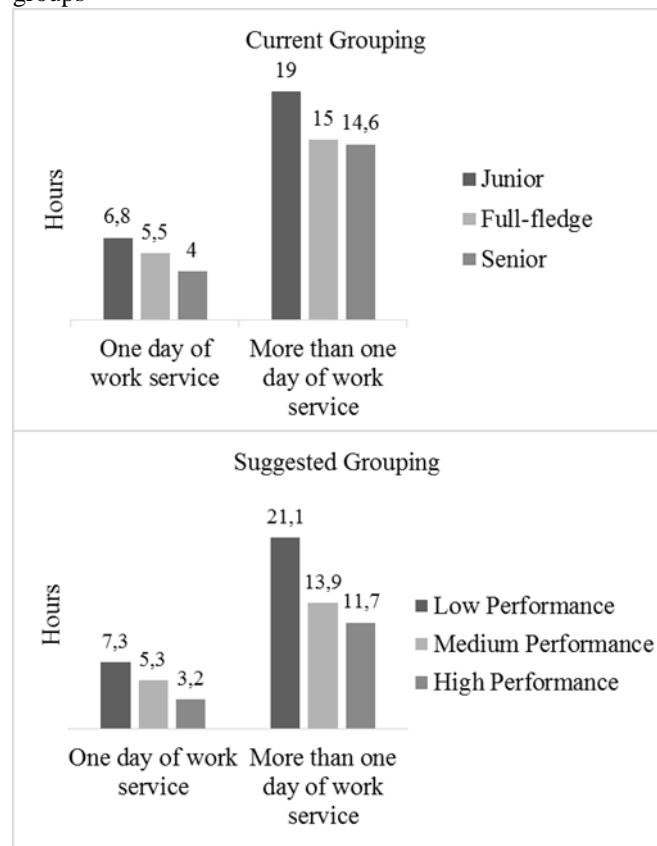
Consequently, due to the absence of quantitative criteria to support assertive decisions, the organization could search for strategies to retain developers by the simple fact that they were Senior, whereas a Junior retaining could be more strategic, considering his better performance.

This finding corroborates the opinion of Huselid (2015) regarding to the current gap of information in many organizations, which makes the most representative talents the least measured and managed.

Hence, through Cluster techniques, a new way of grouping the developers was designed, not according to the fact that they are Junior, Full-fledged or Senior, but according to the performance obtained in the process, in order to maximize the performance differences between groups. In this way, developers were regrouped into three new groups organized in the following way: Low Performance (3 Junior / 1 Senior); Medium Performance (2 Full-fledged / 5 Senior); and High Performance (1 Junior / 2 Full-fledged / 2 Senior).

Figure 5 illustrates how the performance difference between groups was maximized with the new grouping suggestion, both in considering the performance of the groups on simple tasks, which required up to one day of work service, as well as on complex activities that required more than one day of work service.

Figure 5. Maximizing the performance difference between groups



Source: Elaborated by the authors.

According to the Figure, in the current grouping, the performance difference between Junior and Senior developers is approximately three hours on simple activities and four hours on complex activities. Otherwise, in the suggested grouping, the performance difference between low and high-performance groups on simple and complex activities has become approximately four and nine hours, respectively.

Therefore, by maximizing the performance difference between groups, the suggested grouping subsidized conclusions about which developers should be retained and which could be developed. Regardless of being Junior, belonging to the high-performance group meant that developer should be retained. In the same way, regardless of being Senior, belonging to the low-performance group meant that developer could be developed.

Therefore, from sixteen developers, such analysis allowed to identify five for whom the retention should be strategic, since they belonged to the High-performance group (1 Junior / 2 Full-fledged / 2 Senior), and four developers who, belonging to the Low-performance group, should be developed (3 Junior / 1 Senior).

4.3 Training and development

Once the suggested grouping allowed identifying which developers should be retained and which could be developed, observing the differences on the competence levels of the low, medium and high-performance groups, it was possible to identify which competences were constituted as differential factors of the groups' performance and that, therefore, consisted in potential competences to be trained and developed.

This finding allowed claiming that the differential factor of the low-performance group to the medium-performance group was constituted of two skills and attitudes, highlighting the necessity of developing them. Meanwhile, three technical knowledge and one skill and attitude delimited the differential of the medium and high-performance group, highlighting the possibility of being developed.

Therefore, the strategic nature of the proposed diagnosis method is due to its potential to serve not only as a resource for human resources functions or to solve specific problems related to the human factor, but also to promote a qualified diagnosis for the quantification of impacts and the assertive management of this valuable resource.

5 Conclusions

This study had as the main subject of research the quantification of the impacts of the human factor in the organization, emerging knowledge area known as People Analytics, among other denominations, one of the most promising areas of knowledge in the current corporate world for the generation of competitive differential (Bodie *et al.*, 2016).

While People Analytics is moving toward being a new corporate mainstream, as an approach with the potential to leverage business results through assertive human capital management, its limits of action remain unexplored. The diagnosis and quantification of the impacts of human factor in the organization remain focused on supporting human resources functions and optimizing the solution of specific problems of the area. Consequently, they remain little aligned to the strategic management of human capital in favour of the organizational sustainability (Angrave *et al.*, 2016; Handa & Garima, 2014; Huselid, 2015; Rasmussen & Ulrich, 2015).

This study explores the aforementioned limits when presenting the means to implement a strategic management of human capital through the insertion of methodologies of the area of People Analytics in the conduction of the organizations. It was tried to show how the quantification of the variables associated to the human factor in support of the business strategy, and not only limited to the functions of human resources, allows solutions with high added value in human capital management, that are promoters of organizational sustainability (Angrave *et al.*, 2016; Huselid, 2015).

The implementation of methodologies in the area of People Analytics in support of the organizational strategy requires the alignment of efficient analytical techniques with practices in people management, enabling an assertive human capital management, that allows to understand and quantify the relations of the workforce with the performance and organizational productivity.

The study presented, with People Analytics as the central research theme, aligned the concepts of the Triple Bottom Line of sustainability (Elkington, 1999) and essential competences of the organization (Prahalad & Hamel, 1990) with analytical techniques, aiming to present the application of its own strategic diagnosis method to quantify the impacts of the human factor in an electronics multinational.

Based on the alignment of data, information, knowledge and skills, the implemented method enables an integrative approach in the technological, human and sociotechnical domains; for that, both internal and market data are collected. The organization of these data in relevant information allows the generation of new knowledge, resulting in the management of this knowledge and the competences of interest in support of the organizational strategy.

Considering that the sustainability of an organization depends on its strategic action on what is under its governability, such method integrates variables related to people, processes and competences, considered as the main components of the organization and, therefore, the crucial elements for the business diagnosis.

Through it, the study advocated that the synergic correlation of people, processes and competences with people management methodologies and analytical techniques facilitates to obtain quantitative information about the

estrategic human factors in organizations and contributes to people management becoming objective, strategic and oriented to the business' sustainable management.

It is certain that, by comparing the diagnosis method addressed here to the traditional methods, since it keeps focused on the results and consists in a comprehensive vision that includes the components of the organization as a whole, the bigger is the work and time spent for its application on daily reality of the organizations. However, it consists in a way of positioning the human capital management along the current demands of the century.

The implementation of the mentioned method was focused on the reality of an organization that, although recognized worldwide as a leader in the technology sector and as one of the top ten global brands, it claimed to perceive a low productivity among the professionals of the software development area. Hence, through demonstrative graphics, the logic of the method and its applicability on the diagnosis and quantification of the impacts of the human factor for the strategic improvement of competence management in the area was revealed, prospecting improvements in the developer's productivity.

The method showed potential to solve the problem claimed by the organization and to reach the proposed goals. Through integrated analysis of three organizational key elements, people management methodologies and analytical techniques, the implementation of the method enabled strategic improvements in the competence management and in the procedural aspects of the area, establishing assertive foundations to three processes of the HR area: selection, training and retention of professionals.

In summary, it is possible to consider that, allowing the approach of the human factor in an analytical and quantifiable way, the implementation of the method subsidized strategies of success to the organization in terms of human capital management.

6 Implications and Further Research

The results of the presented study can subsidize new studies that guarantee the scientific and organizational relevance of the purpose that has been started here.

Regarding the possibilities guaranteed by the

studied organization, since they were specific and equivalent to the implementation of the proposed method for the strategic improvement of the competence management in the studied area, the results achieved justify the continuity of the research for new method directions. This will allow to diagnose other problems related to human factor and delineate strategic actions that join improvements on the productivity of the area, as well as the competitive performance of the organization.

A very interesting new possibility of research consists on the implementation of the method defended and implemented here in the diagnosis of one of the greatest problems related to human capital, that is the presenteeism. Characterized as an "invisible absence" at work, the presenteeism becomes a chronic behaviour that, by attenuating productivity, threatens organizational sustainability in all its aspects (Garrido *et al.*, 2017).

The justification for this direction lies in the fact that, after acknowledging the range of presenteeism, an assertive management of this behavior requires approaches that provide ways to diagnose its manifestation (Lowe, 2002) and to measure its impacts on the individual and the competitive performance of the companies (Ospina *et al.*, 2015, Tang, 2014). However, although the efforts have been put into searching and how to measure it since 1992 (Pereira, 2014), the management of this behaviour is still tinged by the approaches of People Analytics, which were exposed in the topic 2.3.

For this reason, since the identification, understanding and measurement of this behavior and its effects on productivity still represents one of the greatest management challenges (John, 2010; Lowe, 2002), the implementation of the defended method in studies aiming the diagnosis and quantification of its impacts on the individual and the competitive performance of organizations also consists of a path of potential relevance.

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