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RITICAL ASPECTS OF THE INNOVATION MANAGEMENT: THE CASES NATURA AND OXITENO

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ABSTRACT

This study has as its objective to analyze the critical aspects of the innovation management in terms of structure, strategy and processes of innovation of the Natura and Oxiteno companies. In order to do so, the study reviewed the literature about innovation management, strategies and processes of innovation. A multiple case study was adopted for the Natura and Oxiteno cases. As their data, instrument documents were obtained and interviews were made with managers and researchers working with innovation in both companies. A qualitative approach for the proposed problem was also utilized. The result highlighted similarities and differences within the structures and strategies of how innovation is developed inside and outside each company and their own innovation processes. In the case of Natura, the innovation funnel and technology funnel were used, whereas, in the case of Oxiteno, the innovation funnel and technology silos. Natura was distinguished for their model of open innovation, within the network, and for its sustainability culture. On the other hand, Oxiteno stood out for the freedom it gave to researchers to propose innovation projects. The study presented contributions to the organizations and academia by indicating some limitations in their development processes, as well as suggestions for further studies.

Keywords: Innovation Management; Innovation capabilities; Innovation Process; Technology.

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SPECTOS CRÍTICOS DA GESTÃO DA INOVAÇÃO: OS CASOS NATURA E OXITENO

RESUMO

Esse estudo tem como objetivo analisar os aspectos críticos da gestão da inovação em termos de estrutura, estratégia e processos de inovação nas empresas Natura e Oxiteno. O estudo revisou a literatura sobre gestão da inovação, estratégia e processos de inovação. Adotou-se um estudo de caso múltiplo dos casos Natura e Oxiteno. Os dados foram coletados por meio de entrevistas estruturadas com gestores e pesquisadores na área de inovação nas duas empresas. A pesquisa qualitativa foi escolhida para responder ao problema de pesquisa proposto. Os resultados identificaram similaridades e diferenças na estrutura da área de inovação e nas estratégias de como a inovação é desenvolvida nessas empresas e em seus processos de inovação. No caso Natura, usa-se o modelo de funil de inovação e funil de tecnologia, enquanto no caso Oxiteno usa-se funil de inovação e silos de tecnologia. A Natura diferenciou-se por seu modelo de inovação aberta e cultura de redes e sustentabilidade. Por outro lado, a Oxiteno destacou-se pela liberdade dada aos seus pesquisadores para propor projetos de inovação. O estudo apresentou contribuições para as organizações e para a academia, indicando algumas limitações em seus processos de desenvolvimento, bem como sugestões para estudos futuros.

Palavras-chave: Gestão da inovação; Capacidades de inovação; Processos de inovação; Tecnologia.

INTRODUCTION

Companies are increasingly focused on innovation, which in turn raises the performance barriers considerably high (Lawson & Samson, 2001). For authors, such as Lawson and Samson, high levels of commitment to innovation are simply required for remaining in place, and even more for improving the competitive position of companies. In the long run, a company's success is much more associated with its management of innovation, rather than with its operational excellence, technological advances and business models (Hamel & Green, 2007).

A company can only outperform its competitors if it develops technological capability that enables it to create new products that are innovative (Tello-Gamarrá & Zawislak, 2011). However, this is not always possible. Product or technological innovation is crucial for the survival of businesses and to obtain competitive advantage in an increasingly dynamic market (Rush *et al.*, 2007).

As analyzed by Teece (1986), Patel and Pavitt (1997) and others, Zawislak *et al.* (2012; 2013) studies suggest that companies must complement their innovation capabilities, moving beyond technological capability.

The capabilities of technological innovations are acquisitions, introductions or uses of new technologies for the production or distribution of products or services to the market (Schumpeter, 1934) even though companies don't always concentrate their efforts on their technological capacities (Zawislak *et al.*, 2014). Even though the innovation in the product is considered to be the front line of innovation in the market, innovation in the process should also be considered, since it plays a very important strategic role (Tidd & Bessant, 1997).

Innovations need to be managed in order for success to be achieved. Companies need to think about the strategies that involve the development and implementation of innovations and thus make the innovation management achieve or maintain a competitive advantage. The strategies and structures in the area of innovation belong to management, as well as, the way their processes are organized.

Innovation is still seen as a critical economic performance boost (Hana, 2013). Faced with the need to understand the critical aspects of innovation

management in companies, to obtain sustainable competitive advantage, the proposal studies how innovation management occurs with a focus on structure and how innovation processes seem to be coherent alternatives to the understanding of innovation in multiple cases.

Innovative companies should combine a number of elements, among them, the strategy, the structure and the processes of innovation (Davila; Epstein & Shelton, 2007). For the authors, the structure of an innovative organization should vary according to the innovation strategies adopted, there being no single standard structure that is suitable for all kinds of innovation, as defended by Burns and Stalker (1960), in a general context. Companies must consider the organizational structure of the area of innovation as an important element and one that reflects in the performance of the enterprise (Hao; Kasper & Muehlbacher, 2012).

The strategies guide the efforts of innovation while the structure grounds the process of innovation. However, even if the strategy and structure are aligned, innovation can fail if the systems of innovation are not adequate (Davila; Epstein & Shelton, 2007). Thus, the importance of companies to be aware of the processes of innovation is to be emphasized. The classic model of the innovation funnel by Clark & Wheelwright (1992) has been used to explain the logic of projects in open innovation systems (Silva *et al.*, 2013), which will be introduced further on.

In this study, we chose to compare critical aspects of the innovation management between two major Brazilian companies: Natura and Oxiteno, both from Ultrapar group. The two companies were listed among the 500 largest in the world by Fortune magazine, in the year 2014. Natura is a major player in the sector of personal hygiene, perfumery and cosmetics (HPPC), its country, Brazil, being the third largest consumer of HPPC products in the world. In the case of Oxiteno, it is the largest company in Latin America and the second largest company in the world in the production of surfactants and chemical specialties for various markets.

Both companies are known for their innovations and strong contribution to the Brazilian domestic production. However, they present similarities and



differences in the management of innovation with regard to aspects of the innovation area structure and of their processes.

Thus, we have proposed the following research question for our study: **how does innovation management occur when focused on the structure and on the innovation process of Natura and Oxiteno?**

Therefore, this study aims to analyze the innovation management as the central element for the analysis of the structure of the innovation area and the dynamics of the process of innovation in the chosen cases.

After this introduction, the constructs that underlie this study (innovation management, structure, strategy and process of innovation) will be presented. Following the introduction, the methodological procedures will be presented and then the results and their respective analysis. Interested parties can further continue the final considerations of the study in terms of conclusions, contributions, limitations and proposals for new researches.

THEORETICAL REFERENCE FRAMEWORK

Innovation Management

Innovation plays an important role in an increasingly dynamic and competitive market. The importance of innovation relates to the life cycle of products and to the globalization of markets (Coral *et al.*, 2009). On the one hand, life cycles are becoming shorter and, on the other, markets are increasingly competitive. The growth of innovation increases according to the needs of the market and customers (Maehler *et al.* 2011), which change or evolve all the time.

According to the Oslo Manual (2005), innovation is "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations".

It is important to note that it is distinguished from an invention, because of its commercial intention and the need for reproduction in scale. An innovation can be a product, a process (production or distribution), in an organizational level (method or business practice) or in marketing.

Innovations can be incremental (significant improvement) or radical (totally new). Radical

innovations are technological revolutions that carry high risk, require high investments and result in considerable returns in the long run, while incremental innovations are safer, require less investment and bring a lower return in a shorter period (Coral *et al.*, 2009). In general, companies develop internally incremental innovation and little radical innovation.

Innovation Strategy

Innovation Strategies are the postures of the organizations about the plans for new products and market development in a competitive environment (Dyer & Song, 1998). These postures are associated with the strategy of the organization and the influence in decision-making with regards to the goals of innovation (Sundbo, 1997). Innovation strategies influence the performance of organizations since they are incorporated into the organization (O'Brien, 2003), and managers have the role of supporting and disseminating them throughout it.

Companies that have strategies in the formal scope present superior performance in relation to those that do not have them (O'Regan; Ghobadian & Galar, 2005). Performance and innovation strategies are connected and this differentiates companies on innovation.

Each company carries out its activities in a unique way and these are the skills that contribute to the differentiation of the companies.

According to Freeman & Soete (1997), innovation strategies can be offensive, defensive, dependent or traditional. For Baxter (2000), the company that adopts an offensive strategy bases its efforts on R&D, it has multidisciplinary teams, a long-term perspective of return, a strong marketing approach and, in general, it is the market leader.

The company that adopts a more defensive strategy invests less in R&D, works with reduced cost, risk and little investment in marketing, being in general, a follower in the market. The one that adopts a traditional strategy negotiates its products in stable markets and innovations have little impact. In turn, the one that decides for dependent strategy, in general, is a subcontracted company that depends on the headquarters or clients to introduce their innovations.

Regardless of the type of innovation strategy adopted by the companies, the key question is how

can they achieve and maintain a competitive advantage in the long run (Teece; Pisano; Shuen, 1997). From the perspective of Porter (1998), innovation is a central factor to sustaining competitiveness, being the stimulus to innovation a basis for competitive advantage.

Innovation and Processes

For Fuchs, Mifflin, Miller and Whitney (2000), innovation capacity is a superior integration skill, that is, of managing diverse capabilities, so that the company is able to integrate resources and key capabilities. For Prahalad and Hamel (1990), companies don't compete for new products, but for the ability to develop new products. The capacity for development of companies is a model that represents the construction of value that can be a product or a technology that is summarized as solutions for the market. In general, solutions are obtained from concrete problems for specific markets. This perspective is based on the classical approach of technological innovation capacity, taking as its premise the distinction between competitors (Lall, 1992).

The field of study of innovation capacities of firms as a competitive advantage is consolidated, especially from the technological perspective (Katz, 1984; Desai, 1984; Lall, 1992; Bell; Pavitt, 1995). The companies' innovation capacities are dynamic and in multiple dimensions, which means they are skills for dealing with dynamic environments. However, the work of Teece (1986) and Patel and Pavitt (1997) highlighted that companies need to go beyond the technological capacity to be innovative. From the perspective of Zawislak *et al.* (2014), innovation capacities can be analyzed from a model of four complementary capabilities: development, operational, management and transaction.

Those capabilities explain the efforts of firms to develop and operate in a technological form, as well as coordinate their efforts by transforming them into transactions that will address market gaps. For Zawislak *et al.* (2014), innovative companies predominate in at least one innovation capacity, which explains why some companies grow and present good results in emerging countries, even though they are not primarily technology creators.

Panizzon *et al.* (2015) reinforces the need for companies to emphasize, among others, the

innovation process in parallel with the market orientation, seeking this support in the competitive environment. Innovation is a process (Totterdell *et al.*, 2002) and, therefore, it needs to be managed (Tidd, Bessant & Pavitt, 1997). There are other studies that reinforce the idea of innovation as a process (Marinova & Phillimore, 2003; Shavinina & Seeratan, 2003; Sundbo, 2003; Tidd; Bessant & Pavitt, 1997; Totterdell *et al.*, 2002).

There are several models of new product development processes in the literature, among them, Clark & Wheelwright's (1993) classic funnel of innovation. This model considers the product development as a process that begins in the conceptualization of the product and goes to reality, starting with a breadth of ideas that are refined. For the authors, from this perspective, only a portion of input will become development. In this model, the innovation funnel consists of three stages: idea generation, problem solving and implementation.

Cooper (1994) suggests that new product development is done in stages (gate). In this process, the ideas are evaluated and checked every step, being possible to continue, cancel, pause, or restart the stage. Thus, at each new gate it is possible to review the entire portfolio (Silva *et al.*, 2013). According to Cooper (2014), despite its contribution to the design, development and launch of new products, the original Stage-gate received criticism due to its linear, rigid and little adaptive structure, which contributed to the incorporation of new ideas and adaptations to the model as done by Cooper (2008). In addition, many companies have been adapting the model to their context.

The graphical representation of the Clark & Wheelwright (1993) model indicates that the ideas must go through a selection process, so not all created ideas will become products. According to the authors, the ideas of greatest value should receive resources to be implemented.

Figure 1 illustrates the process of innovation in funnel of Clark and Wheelwright (1992).

Some companies adapt the original model and its evolutions to suit their needs. Chesborough (2003) suggests considering aspects of open innovation in the classic model of innovation funnel.

Docherty (2006) adds multiple intermediate input and output options to this model. Cooper (2008) also suggested considering aspects of open innovation to his model. However, the logic of the innovation

funnel remains to indicate the selection of ideas, due to the limiting of resources, suggesting that the best ideas must be worked out and developed in the company.

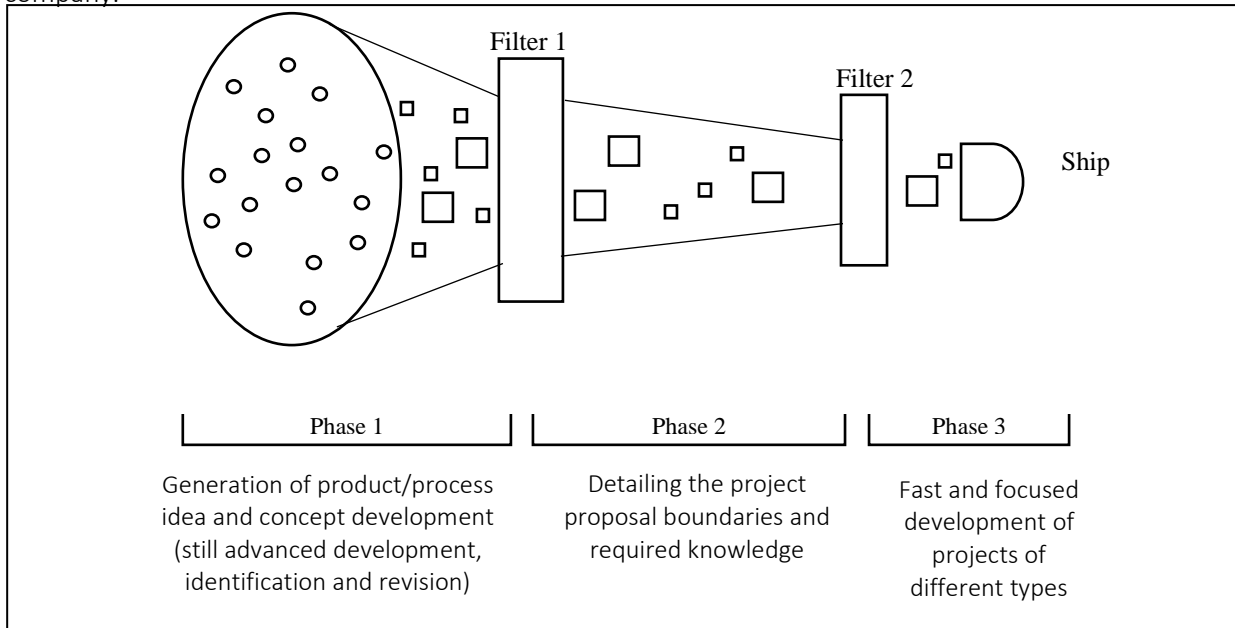


Figure 1: Development funnel
Source: Clark and Wheelwright (1992).

Open innovation significantly affects the innovation and performance of the companies (Aichouche & Bousalem, 2016). Open Innovation is a concept originally coined by Chesborough (2003), this includes the contribution of several external actors in the innovation process of companies, including suppliers, customers, users, universities and even competitors (Felin & Zenger, 2014). The knowledge exchanged among these different actors contributes to the generated innovation (West & Bogers (2011).

METHOD

a) Data Collection and Analysis

This multiple case study was adopted, therefore, as a research strategy, from the perspective of Yin (2005), for two important actors that contribute to innovation and to the domestic production of Brazil: Natura and Oxiteno. The case study addressed aspects of structure for innovation, innovation strategies and processes (technology and innovation funnel and technology silos). The chosen companies, the objects of the study, are considered large and of

strong prominence and contribution to the world, in the case of Natura, in the Personal Hygiene, Perfumery and Cosmetics sector and, in the case of Oxiteno, in the petrochemical sector.

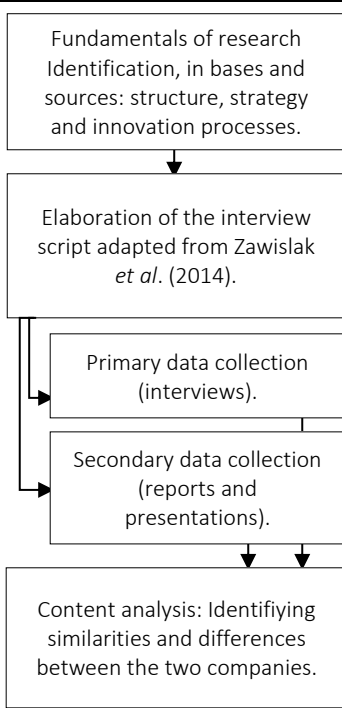
An exploratory research was conducted, adopting structured interviews as data collection instrument, from March to June of the year 2016. The interviews were conducted through a structured script adapted from Zawislak *et al.* (2014). Two managers of innovation and researchers in each company were interviewed with an average time of one hour each. The interviews were then transcribed so that they could be analyzed. Secondary data were collected with consultation in annual reports and presentations from both companies available in their electronic portals on the Internet.

By virtue of the collected data nature, a qualitative treatment in the analysis elaboration was adopted (Bardin, 2011). Three critical aspects of the management of innovation were chosen for analysis: the structure, the strategies and the innovation process of the two companies. Data analysis followed the following procedure: pre-analysis (organization and systematization), data exploration (data coding,

classification and categorization) and interpretation and judgment.

Table 1 presents a summary of the study, contemplating the research, its objective and methodological questions.

Table 1: Research Summary

Research Flow	Question-Problem	Data Collection
	<p>How does innovation occur when focused on the structure and on the innovation process of Natura and Oxiteno?</p>	<ul style="list-style-type: none"> • Qualitative research. • Multiple case study: Natura and Oxiteno. • Structured interview with two managers of the innovation area, management system and researchers of the companies. • Documental research in reports and presentations of the two companies.
	<p>General Objective of Research</p>	
	<p>To analyze the critical aspects of the innovation management in terms of structure, strategy and processes of innovation of the Natura and Oxiteno companies.</p>	
	<p>Specific Objectives of Research</p>	<p>Data analysis</p>
	<ul style="list-style-type: none"> • Identify, describe, analyze and compare the two companies: <ul style="list-style-type: none"> - the organizational structure of the innovation area; innovation strategies; innovation process. 	<ul style="list-style-type: none"> • Content analysis: Identification of similarities and differences between the two companies.

Source: Self elaboration.

After the above presentation of the methodological procedures of data collection, analysis and processing, the cases for Natura and Oxiteno will be presented.

b) Natura Case

Natura Cosmetics is a publicly traded company that plays an important role in the innovation area in Brazil. It operates in the sector of personal hygiene, perfumery and cosmetics since 1969, when Antonio Luiz Seabra founded it. Since 2004, the company trades on the stock exchange. In addition to Brazil, the company is present in eight countries: Argentina, Chile, Colombia, Mexico, Peru, Venezuela, France and the United States of America. The company was founded its physical store, along with its factory, in the city of São Paulo, the dominant metropolis of Brazil. However, in 1974, the company adopted the direct sales model, which has become a reference. Through this model, the company began to deliver the products to its customers through consultants,

reaching the delivery of 61 thousand orders per day in 2013. In 2015, the company had about 1.9 million consultants worldwide and gross revenue of 10.8 billion reais (Natura, 2015).

In Brazil, the company has Latin America’s largest laboratory of cosmetic development, in the city of Cajamar, São Paulo state; a Science and Technology Centre in the State of Pará; a Núcleo de Inovação Natura Amazônia - Natura Amazon Innovation Center (NINA) in Amazonas State. In the United States, the company has a Hub of innovation, in the cities of New York and Boston; partnerships with the Media Lab, digital technologies research laboratory at the Massachusetts Institute of Technology (MIT). In France, it develops collaborative research with the University of Lyon in Paris. In Australia, it joined the Premium segment brand Aesop, in Melbourne.

In the personal hygiene, perfumery and cosmetics sector, the search for new technologies and constant progress in Research & Development (R&D) are indispensable. In 2013, the company was considered to be the one that most invested in R&D, although its





investment is considered small when compared to international companies in the same sector. Still, the company has presented unprecedented growth and has achieved national and international recognition, having been the only Brazilian company listed by Forbes, in 2013, among the ten most innovative companies in the world.

The company's growth is due in part to the internationalization process, technological platform based on the sustainable use of Brazilian biodiversity and integration of various sectors, partners, customers, government and academia (Ferro, Bonacelli & Assad, 2006). The company strictly follows international standards with the International Organization for Standardization (ISO) 14001 and 9001 certifications, as well as others (Stal, 2010), and thus, has become the winner of several product innovation awards (Bernardes, Piatto & Moraes, 2010).

c) Oxiteno, Ultrapar Group Case

Oxiteno is a Brazilian petrochemical company, considered to be the largest producer of surfactants of Latin America and the second largest in the world. It is a relevant producer in the production of solvents and chemical specialties and the only producer of natural Fatty Alcohols in Brazil. It is a second-generation company of the Ultrapar Group, which is among the ten largest Brazilian holdings. In addition to Oxiteno, the Ultrapar Group owns the Ultragas, Ipiranga and Extrafarma companies in the retail and distribution segment and the Ultracargo company in the storage segment for bulk liquid.

Oxiteno, one of the objects of study of this research, began its activities in 1970, due to the participation of the Ultrapar Group in the construction of a national petrochemical park located in the city of Mauá, in the state of São Paulo, Brazil, becoming a pioneer in the production of ethylene oxide and its derivatives in the country. Today, the company has twelve manufacturing units located in Brazil, the United States, Mexico, Uruguay and Venezuela and commercial offices in Belgium, Argentina, China, Colombia and Brazil. Recently, the company invested in an R&D laboratory in the United States, the result of a partnership with the University of Southern Mississippi. The laboratory is intended for research and development of agrochemicals,

personal care, cleaning, oil, gas, paints and coatings with a focus on the American market.

The company declares itself committed to innovation and sustainability. Since 1990, it invests about two percent of its revenues in innovation. In 2014, its turnover was about US\$ 1.5 billion, and that same year; it was listed among the ten most innovative companies in Brazil, by INFO Magazine. This research considered innovation effort, business processes, result in product and process innovation, organizational environment and corporate culture. In 2010, about 20% of the raw materials used in its production came from renewable sources and 35% of produced products contained "green" ingredients.

The company is a major supplier of inputs for Natura. In 2016, Oxiteno was awarded by the Brazilian Association of the Personal Hygiene, Perfumery and Cosmetics Industry - Associação Brasileira da Indústria de Higiene Pessoal, Perfumaria e Cosméticos (ABIHPEC) for its practices as a quality supplier. Thus, the choice of these two large Brazilian companies, in the innovation field, is justified, and their structure, strategies and processes are analyzed in this study.

RESULT ANALYSIS

Natura's structure and innovation strategies are described initially, followed then by the description of its innovation process. After that, Oxiteno's structure and innovation strategies are described, followed in turn by the description of its innovation process. In a second moment, the results of a comparative analysis between the two companies are presented.

Structure and Innovation Strategy of the Natura Case

In terms of organizational structure, it was identified that the Natura company does not have only one single area responsible for innovation, but rather, it has several areas involved in the innovation process. In a way, the innovation is led by the Business Units (Vice-Presidency of Innovation), operating with advanced research, product development, consumer safety, innovation management and networks, technology transfer (science and technology) and productivity and open innovation, as Figure 2 illustrates.

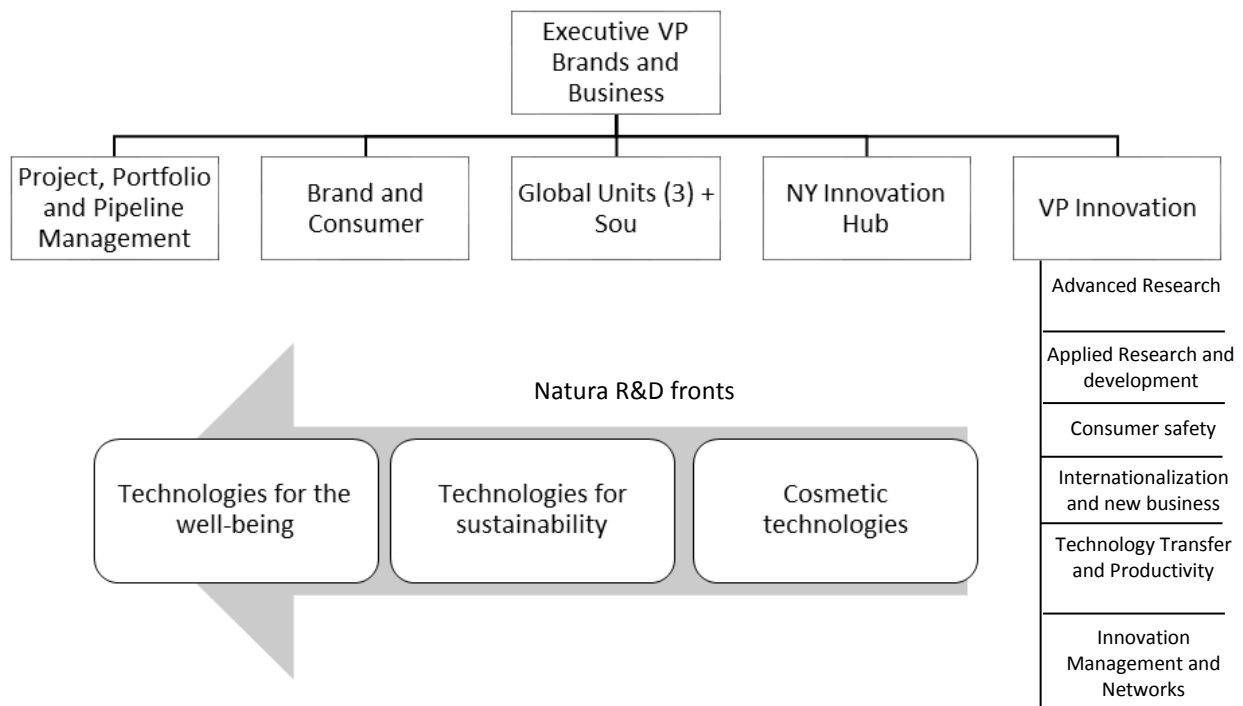


Figure 2: Natura's Innovation Organizational Structure
Source: Field Research (2016).

- Advanced research is responsible for advanced cosmetology technologies, well-being and relationships, sustainability, bio agriculture, indicators and eco-design and the core of open innovation to the Amazon. The area seeks to increase the integration and contribution of research deliveries through "amazonification" and sustainability.

- Product development is responsible for the development of formulations, packaging, núcleo de especialidades cosméticas - cosmetic specialties core (NEC), design, olfactory and sensory core and new business. The goal is to develop high-performance products that innovate and differentiate the company in the sensory aspects, perfuming and design, radicalizing in sustainability and well-being.

- Consumer safety is responsible for the safety of ingredients and products, analytical solutions, regulatory affairs, cosmetic vigilance (it monitors possible adverse effects of products), evaluation of effectiveness, specifications and technical management of laboratories. The area seeks to achieve technical excellence, meeting international standards of evaluation of ingredients and products, enabling the entry of the product into the market.

- Innovation management and networks area is responsible for the strategic management of innovation, innovation systems, open network innovation, entrepreneurship and innovation acceleration. The goal is to generate and to accelerate the delivery of innovation resulting in a differentiation for business through the forefront in innovation management.

- Technology transfer and productivity serves Brazil, Argentina and Mexico concerning regulatory matters, development of formulas and packaging. The goal is to achieve excellence in transfer technology and the implementation of productivity projects, ensuring the innovation funnel feedback from generated findings in the international operations and with the optimization of resources dedicated to innovation.

- New York Hub seeks to identify trends and opportunities for new concepts connecting cosmetics, design, fashion and the technology to develop innovative prototypes.

In summary, the R&D fronts are divided into well-being and social relations, sustainability and cosmetic technologies. Business Units, led by VP-innovation, identify market opportunities and, from then on,



build a "business case". Then, an innovation team is involved to act in the development.

As already mentioned, the company does not have a structured area to develop its innovation process, thus accompanying the product innovation as needed. Much like innovation in services, this stems from the commercial area and projects are developed from the need for new channels or advances on existing ones. Thus, it may be noted that product management is separated from the innovation in services. The latter is linked to the commercial area.

Natura's innovation strategies have undergone a cosmetic proposal therapy (1969), transitioning to the direct sales business model (1974), products on refill (1983), Ekos line (2000), line of soaps of botanical basis (2005), Natura Campus and end of animal tests (2006), Carbon Neutral (2007), Amazon Program (2010), Sustainable Palm Oil (Dendê) Project (2011), Project NINA, call for projects by means of edicts, iQlicar and Consortium Media Lab (2012), Project Co-creating (Co-criando), Sou Line and Ecoparque (2013), Hackthon Natura Campus, MIT Media Lab Partnership (2014), and the physical store opening and digital consultants Project (2016).

In 2000, Natura began to launch products targeting national biodiversity, with the launch of the Ekos line and with the environmental impact studies caused by the product portfolio. One of the first steps was the development of packaging with less environmental impact and the study of carbon offsets. Since then, the company has focused its efforts on the theme of sustainability, as stated in the 2020 vision along with the goals, which are expected to be achieved. Natura believes that due to the great amount of consumer goods it has placed on the market, an environmental impact is bound to increase.

The innovation process is influenced by the sustainability factor. Each phase of the innovation process assesses the environmental impact of new products versus the one that is being replaced. So, to reach the goal of CO₂ emissions, for example, every stage of a new product is evaluated, to check whether it is more harmful to the environment than the product, which is already found in the market. In doing so, the entire product portfolio is evaluated. In terms of goals, the results of the portfolio and the stages of development are monitored, project by project, semiannually and, similarly, the product

portfolio, every semester, to know how far the company is from the stipulated goal. For a part of the clientele, the sustainability aspect is an important and decisive factor while purchasing products, but for another part it is not so. That's why it is believed that part of the consumers seek to maximize the cost-benefit ratio when choosing products, which may be the company's specialty.

The multi-channel strategy, that is, a commercial strategy, should also be highlighted. Multi-channel strategy means the opening of the physical and virtual shop. The virtual store is the main example of innovation in service in recent times for the company. In this proposal, the company's website hosts online stores and provides consultants, despite having to obey to the rules proposed, it is able to create networks of consultants and manage the virtual store on its own with autonomy to promote the products, whether by the availability in the store or by promotions and product discounts.

In addition to the virtual store, there is also the opening of physical stores where the motivation is the possibility of expanding sales channels and having a market share as in previous years. The company noticed that this type of channel facilitates the access to the product and that it is aligned with the needs of new consumers, that is, the ease of having the product immediately. In case of sale brokered by consultants, there's not always stock available with them, then having the need to place the order and waiting for it to arrive within the specified time frame. So, the motivation is to be able to meet the modern consumer faster and more efficiently. And yet, another reason for opening new channels is to make the products, such as the *SOU* line, available in drugstores. This is so the company is showcased along other brands allowing the final consumer an easy access to the product.

In summary, the company defines as learning the identification and connection of complementary competences, the search for shared value generation and focus on synergies, taking into account the maturity stage of technology, the company and its partners in the interaction process, the alignment of expectations and formalization of partnerships, intensification of collaboration networks and agility in scale production.

Natura's innovative strategies run through product development, process, service and business model. In summary, responsible use of natural

resources and renewable material from plant origin in formulas, organic and sustainable vegetable production models, recyclable and/or recycled packaging material, the use of refill, information about environmental aspects on the products, commitment to the entire supply chain, reduction of carbon emissions and shared creation of value are the main aspects in terms of innovation strategies at Natura.

Innovation Processes of the Natura Case: Technology and Innovation Funnel (Stage-Gate)

In the Natura case, there are 260 employees working in the area of R&D and innovation and 200 formal innovation partners, distributed in the U.S. innovation Hub and Amazon and in the factory of Cajamar in São Paulo. One could observe that this is a company focused on product innovation, while the process is adapted according to the demand of the product or packaging innovations.

The company's technological knowledge for product development emerges in two ways, by the Technology Push (TP) and Marketing Pull (MP). Firstly, from technological trends identified in the research area, it is believed that certain paths are needed to discover new assets and the company decides to invest in them. In the second case, the company wants to launch a line of products at any given time, believing that it will be the trend, then the marketing area will order the research project so that the research area begins to search for the ingredients that can be used to meet the benefits they want to achieve.

Technologies developed through the TP have long-term vision. TP is considered when one believes in the project's potential for the future and when one does not know how to apply the technology, as in the case of ordered projects. The technologies developed through the MP are considered short-term and are usually bound within a 2 to 3 year period.

Some projects, from a TP perspective, may take years to be launched in the market, considering the design stage, identifying how and where to extract the active ingredient, making it concentrated, respecting sustainability goals, performing safety tests and introducing it to the market, as it is with the case of the Chronos line, which took eight years to go

through with the process. Performance tests are to ensure good product quality.

Innovation represents the survival of business for the company. The cosmetic industry and the direct sales business model require innovation all the time. Furthermore, the competition works in fast pace of launch, which is a sector requirement. Thus, the company seeks to innovate in terms of product benefits, packaging and attractiveness. In this sense, innovation is considered a long-term survival strategy. An indicator that product innovation is a key factor is that the amount of products released each year, which round to about 250, is the result of a of a18-cycle per year strategy. New products are launched with every new cycle.

Even though innovation has been present at Natura from its origin, open innovation has been applied since 2006, and only in the R&D area. As already mentioned, Natura's R&D has three technology platforms: well-being and relationships, sustainability and cosmetics. The criteria for selection of ideas are: well-being, sustainability, safety, quality, effectiveness and generated return. Since then, part of the technological knowledge is generated outside the company or within partnerships with suppliers, whether of inputs, packaging and promotion or of education institutions.

The development of new ideas goes through two processes: technology funnel (related to the research area) and innovation funnel (related to the product development area). The technology funnel is the internal research area that selects the most current and feasible (proprietary) technology through five steps: prospecting and ideation, briefing, phases (0 to 3), availability and evaluation.

The innovation process through product and technology funnel seeks simplicity and effectiveness. The adoption of this process is due to the large number of ideas generated and competing with each other. In this model, the ideas evaluated with greater possibility of success on the market have priority in the funnel (Figure 3).

The ideas go through the technology funnel and then by the product development innovation funnel. In general, the areas of R&D and product marketing are those that propose innovations.

Most of the product portfolio developed at Natura follows the traditional model rather than the open innovation model (Bernardes et al., 2013).

The focus of this study is the structure and the strategy of the companies facing the innovation

process. Other aspects (such as culture) will be explored in another study.

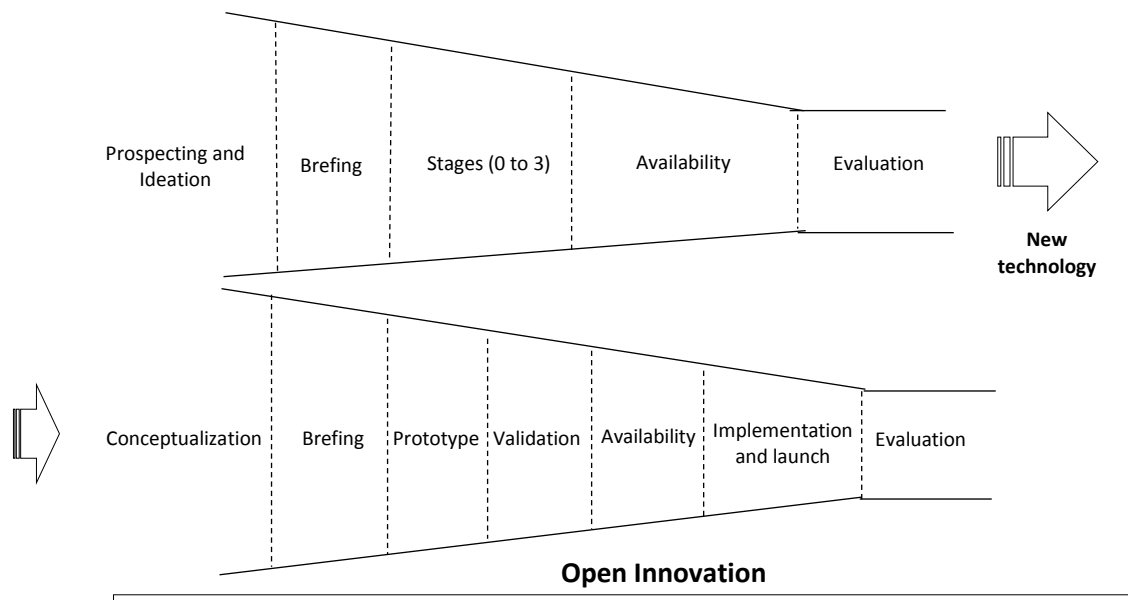


Figure 3: Natura's Technology and Innovation Funnel
Source: Adapted from Natura (2016).

Although there is no corporate program to receive ideas from employees in the company, there is the Natura Campus channel, which is an open innovation platform that seeks to capture ideas from outside the company. This is a space for collaboration and relationship building with science and technology institutions, companies and entrepreneurs that enables collaboration for innovation and shared value generation.

Natura Campus exists since 2006, promoting partnerships and networking connection for developing new ideas, knowledge, products and services.

Periodically, call through edicts for Universities and Startups are opened with specific demands to be met. The network then invites for idea building and disruptive innovation projects to be developed in partnership.

At the current time, Natura Campus has 5,000 registered experts, six challenges and one call through edict released. There are 110 different

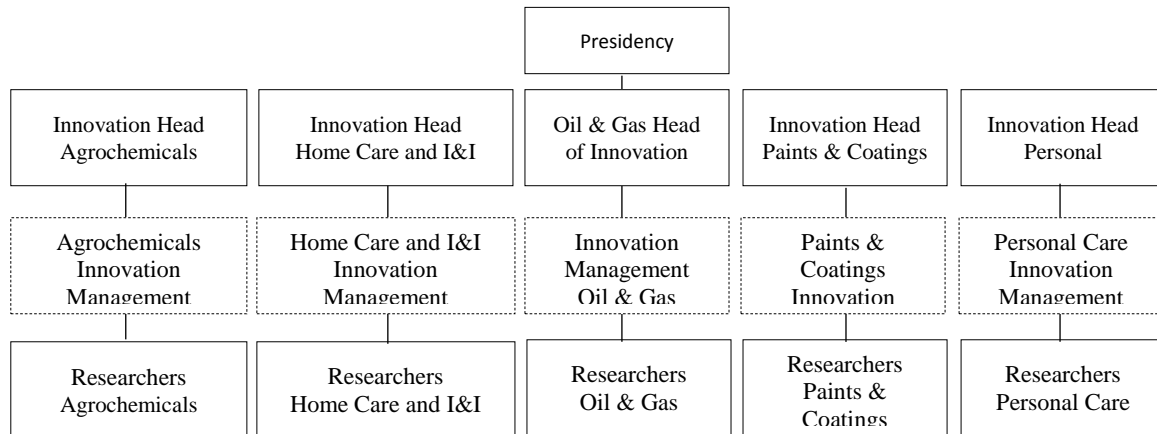
institutions and more than 60 cooperation projects. The new Chronos line is an open innovation example, because Natura combined in it active ingredients developed within the company with other ones found in the market. In addition to the Natura Campus channel, there is a call center that also receives ideas, although it is not very routine and recurrent. The Co-criando project, which is also a more recent open innovation program, creates a space for people who are interested in a particular subject to become engaged and from then on bring ideas for new products or services to be developed.

The company has a strategic planning initiative where growth opportunities are identified and combined with the company's ambitions. From this planning perspective, in the various categories, the Business Units choose the projects to achieve the proposed objectives. In general, these are product innovation projects.

Structure and Innovation Strategy of the Oxiteno Case

In terms of structure, Oxiteno has an innovation team within the R&D area. The company is divided into five main categories: Agrochemicals, Home Care and I&I, Oil & Gas, Paints & Coatings, and Personal Care. Each category has a "Head" of innovation that

reports to the President of the company. Within each category, there is a position assigned to the innovation presidency, which at the time of this research was not being filled, despite being found in the organization chart of the company. In these areas, there are researchers who work directly with the innovation for short, medium and long term. **Figure 4** illustrates Oxiteno's innovation structure.



Legend: --- Position not currently occupied.

Figure 4: Oxiteno's innovation structure

Source: Field Research (2016).

For Oxiteno, innovation is represented by the motto of the master plan created for 2022. The theme is "growth through innovation". In this plan, there are goals of incentives for innovation with quantitative indicators (number of patents, projects, briefings) and qualitative (time conducting the project, excellence in management, delivery of technology for application in more than one business unit, inventiveness of the study).

In terms of innovation strategies, the company has strong representation in the production of surfactants, but has expanded the market with other products. Among them, producing esters that work with other benefits besides surfactants. The presentation of high-performance solvents on the market also represents its innovation strategy, as well as partnerships with other *players*, one of them in favor of the mixture for the production of enzymes, which is a totally new innovation.

The company has sustainability platforms, and all launched products must go through them. Each category has about four platforms, as an example, in the case of Home Care category platforms: (1) Superiority in cleaning removal; (2)

Intelligent innovations; (3) Care; (4) Sustainability, which makes a junction with the other three platforms for the search of innovation with sustainability in the company.

Innovation Processes of Oxiteno Case: Innovation Funnel and Technology Silos

On innovation capabilities, according to the Zawislak model (2012), the company stands out for its operational capacity, due to its infrastructure in Brazil and in the world with manufacturing industries. In the past five years, the company has turned to inventiveness and innovation. It was possible to identify that, in the current phase, technological development is one of the strongest pillars in the company, followed by innovation management. To deepen this topic, its product development process will be analyzed.

In the Oxiteno case, the product development process can be divided into two steps: Pre-funnel (silo) of innovation and innovation funnel. In a traditional innovation funnel process the ideas go through a natural selection and are discarded. In the

case of Oxiteno's pre-funnel, ideas are not stored while there is no demand or interest in the market, or there is no industrial nor technological capacity to produce it. Each category has a pre-funnel (silo), in which the researchers have access and can openly add ideas. However, it cannot be classified as a funnel because they do not have an idea for the discard sequence. In this case, ideas are available in the pre-funnel and can be retrieved according to the needs or complexity of the moment, only then beginning with the innovation funnel.

After an idea enters the innovation funnel process, it goes through a few steps: evidence of

scientific inventiveness, preliminary financial assessment, and the industrial capability of the process. From then on, the idea is given to the laboratory to follow the value proposition, and in this stage the price strategy is given, distribution and differential of the proposal are analyzed. Back to the laboratory, the idea goes through the phase of product finishing, patent driving, brand determination and elaboration of the launch plan. This plan is the launch of the proposal on the market and it can be made through events, conferences, folders and/or catalog. This process is illustrated in **Figure 5**.

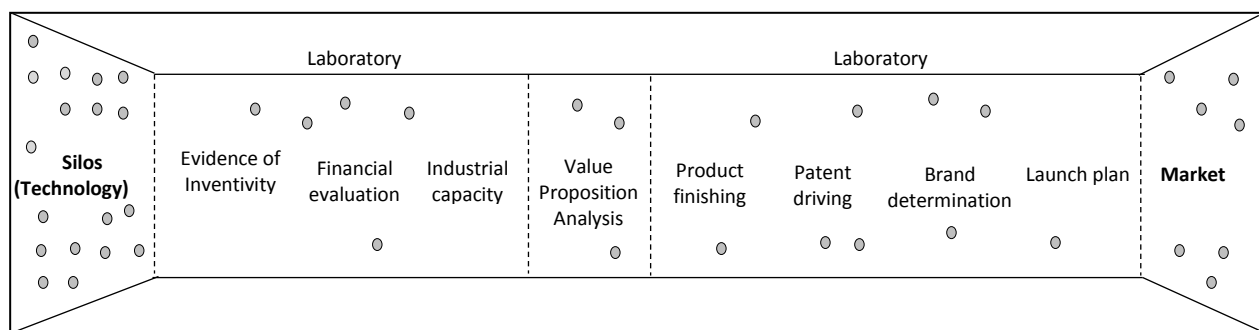


Figure 5: Oxiteno's innovation process
Source: Field research (2016).

This process differs from a *Business to Business* industry (B2B) because, in general, the innovation is due to a market demand. In the Oxiteno case, they come from technical projects that are chosen by a market demand, a search for inventiveness or manufacturing capacity. Only after this, the product innovation funnel process begins. The technology silos are also present in each of the business units. Ideas are openly deposited in the silos, as in a Bank of ideas. The ideas that come from outside the company enter directly into the funnel, while the ideas that arise internally pass through the innovation silos. The researchers point out that in this process freedom of opinion is paramount.

Technological knowledge occurs in two ways: through insights-in (from outside to inside) and through insights-out (from the inside out). In the latter case, these are ideas that are analyzed through the verticalization of the raw material, both in the petrochemical industry and in the vegetable based industry. In the case of insights-in, the ideas are developed through incentive funding programs,

where a line of research is requested, which may be at the governmental level, through a development agency or customer requests.

Regarding the fomentation of innovation, the company participates in edicts with the agencies that promote research and innovation. There is an area responsible for the capture of such external resources to promote new developments or others in progress.

In a few cases, innovation occurs through the suppliers that, in general, deliver the basic raw material for the production and processing at Oxiteno. On the other hand, Oxiteno's clients have a focus on product innovation and, in general, contribute with the innovation development (*insights-in*). This is due to market regulatory or legislation issues that are increasingly frequent or even because there is a need to deliver a product with superior performance and lower price.

It is worth mentioning, within the process of innovation, the contribution of the area of operations. Researchers visit the industrial plants and

factories staff participate in forums together with researchers. There is an interaction between them that also contributes to the innovation process.

Despite the focus on product development, innovation in the process also occurs, but less frequently and it is considered as complementary. It is the process, which makes the product transformation in the laboratory for the factories, aiming to reduce time, cost and optimize resources. Although it is not the main focus, there is a team focused on the innovation process, so the company recognizes its importance and necessity. In the case of service innovation, it is also less recurrent compared to product innovation. One can mention in this last type of innovation the search for understanding the customer of the customer, that is, the customer who actually consumes the products, through complaint channels and Customer Service Systems (Sistemas de Atendimento ao Cliente - SAC).

RESULTS AND ANALYSIS

It was identified that Natura stands out for its product development while Oxiteno, although notable for its operational capacity, has directed its focus towards product development. The two companies are distinguished in terms of the innovation area structure. Natura has a network structure in which innovation is generated from different areas and fostered from the inside out and from the outside into the company. Oxiteno has a specific team responsible for innovation in all product categories.

Technological advances take place through Technology Push (TP) and Marketing Pull (MP) at Natura and at Oxiteno it is more likely to find that the Marketing Pull process is the rule. Natura's suppliers and customers have an important contribution to innovation, while in Oxiteno's case it receives innovation demands from its customers, which could even be Natura itself, as an example. The downside to receive it from suppliers is that the chain is limited as it deals with base raw material. Thus, the network interaction in Natura occurs alongside the production chain, while in Oxiteno the ideas to generate innovation start from itself or its customers.

Natura's innovation process turns to the structure of an innovation funnel and product funnel, while Oxiteno uses the technology silos strategy (innovation pre-funnel) and innovation funnel that is

different from the traditional model. The main difference is that the ideas generated in Natura go through a specific process and are discarded when necessary and, in the case of Oxiteno, ideas are stored until they are considered relevant to enter the innovation funnel.

Other types of innovation, processes or services are not as recurring in both companies as product innovation. In Natura's case, the service innovation is more frequent, even for its business model that distinguishes itself and is referential in the market. It is believed that due to the proximity to the final consumer, Natura has a greater need for service innovation than Oxiteno, which has a very specific product portfolio. In both companies, however, service and process innovation is limited. On the one hand, Natura's service innovation is more recurring and, on the other, Oxiteno focuses on process innovation.

In terms of innovation strategy, both companies have a great concern for sustainability. At Natura, this is an integral part of the company's culture (O'Brien, 2003) and it is present at all levels of product development while Oxiteno has specific projects focused on sustainability. However, both of the companies' innovation strategies are linked to a master plan and have innovation goals held in them, as defended by Dyer and Song (1998), which influence management decision-making through established goals (Sundbo, 1997).

It can be seen that both work with offensive innovation strategies and that in the case of Natura it shows the support of multidisciplinary teams in a long-term perspective, in addition to a relevant marketing approach (Baxter (2000). Oxiteno has started to develop product innovation capacity in a more significant way in the last five years and is getting the first results.

Natura emphasizes the innovation process at the same time it seeks to orient itself to the market, in accordance with Panizzon *et al.* (2015). Although it seeks to develop other complementary capabilities, Natura has focused more on product development with an open innovation model and an innovation structure, which is always revised and improved. The company invests in advanced research, ensuring consumer safety and is committed to sustainability through an innovation process, based on technology funnel and innovation funnel. Oxiteno, however, despite being strong in operational capacity, has

turned to technological innovation due to the need of the market.

Both companies have a strong internationalization strategy, Natura with research and distribution centers worldwide, and Oxiteno with manufacturing parks and offices in several countries and interaction with external institutions to foster innovation. In Natura's case, there has been a high investment on important partnerships with educational institutions and research centers and, in Oxiteno's case, the focus has been on important partnerships with government and other private companies to generate innovation, being only recent the highlight given to partnership for innovation with a University.

Both companies have an understanding that the development of innovation capabilities is important for them to be able to innovate, differentiate themselves from competitors and stay in the market, as advocated by Lawson & Samson (2001).

FINAL CONSIDERATIONS

The study met the proposed objective, which was to analyze the critical aspects of the innovation management in terms of structure, strategy and processes of innovation of the Natura and Oxiteno companies. It is concluded that the two companies are organized differently in terms of their innovation structure area. Despite the sector difference, both companies have implemented strategies directed towards product innovation. It is also concluded that their innovation processes are distinct, with Natura focused on open innovation with the use of the innovation funnel (Stage-Gate) and technology funnel and Oxiteno using the innovation pre-funnel and technology silos model.

Natura has a distinctive and lasting capacity on product innovation, which makes it more competitive. Despite the development of other complementary capabilities, product innovation is the company's main differential according to Tello-Gamarra & Zawislak (2011). Since the creation of the company, the strategy through innovation has always been present. Although Oxiteno has its operational capacity as its main distinguishing feature, product innovation has been a constant pursuit in recent years. The company has dedicated a space for innovation and has had results from the investments

made in previous years with the market launch of new product lines of impact and intelligent innovations.

This study, therefore, invites the reader to reflect on the critical aspects of innovation management in terms of structure, strategy and innovation processes in real companies. There are different ways of promoting innovation, considering the context, the sector and the structure of the company. It is important to highlight the importance of aligning structure, strategy and innovation systems. Theories need to adapt to the real context of companies so that they can contribute to better performance.

As contributions to companies, it is possible to highlight the possibility of reflecting on the need to know the innovation capacities of companies. Emphasis should be placed on the sustainability theme within companies, whether of basic production, such as petrochemical, or closer to the final consumer such as Natura. It is also important to highlight how much innovation becomes more relevant within companies when they are within the company's strategic plan.

Some limitations to the accomplishment of this study, which can be mentioned, were the difficulties found to conduct a research that could contemplate the opinion of managers from all areas involved with innovation. In addition, this is a research developed with a qualitative approach, based on the information provided by the interviewees and subject to change, as well as subjectivity in the data treatment by the researcher.

For those interested in pursuing this study, it is possible to advance even further by proceeding with an in-depth study of the opinion of managers from other areas of the two companies and by also making an analysis of the quantitative results generated by the product innovation from both companies.

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