

PROPOSAL FOR AN ANALYSIS MODEL FOR IDENTIFYING SUSTAINABILITY PRACTICES THAT ARE ABLE TO INCREASE THE VALUE IN SUPPLY CHAINS

PROPOSTA DE UM MODELO DE ANÁLISE PARA IDENTIFICAR PRÁTICAS DE SUSTENTABILIDADE QUE SÃO CAPAZES DE AUMENTAR O VALOR NAS CADEIAS DE SUPRIMENTOS

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RESUMO

Esta pesquisa analisa práticas de sustentabilidade envolvendo os pilares econômicos, ambientais e sociais, em duas cadeias de suprimentos de perfumes e hidratantes. Foi realizada uma revisão da literatura sobre temas da cadeia de suprimentos, gestão da cadeia de suprimentos, gestão sustentável da cadeia de suprimentos e os indicadores propostos pela Global Reporting Initiatives. A pesquisa adotou uma metodologia de estudo de caso múltiplo, com abordagem qualitativa e natureza exploratória, e entrevistas foram utilizadas como técnica de coleta de dados. As unidades de análise foram duas cadeias de suprimentos do setor de higiene pessoal, perfumes e cosméticos, e a empresa focal e empresas upstream foram analisadas. Houve uma diferença na implementação de práticas entre as cadeias de suprimentos, mesmo considerando a mesma empresa focal. Há desacordo entre o que a empresa focal e os fornecedores entendem como um requisito. Como contribuições práticas são propostas práticas de sustentabilidade a serem aplicadas ao longo das cadeias de suprimentos, a fim de ajudar as empresas a atingir seus objetivos econômicos, sociais e ambientais.

Palavras-chave: Cadeia de suprimentos. Gestão da Cadeia de Suprimentos. Gestão sustentável da cadeia de suprimentos. Relatórios de iniciativas globais.

Data de submissão: 16 de julho de 2019.

ABSTRACT

This research analyses sustainability practices involving the economic, environmental and social pillars, on two supply chains of perfumes and moisturizers. A literature review was carried out on topics supply chain, supply chain management, sustainable supply chain management and the indicators proposed by Global Reporting Initiatives. The research adopted a multiple case study methodology, with qualitative approach and exploratory nature, and interviews were used as data collection technique. The units of analysis were two supply chains of the personal hygiene sector, perfumes and cosmetics, and the focal company and upstream companies were analyzed. There was a difference in the implementation of practices between supply chains even considering the same focal company. There is disagreement between what the focal company and the suppliers understand as a requirement. As practical contribution, sustainability practices along productive chains are proposed, in order to help companies reach their economic, social and environmental goals.

Keywords: Supply Chain. Supply Chain Management. Sustainable Supply Chain Management. Global Reporting Initiatives.

Data de aprovação: 17 de dezembro de 2019.

INTRODUCTION

Sustainable development has gained relevance in business strategies of companies. Initiatives to protect environmental and social assets potentially generators of economic growth have assumed a central role in production processes and in relationships with community and consumers.

Although there is no consensus among scholars about the relationship between investments in sustainability and financial return, there are studies indicating that companies with greater concern with the social, economic and environmental aspects can raise greater sympathy for its products and brands, as well as a greater number of investors. In addition, they claim that sustainable practices and better management go together, and sustainability is one of the factors that generates better performance, lower risks and higher values (Seuring and Muller, 2008; Lameira et al, 2013; Closs et al, 2011).

In a similar way to sustainability, the management of the supply chain has also considered an area of strong strategic importance. More operational approaches with a focus on buying and quality have given space to more strategic visions with focus on the relationship with strategic partners. Factors such as the global competition, the life cycle of products and compression of time at different stages of production, has caused the ability to establish close and lasting relationships with all links of the production chain to be a crucial factor to generate competitive advantage (Andersen and Skjoett-Larsen, 2009)

Given the importance of the sustainability and supply chain management as strategies that generate value, uniting the two concepts has been one of the challenges of scholars and practitioners interested in the subject. The concept of the supply chain assumes new contours, expanding the vision of economic efficiency and incorporating social and environmental aspects.

The synergy among supply chain partners, in addition to contributing to an increase in environmental and social performance, promotes benefits such as reduction of operational costs, integration of suppliers in the decision making process, strategies of differentiated shopping, reduction of waste, replacement of materials and raw materials, reduction of greenhouse gas emissions, better use of natural resources, more efficient development of new products and innovation. (Brito; Berardi, 2010; Rao and Diane, 2005)

However, the entrepreneurial decisions and actions must be integrated into all links in the chain of supplies. Improper conduct on the part of any partner of the organization, either downstream or upstream, can result in significant losses, bringing financial losses and damage to reputation, mainly of the focal company. The contracting companies pass on to their suppliers the responsibility for enforcing contracts but are jointly responsible for working conditions and by the environmental impacts associated with the whole of the productive processes of the supply chain.

In order to achieve a satisfactory economic results in the present day, in addition to developing good practices of sustainability in its operations, companies must pay attention to the practices developed by all components of their supply chain, this study aims to answer the following research question: how to identify and analyze the practices of sustainability in the supply chain, considering social, environmental and economic benefits?

PROPOSAL FOR AN ANALYSIS MODEL FOR IDENTIFYING SUSTAINABILITY PRACTICES THAT ARE ABLE TO INCREASE THE VALUE IN SUPPLY CHAINS

The main objective of this study is to establish a model of analysis of the effectiveness of sustainability practices implemented in two chains of a Brazilian company in the sector of personal hygiene, perfumes and cosmetics. The specific objectives are:

1. Identify the main indicators used for measuring sustainability practices in the management of the supply chain.
2. Choose the most appropriate indicators to the company under study.
3. Develop a model of analysis to verify the sustainability in the productive links in the chain of supplies of the focal company.
4. Apply the model of analysis in two chains of the focal company, namely, perfumes and moisturizers.

Under the academic perspective, this work is justified due to the relevance of the theme of sustainability and considering the studies that emphasize the need to develop and analyze supply chains in developing countries. In addition, studies on the evolution of literature in sustainability focuses on issues outside of the scope of supply chain and neglects the views of executives and managers (Hooker; Denslow; Giunipero, 2013; Soni, Kodali, 2011).

From the perspective of the market, this work is justified due to the growing awareness of final consumers about the conduct of a given supply chain, mainly about how the focal company relates with the other companies belonging to their chain of supplies. The final consumers influence positively or negatively the performance of any business, buying or boycotting a product or the organization (Sajjad et al, 2015). In a study done in the US with 21,630 people by companies *Reputation Institute and Harris Interactive Inc.*, the consumer says that requires or seeks information about the social and environmental conduct of a company, to help decide their purchases, investments and labor (Carter, 2004). Thus, this study is justified, because it intends to deepen the concept of sustainable management of the supply chain, by means of indicators that identify and monitor key practices that organizations do or in which they are inserted. The analysis model proposed can help Brazilian focal organizations, interested in adding value to their business, to analyze the sustainability in all their production chains.

SUPPLIES CHAIN

The Supplies Chain is a set of processes that intermediate suppliers and customers from the raw material, as a starting point, until the finished product delivered to the final client where it will be consumed. It is an evolution of the concept of logistics, since it provides that the functions of all links in the chain ensure the value proposition in product or service to the final customer (Ballou, 2006; APICS, 2016). Complementing this definition, Mentzer et al. (2001) define the supply chain as a set of three or more entities, either individual or organizational, directly linked to the flow upstream and downstream of supply of products, services, financial and information from the primary source until the final consumer.

The whole chain has a focal company which operates, directly next to a set of suppliers that operate with another set of suppliers and so forth. In the same way, the focal firm has a set of clients with which it relates directly and others with which it relates indirectly (Pires, 2009).

MANAGEMENT OF SUPPLIES CHAIN

The first definitions for supply chain management bring a simple approach to coordination of activities, within and among companies linked vertically to meet the need of the final customer. (Larson; Rogers, 1998). The concept is expanded by Walter et. al. (2001), when incorporating the management of relationships of core business functions and the chain of supplies to maximize the value generated for the end customer.

The internal management of the focal company is crucial to the success of all links in the supplies chain. It is a systemic approach to a single entity, rather than a set of fragmented parts, each one exercising and playing its role. In this way, the concept of partnerships is extended for an effort of multiple entities that managed the whole flow of goods from the supplier to the final customer (Mentzer et al, 2001).

Stock and Boyer (2009) made a qualitative study in which they have searched for definitions of supply chain management in the literature since 1995. The authors concluded that most of the definitions was drawn up between the years from 1995 to 2000. From these definitions, these authors sought a consensus, with the aim of proposing a single and comprehensive definition, in accordance with all authors. In an attempt to unite the different approaches, these authors define supply chain management as the management of a network of relationships within and among the organizations, with interdependent business units, consisting of suppliers, purchasing, manufacturing, logistics, marketing and systems related to flow downstream and upstream of materials, services, finance and information of the original supplier until the final customer, adding value, maximizing profits and taking into account the needs of final customers.

According to the Council of Supply Chain Management Professional, the management of the supply chain consists of a set of processes of planning and management contained in the supply, transformations, sales and logistics activities. The essence of the supply chain management is to integrate the management of supply to demand management between and through the undertakings of a productive chain (CSCMP, 2013). The supply chain needs to be managed, link by link, relationship by relationship, and the organizations that stand out in this management will be successful. Every organization within the supply chain needs to implement the same business processes, otherwise the chain will have difficulty in connecting among their links or among companies and their functions (Lambert, 2014). Lummus et. al. (2001) bring similar concepts by stating that supply chain management is the process of planning, executing and controlling the activities among the partners, while they meet the customer's needs in the most efficient way possible. This process includes all finished products, their components, parts, semi-finished products, the delivery to the customer and all the information necessary to monitor these activities. In this context, it is essential to understand the values and requirements of the final customers.

Understanding the sustainability as a business area, it should be considered that the entities of the supply chain upstream present this same area of business and submit the same strategies and tactics that the focal company. It is only with the same business processes that companies connect, otherwise the chain will have difficulty connecting among its links or among companies and their functions.

SUSTAINABLE MANAGEMENT OF SUPPLIES CHAIN

According to Nascimento (2014) and Carvalho (2011), the studies on sustainable management of the supply chain are recent, with their more relevant definitions done from 2008 on. Authors such as Carter and Rogers (2008), Seuring and Müller (2008) and Pagell and Wu (2009) were responsible for important considerations about the theme of sustainability in the context of sustainable management of the supply chain, emphasizing the responsibility that companies have to respect the social and environmental impacts throughout the lifecycle of the product available to the final consumer.

To add value to the business, sustainability must be integrated to the decisions and actions in all links that somehow constitute the chain of supplies. The management should join the social, environmental and economic objectives into a single and main strategy, coordinating and guiding the key business processes among companies, with the aim of improving the economic performance of all partners in the long term (Wittstruck and Teuteberg, 2011; Carter and Rodgers, 2008; Jorgensen and Knudsen 2006; Wolf, 2011).

For Seuring and Müller (2008), the pressures exerted by different groups, usually external to the functions of the chain of supplies, such as the own customers, stakeholders and the government leverage the vision of sustainability. These pressures in the supply chain usually are not only in the focal company, going to all other links, with the aim of ensuring that the whole is within the context of sustainability. Therefore, the focal firm will have to consider more distant levels of its chain to provide answers or solutions to those that demand, something that probably would not be justified in taking a decision based purely on the economic dimension.

The involvement on the part of the focal company, during the early stages of pre-fabrication, manufacturing, use and post-use of final product, considering the membership and environmental implications is what ensures the sustainable management of the supply chain. When the focal company intensifies the evaluation and monitoring of indicators of suppliers, there is an improvement in the performance of the supply chain, because this increases the win-win opportunities in economic and environmental aspects, ensuring continuous improvement plans of the results. This improvement in performance is usually evidenced by developments in indicators that translate into the quality measurements, agility and cost of the supply chain. (Haake; Seuring, 2009; Badurdeen et al, 2009).

Pagell and Wu (2009) presented a concept, characterized by the integration of sustainability goals in the regular activities of the management of the supply chain. Just as the authors Seuring and Müller (2008), Pagell and Wu (2009), claim that the practices that are related to a sustainable supply chain are equal to or better than the traditional practices of supply chain management.

RESEARCH METHOD

In terms of approach, the research is qualitative. As to the objectives, it is exploratory. Both definitions back up on, the fact that the interest of the authors is to identify and explore the meanings of the phenomena being studied and the interactions they establish, thus encouraging the development of new understandings, i.e., the formulation or the creation of a new concept. Considering the definitions of the supply chain already discussed, that mention the existence of a focal company and organizations upstream and downstream, the focus of the study is the relationship between the focal firm and upstream companies.

In addition, the research adopts a conceptual approach that considers the management of the supply chain as a strategic and systemic coordination of the traditional functions and business tactics along the supply chain, but considering the dimensions of economic, social and environmental issues. This concept has also served as the theoretical basis to

understand the sustainability practices that have as their purpose the minimization of risks for the focal company to integrate and incorporate social and environmental criteria in the assessment of suppliers.

Due to being more suited to deal with possible implications of certain phenomena and submit the appropriate tools to capture, understand and show results, this study uses as a research technique the case study (Creswel, 2010). The main objective of the case study is to deepen the knowledge of a problem not sufficiently defined, aiming to stimulate the understanding, suggest hypotheses and questions or develop the theory (Yin, 2001).

Units of Analysis

In spite of being a single focal company, this research is classified as a study of multiple cases, as it shall submit observations regarding sustainability practices on two chains of direct supplies. The first and most important in terms of economic value generated, has as its final design the production of perfumes. The second is intended to the final production of moisturizers. Both were chosen because, together, represent approximately 80% of the focal company business. Additionally, there are 35 observers, being 25 suppliers of packaging and 10 inputs. Together, these suppliers represent 90% of the total volume consumed by two chains. If it had been chosen only one chain, there would be a representation capable of revealing the real sustainability exerted by all the links.

Selection of indicators

For the elaboration of the research instrument reported below some indicators were selected regarding the pillars of economic, environmental and social amenities in the methodology of the Global Reporting Initiative (GRI), one of the most important worldwide instruments for elaboration of sustainability reports. These reports can be used by any industries or institutions, regardless of the sector they operate.

The Global Reporting Initiative provides a comprehensive framework for elaboration of sustainability reports by organizations. This structure, which includes the guidelines for the preparation of reports, sets out the principles and indicators that organizations can use to measure and report their economic, environmental and social performance.

The general categories are included in aspects: Strategy and Analysis; Organizational profile; identified material aspects and limits; stakeholder engagement; report profile; governance and ethics and integrity. The choice of indicators is consistent with the concepts set forth in this research for sustainable management of the supply chain with a view to greater integration among the links of the chain and the tripod of sustainability.

Data Collection

According to Creswel (2010), the steps of data collection include: establishment of limits for the study; collection of primary data through observations and interviews; collection of secondary data through analysis of documents and visual materials; establishment of a protocol for the recording of information.

For this study, the selection criterion of key informants was the degree of seniority, thus decreasing the case there was no success in contact. Thus, the profile of the interviewees was composed by 51% of coordinators, 38% of managers and 11% of directors. Given the need for confidentiality, no information was requested on the profile of the respondent regarding the time of work in the company, salary range and age. It is believed that this exclusion does not affect the quality

of the choice, because 56% of the respondents work in areas related to the management of the chain of supplies and 44% operate in commercial activities geared to the final customer. It is concluded that the set of key-informants is representative, because it includes companies that play important roles in the chain.

Data collection instrument and interviews

From the selection of indicators, a questionnaire was built to be applied in person during the interviews. The same were carried out in the period from March to May 2017, with 34 suppliers, in addition to the focal company. Each interview lasted an average of one hour, totaling 35 hours of meetings.

The questionnaire applied was prepared from 1 to 5, where the value 1 indicated a non-implemented practice and the value 5 indicated that the projects were fully completed.

Procedures for Data Analysis

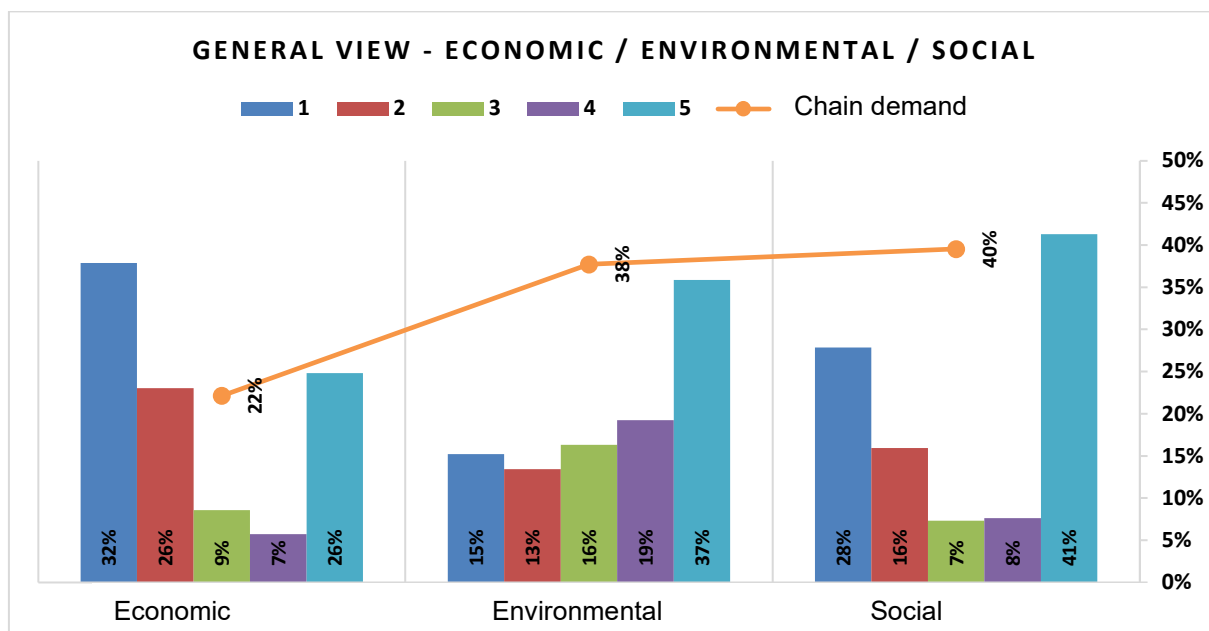
The review process involves removing the sense data, preparing them for the analysis, represent them and interpret them as to its broader meaning (Creswel, 2010).

The use of questionnaires in qualitative research is subject to submit questions that reproduce the same answers, especially when there is no heterogeneity among the respondents. Therefore, first, the data were tested for their reliability, defined by Hayes (1998) as the degree to which the measured result reflects the true result. If the researcher does not know the reliability of his or her data, there may be doubts about the results obtained and the conclusions drawn (Richardson, 1989).

To estimate the reliability of the data, it was applied the Cronbach's Alpha, whose result was 0.9083. As exposed by Streiner (2003), it was concluded that the questionnaire is reliable as the questions applied. Possessing the responses, the data were consolidated so that they could reach the unique results of evaluation of suppliers and the focal company, based on their respective practices within the supply chain analyzed.

ANALYSIS

The first stage of analysis was developed with the objective of identifying the percentage of implementation of sustainability practices on the part of the members of the links of the chains in the present study, considering the economic, environmental and social pillars (Graph 1).



Graph 1 - Overview of the pillars of the sustainable management of the supplies chain
Source: Authors, (2017).

The questionnaire regarding the economic pillar was divided into economic performance, market presence, indirect economic impacts and the practice of organization purchasing. As a result, it was found 32% of non-implemented practices, 26% of projects approved for implementation, 9% of projects starting their implementation, 7% of projects implemented partially and finally 26% of projects fully completed. Also, it was found that 22% of the practices of the economic pillar were demands made by the focal company to other members of the supply chain.

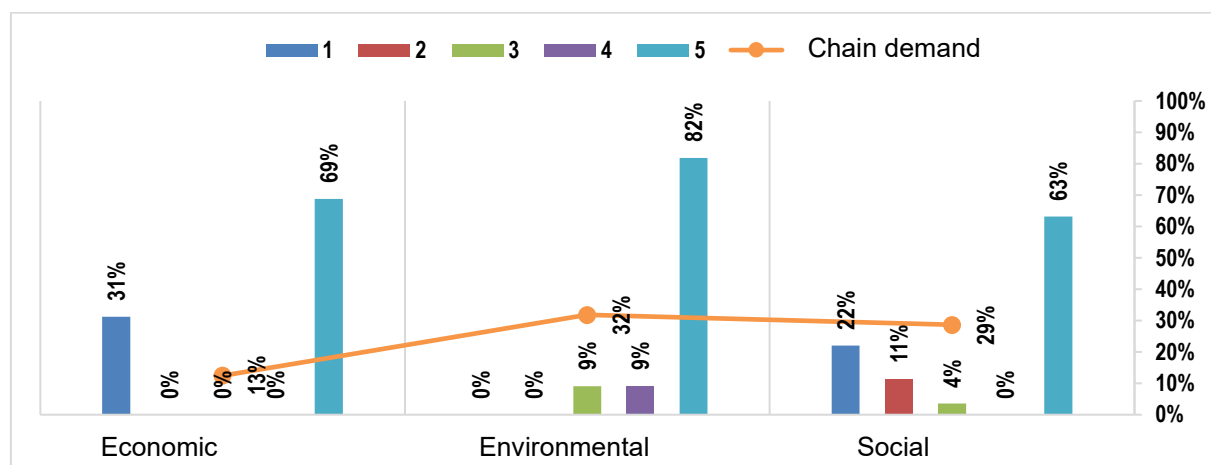
The questionnaire of the environmental pillar was divided into twelve aspects, namely: material, energy, water, biodiversity, emissions, effluents and waste, products and services, compliance, transportation, general, environmental assessment of suppliers and identification of complaints to environmental impacts. The results pointed to 15% of non-implemented practices, 13% of projects approved for implementation, 16% of projects starting their implementation, 19% of projects implemented partially and finally 37% of projects fully completed. Thus, it was found compliance of 38% of the practices required to the chain of supplies.

The social pillar evaluated the practices on the systems where the providers inhabit them. The questionnaire was divided into labor practices and decent work, rights, company and product responsibility. The results pointed to 28% of non-implemented practices, 16% of projects approved for implementation, 7% of projects starting their implementation, 8% of projects implemented partially and finally 41% of projects fully completed. Thus, there was compliance of 40% of the practices required to the chain of supplies.

PROPOSAL FOR AN ANALYSIS MODEL FOR IDENTIFYING SUSTAINABILITY PRACTICES THAT ARE ABLE TO INCREASE THE VALUE IN SUPPLY CHAINS

The results reveal that, particularly in relation to social and environmental practices, there is a commitment on the part of suppliers to meet the requirements imposed by the focal company. With a lower level of effectiveness, it was found compliance with the requirements related to the economic pillar.

In the same perspective, the second analysis verified the level of effectiveness of the focal company with the aim of analyzing the compliance of the aspects covered by the selected indicators (Graph 2).



Graph 2 - general view of the focal company – economic / environmental / social
Source: Authors, (2017).

The economic pillar presents 31% of non-implemented practices and 69% of projects fully completed. The environmental pillar features 9% of projects starting their implementation, 9% of projects partially implementing and finally 82% of projects fully completed. The social pillar presents 22% of non-implemented practices, 11% of projects approved for implementation, 4% of projects starting their implementation, and finally 63% of projects fully completed.

The percents which are required under the focal company's point of view present the following percents: for the economic pillar a requirement of 13%, for the environmental has (a requirement of) 32% and for the social pillar 29%.

Upon comparing the results obtained by the focal company and by suppliers concluded that, for the selection of practices chosen for this research, the focal company presents a greater amount of practice implemented than those suppliers, at the same time that presents a lesser requirement in all three pillars of sustainable management of the supply chain in relation to the suppliers (Table 1).

Table 1 - The comparative results between suppliers and focal company

Suppliers' general result			Focal company's general result		
1-27% 2-17% 3-11% 4-11% 5-34%			1-18% 2-04% 3-04% 4-03% 5-71%		
economic	envorinmetal	social	economic	envorinmetal	social
1 - 38%	1 - 15%	1 - 28%	1 - 31%	1 - 00%	1 - 22%
2 - 23%	2 - 13%	2 - 16%	2 - 00%	2 - 00%	2 - 11%
3 - 09%	3 - 16%	3 - 07%	3 - 00%	3 - 09%	3 - 04%
4 - 06%	4 - 19%	4 - 08%	4 - 00%	4 - 09%	4 - 00%
5 - 25%	5 - 53%	5 - 41%	5 - 69%	5 - 82%	5 - 63%

Source: Authors, (2017).

As a final analysis of the results obtained with the application of the questionnaire in both focal company as suppliers, it is reached - an index of implementation of sustainability practices for the focal company 71 percent and suppliers have an index of 34% practices implemented.

The second step of analysis was developed with the objective of comparing the results obtained among the supplies chains. With the use of the same questionnaire, it was found that both show similar results, with 34% of practices implemented in the chain of perfumes and 32% in moisturizers (Table 2).

Table 2 - Comparative of the results among the supplies chain

Result- supplies chain perfumes			Result- supplies chain moisturizers		
1-27% 2-17% 3-10% 4-11% 5-34%			1-42% 2-16% 3-12% 4-11% 5-32%		
econômico	ambiental	social	economico	ambiental	social
1 - 37%	1 - 17%	1 - 27%	1 - 45%	1 - 14%	1 - 29%
2 - 25%	2 - 13%	2 - 15%	2 - 17%	2 - 15%	2 - 17%
3 - 07%	3 - 15%	3 - 08%	3 - 10%	3 - 18%	3 - 08%
4 - 06%	4 - 19%	4 - 08%	4 - 05%	4 - 20%	4 - 08%
5 - 24%	5 - 37%	5 - 41%	5 - 23%	5 - 33%	5 - 38%

Source: Authors, (2017).

This result can be justified by the similarity in the level of requirement assigned to suppliers of both chains. As shown in Table 3, it was found 33% to the chain of perfumes and 32% for moisturizers.

Table 3 - Comparative of requirement among supplies chains

Result-requirement – supplies chains - perfume			Result requirement – supplies chains - moisturizers		
33%			32%		
Economic	Environmental	Social	Economic	Environmental	Social
22%	38%	40%	22%	36%	38%

Source: Authors, (2017).

FINAL CONSIDERATIONS

The research showed that both the focal company as provider's members of the supply chain in analysis, realize sustainable practices. However, the focal company presents percentages higher than the suppliers. For all of them, the social practices were the ones that showed a higher rate of implementation, followed by environmental and economic, respectively.

The focal company and suppliers differ in understanding about what practices are considered requirements to form the chain of supplies, which leads to the conclusion that the communication among the organizations is not clear.

However, it was found effort on the part of suppliers to meet the demands of the focal company. One of the reasons that may explain these results are the specialized certificates such as ISO140001 and SA8000. According to Zhu, Sarkis and Lai (2012), many organizations are reluctant to do business with suppliers that do not have systems for management certificates. Thus, the certification is a guarantee that the providers have adequate management systems and that follow standards imposed. On the other hand, it can be concluded that requiring from suppliers environmental and social practices

PROPOSAL FOR AN ANALYSIS MODEL FOR IDENTIFYING SUSTAINABILITY PRACTICES THAT ARE ABLE TO INCREASE THE VALUE IN SUPPLY CHAINS

to continue to be part of the chain of supplies raises the implementation of practices. The analysis by product line proved to be relevant to present different results for the set of suppliers participating in the study.

The analysis developed in the framework of this study favors the scope of a single strategic, cited by Carter and Rodgers (2008) as necessary for the development of a sustainable management of the supply chain. In the same way, it also promotes collaboration and the management of partners, highlighted by Wolf (2011).

Even if Seuring and Müller (2008) believe that the sustainability in supply chain management only exists due to the pressures exerted by different groups, usually external ones, such as a customer, stakeholders and government, this study demonstrated that the pressures exerted by the focal company guide and promote the development of sustainable practices along the supply chain. It is expected that the proposed analysis model can improve the results of individual indicators, resulting in improvement in the overall performance of the company, as mentioned by Hake and Seuring (2009).

Pagell and Wu (2009) denominate sustainable management of supply chain as the integration of sustainability goals in the regular activities of the management of the supply chain. Thus, the analysis did not have succeeded, by means of categories, subcategories and indicators, expressing the sustainable issues considered in the theoretical concept of sustainable management of the supply chain.

The indicators of the Global Reporting Initiative version G4 proved to be useful and enough for the analyzes. However, the analysis showed to be flexible to possible changes of indicators of this or other instruments. As a result, it is believed that this model of analysis has the potential to guide the management of supply chains, leading to the creation of an index that should be disclosed and monitored by the members of the supply chain. Such an index may compose a new indicator analysis, both for the company's members as to the focal company, with systematic and frequent measurements, with their respective targets and monitoring of results.

The limitations of this study refer to the amount of companies participating in each chain of supplies and the participation of only two chains within a single focal enterprise. As a suggestion for future studies, it is suggested the expansion of the sample or the replication of analysis with the aim of testing the model in other productive chains, and even in other focal companies.

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