THE INCIDENCE OF INNOVATION IN CORPORATE SOCIAL RESPONSIBILITY IN THE COMPANIES OF THE ELECTRICAL SECTOR

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ABSTRACT

In a scenario of economic crisis it is common for companies to reduce the volume of social activities and innovation. Companies in the electricity sector are the basis for a country's industries, making this sector one of the most important. Therefore, it is relevant to investigate whether companies in the electricity sector perform innovation, Corporate Social Responsibility (CSR) activities, and CSR actions that can be considered as innovation. The objective of this study was to describe the CSR actions and innovations that matter most to the electric sector companies present in the BM&F Bovespa Corporate Sustainability Index (ISE). A documentary survey was carried out, consisting of the management and sustainability reports, from the years 2013 to 2015, of the 10 companies listed in the ISE in the year 2015. Regarding CSR activities, it can be inferred that promoting art, culture, citizenship, quality of life and generation of income for young people and adults, have programs of inclusive professional training and volunteer programs, matter to the companies surveyed. Regarding the relationship between innovation and CSR, it can be inferred that the implementation of innovations that led to the improvement of social actions, and the elaboration of innovation projects matter to companies, to the detriment of the other researched items. It is suggested that the actions of innovation and CSR are focused primarily on the development of the individual and the interaction with the society in which it is inserted, and this can provide a favorable image of the company for society.

Keywords: Innovation; Corporate Social Responsibility; Innovation in Social Responsibility; Business Sustainability Index.

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A INCIDÊNCIA DA INOVAÇÃO EM RESPONSABILIDADE SOCIAL CORPORATIVA NAS EMPRESAS DO SETOR ELÉTRICO

RESUMO

Em um cenário de crise econômica é comum que empresas diminuam o volume das atividades sociais e de inovação. As empresas do setor elétrico são a base para as indústrias de um país, fazendo com que este setor seja um dos mais importantes. Portanto, torna-se relevante investigar se as empresas do setor elétrico realizam inovação, atividades de Responsabilidade Social Corporativa (RSC), e ações de RSC que podem ser consideradas como inovação. O Objetivo deste estudo foi descrever as ações e inovações em RSC que mais importam para as empresas do setor elétrico presentes no Índice de Sustentabilidade Empresarial (ISE) da BM&F Bovespa. Realizou-se levantamento documental composto pelos relatórios da administração e de sustentabilidade, dos anos de 2013 até 2015, das 10 empresas listadas no ISE no ano de 2015. A respeito das atividades de RSC, pode-se inferir que promover atividades de arte, cultura, cidadania, qualidade de vida e geração de renda para jovens e adultos, possuir programas de capacitação profissional inclusiva e programas de voluntariado, importam para as empresas pesquisadas. Acerca da relação entre inovação e RSC, pode-se inferir que a implementação de inovações que provocaram melhoria das ações sociais, e a elaboração de projetos de inovação importam para as empresas, em detrimento dos demais itens pesquisados. Sugere-se que as ações de inovação e de RSC estão voltadas prioritariamente para o desenvolvimento do indivíduo e da interação com a sociedade em que está inserido, e isso pode proporcionar uma imagem favorável da empresa para a sociedade.

Palavras-chave: Inovação; Responsabilidade Social Corporativa; Inovação em Responsabilidade Social; Índice de Sustentabilidade Empresarial.

1 Introduction

The active permanence of companies in a competitive market requires that their managers seek alternatives for their differentiation. Generally, in times of economic crisis, companies drastically reduce investments in innovation in the short term; on the other hand, this reduction is not uniform, since some companies, despite the adverse macroeconomic environment, increase their investments in innovation, which makes companies that have adopted this strategy better handle the crisis (Archibugi, Filippetti & Frenz, 2013). The achievement of innovation can help business organizations achieve this differentiation, even for a temporary period. The relevance of innovation as a competitive differential is then observed.

The company will succeed to the extent that it can cover a wide range of innovative activities, either alone or in partnership with other companies (Harianto & Pennings 1994). At the firm level, innovation related activities within companies have traditionally been seen as the key drivers of product and service differentiation for solid performance (Liao & Rice, 2010).

Companies have high variation in their rates of creation and adoption of technological and organizational innovations, partly because of their choice of reference group (Massini, Lewin & Greve, 2005). Therefore, studies carried out considering the activity sector are relevant, since their results may contribute to a particular sector of activity.

Although a literature section emphasizes the distinctive features of service innovation, applying innovation concepts developed specifically for services, Schumpeter's original innovation concept is actually broad enough to encompass services and manufacturing (Drejer, 2004).

Another relevant aspect to be considered by companies is the implementation of Social Responsibility (SR) actions. It can be used as one of the strategies for, in addition to staying in this fierce competition market, sustain or increase its profitability, and its evolution over time. It is understood that the level of demand of the consumer increases over time, with the demand, among others, for

the products of companies that carry out socially responsible practices.

CSR can be a competitive differential, which can be seen by image, associations with products or services, customer satisfaction, relationship of internal and external public, as well as favoring the organization with stakeholders (Bertoncello & Chang Júnior, 2007).

According to the Statistical Yearbook for Electric Energy (EPE, 2016), it is possible to present a brief scenario of world energy generation in 2012. Energy was obtained mainly from Fossil Fuels (67,3%), Hydroelectric 16,9%), Nuclear (10,9%), and other renewable (5%, of which: Wind 2,4%, Biomass and Solid Waste 1,8%, Solar 0,4% and Geothermal 0,3%). Electricity generation by region in the world was as follows: Asia and Oceania (40,7%), North America (23%), Europe (16,6%), Eurasia (6,9%), South and Central America (5,5%), the Middle East (4,2%) and Africa (3,2%). Of the total energy generated in the world, the ten largest countries were: China (22,1%), United States (18,8%), India (4,9%), Russia (4,7%), Japan (4,5%), Canada (2,9%), Germany (2,7%), Brazil (2,6%), France (2,5%) and South Korea (2,3%).

Some data on electricity generation in Brazil are highlighted, according to the Statistical Yearbook of Electric Energy (EPE, 2016). Regarding the year 2015, the following sources were generated: Hydraulics (61,9%), Natural Gas (13,7%), Biomass (8,2%), Petroleum products (5,4%), Wind (3,7%), Coal (3,3%), Nuclear (2,5%), and Other (2,4%).

It is considered, therefore, that the generation of energy for a country is of fundamental importance, and that the companies belonging to the electric sector located in Brazil have a relevant position, as it provides, among others, the evolution of the performance of the brazilian industry. Research in the electricity sector is justified because it is a base industry for the others, due to the growing need for environmental sustainability in the generation of energy from clean sources, making it necessary to constantly invest in innovation.

By bringing environmental impacts, the electric sector must maintain social actions that favor the improvement of the conditions of the individual and society. Therefore, this sector can bring over time, reflections to virtually all other sectors of the economy that depends on energy for them to exist, and for the whole society, especially considering the form used for the generation of energy.

Considering the aspects related to innovation and CSR, the following question arises: what actions and innovations in CSR matter most to companies in the electricity sector? This study aims to describe the actions and innovations in CSR that matter most to companies in the electricity sector, present in Corporate Sustainability Index (ISE) the BM&F Bovespa, from 2013 to 2015.

A gap was identified through the CAPES journals portal in the second half of 2016, about the studies involving CSR and innovation, which justifies the study of the concomitant innovation and CSR.

This study is organized in five sections. The first section is composed of this introduction. The second section presents the theoretical platform, which covers some aspects of innovation, Corporate Social Responsibility, as well as the results of some previous studies related to the theme of this research. The third section presents the methodological notes. The fourth section presents the results of the study and the fifth section is composed of the final considerations.

2 Theoretical platform

2.1 Some aspects of innovation

The achievement of innovation becomes important so that companies can gain competitive advantage and differentiate their competitors in a competitive market. Innovation is the specific instrument of entrepreneurial spirit; is the act that contemplates the resources of the company with the new capacity to create wealth generated by innovation (Drucker, 2010, p.39). Innovation is the main result that

companies seek through entrepreneurship, and it is often the source of competitive success, especially in highly competitive and turbulent environments (Perry-Smith & Shalley 2003, apud Hitt, Ireland & Hoskisson, 2008).

Innovations are driven by the ability to establish relationships, detect opportunities and take advantage of them; it can also be affected by the repositioning of the perception of a product or process already established in a context of specific use (Tidd, Bessant & Pavitt, 2008).

The innovation strategy is one of the key drivers of the company's performance and must be developed and implemented as an integral part of the business strategy. Managers must recognize and manage the innovations in order to increase their operational performance. Having a clear understanding of the exact nature of the innovations will help companies prioritize their marketing strategies, production and technology, to be followed by appropriate subsequent action plan (Gunday, Ulusoy, Kilic & Alpkan, 2011). Innovation is a matter of knowledge - creating new possibilities by combining different sets of knowledge. These may come in the form of knowledge about what is technically possible or what configuration may respond to an articulated or latent need (Tidd, Bessant & Pavitt, 2008).

Innovation can be considered as the implementation of a new or significantly improved product, process, organizational and or marketing method (OECD, 2005). For the company to consider that it has made innovation, this need not necessarily be an innovation for the market, but for it. Innovation begins after an invention is chosen for development. Thus, an invention creates something new, while an innovation puts something new into use (Katila & Shane, 2005, apud Hitt, Ireland & Holskisson, 2008).

Innovations can be characterized as (a) product innovations (new or changed goods or services), (b) process innovations (new methods of production and distribution, or significantly improved), (c) organizational innovations organization of the workplace or in the company's external relations), and (d) marketing innovations (new marketing methods, such as significant changes in product design, packaging, product placement, methods of pricing goods and services) (OECD, 2005). Innovation is considered when it is introduced or when it is operated by the company (PINTEC, 2011).

2.2 Some aspects of Social Responsibility (RS) and Corporate Social Responsibility (CSR)

Corporate social responsibility can and should be used as a tool to add value to the company and to the product, modifying the vision of consumers through marketing initiatives, focusing on highlighting the social change created by innovation generated by the product or by the production process (Melo Neto, 2001).

Table 1 presents some definitions of social responsibility. It can be considered that social responsibility is a tool that has as a premise the improvement of the company and community relationship, and also the improvement of the relationship between company and employees.

Table 1: Definitions of Social Responsibility

Autor	Definição
Oliveira (2008, p.69)	"Social responsibility can be seen by the performance dimensions of companies, such as performance in the environmental area, consideration of communities impacted by business activities, respect for employees and their families and transparency in actions."
Zarpelon (2010, p.15)	"It is the responsibility assumed before society, in relation to the generation of jobs, the payment of decent wages, the correct collection of the tax burden, the increase of the quality of life, the accumulation and transfer of technology, or any other factor that may benefits for management and society."

Preston e Post apud Borger (2001, p. 40)	Social responsibility is a function of the management of organizations in the context of public life.
Ashley (2002, p.98)	It can be defined as the commitment that an organization must have towards society, expressed through acts and attitudes that affect it positively; their actions must be proactive and coherent, with respect to their role in society and their accountability to it; assumes moral obligations, in addition to those established by law, even if not directly linked to its activities, but which may contribute to the sustainable development of the community in which it is inserted.

Source: Prepared by the authors.

The definitions presented in Table 1 are complemented by suggesting that social responsibility is the combination of actions that benefit not only the company but also the community, using diverse approaches, be they socio-environmental, payment of living wages, tax burden, increased quality of life, among others. These actions stand out for being proactive and coherent, thus adding benefits for management and for society.

A company involved with social responsibility is able to meet the demands of various parties, and assimilate them to fit their operational and strategic planning to suit everyone, not just owners and shareholders.

Table 2: Classification of Social Responsibility

Classification	Type	Features
Organizational Environment	Internal	It is characterized by the payment of decent wages that promote access to health, food, transportation, housing, education, clothing and leisure, to the zeal for the well-being of employees; the non-approval of forced labor, slave labor or any other form of coercion; and the promotion of a healthy and pleasant work environment, internally to an organization.
	External	It is observed through the development of society, increased employment and purchasing power, favorable policies, improved quality of life and well-being of society, externally to an organization. In this context, social projects are common.
Formality	Formal	It is characterized by documented formalization of actions taken to achieve Management and Social Responsibility, such as certification of a standardized management system, social projects, implementation of laws, applicability and compliance with the legal sphere of laws, besides the education given in Management and Social Responsibility.
	Informal	It is characterized by the gain of society, through debates, information circles, among other forms that allow the dissemination of information and knowledge, normally not strategically planned or formally documented.
Nature	Private	Represented by individuals, usually acting in the informality, or legal (corporate social responsibility) with or without profit, fomenting and transferring development to the society.
	Public	Characterized by the intervention of the State through agencies and offices, with responsibility for drafting, implementing and monitoring laws, in addition to promoting and implementing social projects.
Tangibility	Tangible	It is characterized by measurable factors in order to verify the evolution of Management and Social Responsibility. All tangible factors can give rise to Performance Indicators, such as increased employment, higher purchasing power, educational attainment, life expectancy, and other measurable factors in relation to a society.
	Intangible	It is characterized by non-measurable, intangible and subjective factors, which can evidence the evolution of Social Responsibility in the environment in which it is inserted, such as, for example, a change in the mentality of society.

Source: Zarpelon (2010).

The definitions of social responsibility described in Table 2 classify the theme in terms of organizational environment, formality, nature and tangibility. Their characteristics are somewhat antagonistic in their subdivisions, but complement each other in a global sense, covering a wide range of situations in which social responsibility is applied and how it can be characterized.

Corporate social responsibility is considered as part of a movement of capitalism, being a socially constructed reality with precise objectives, although not designed by individual social actors (Ventura & Vieira, 2006, apud Albuquerque, 2009).

It is also considered as the permanent commitment of entrepreneurs to adopt ethical behavior and contribute to economic development while simultaneously improving the quality of life of their employees and their families, the local community and society as a whole (Melo Neto & Froes, 1999). Table 3 presents some definitions of corporate social responsibility.

Table 3: Definitions of Corporate Social Responsibility

Authors	Definitions
Tinoco (2001) apud Tachizawa (2011)	It should emphasize the impact of business activities on the stakeholders: employees, suppliers, customers, consumers, employees, investors, competitors, government and the community.
Oliveira (2008)	Involve the company's attitudes, actions and relationships with a larger group of stakeholders such as consumers, suppliers, unions and government.
Silva (2008)	It is the obligation of an organization to act in a way that serves both its own interests and the interests of society.
Carroll (1979) apud Barbieri & Cajazeira (2009)	It understands the economic, legal, ethical and discretionary expectations that society has regarding organizations in a given period.
Borger (2001)	Its central idea is that companies must respond to social demands to survive, adapting corporate behavior to social needs.

Source: Prepared by the authors.

Regarding corporate social responsibility, Melo Neto (2001, p.93) comments that:

- Products, services and, above all, the brand gain greater visibility, acceptance and potentiality;
- Customers become proud to buy products from a company with high social responsibility;
- Suppliers feel motivated to work as partners in a company of this nature; and
- Government and civil society become partners of this company in their social enterprises.

It is considered that there is no consensual definition of what CSR is; many people associate corporate social responsibility with typical social or environmental projects implemented by companies that we see in advertisements, such as building a day care center for the community, among others (Oliveira, 2008, p.69).

2.3 Previous studies

A study was carried out in the journal portal of the Coordination of Improvement of Higher Level Personnel (CAPES) in the second half of 2016, in order to identify published studies in scientific journals, annals of events, dissertations and theses, which have a relation with the theme proposed in the present study. A gap was observed about studies that deal with CSR innovation in companies. The studies that are closest to the research theme are presented in Table 4.

Table 4: Synthesis of related studies

Authors (year)	Objective	Method	Main results
Bertoncello & Chang Júnior (2007)	Verify that the Social Responsibility Practice can bring benefits of differentiation.	Theoretical test.	CSR has been an increasingly important issue in the behavior of organizations and has had an impact on corporate goals and strategies.
Barbosa (2007)	To verify the existence of alignment of the practices of social responsibility with the theoretical reference on the subject, and if it influences the creation of value for the investor.	Case study; documentary research with secondary data survey and semi-structured interview.	The company applies practices of social and environmental responsibility aligned with the theoretical foundation; the influence on value creation, although perceived by the company, was not verified.
Cardona (2011)	Identify existing links between innovation in companies and social responsibility.	Literature revision.	The working conditions of those responsible for innovations are similar to those responsible for social responsibility; the social impact of innovation and the effects of innovation go beyond economic results.
Tomiello & Guivant (2012)	Understanding CSR in light of the theory of ecological modernization.	Research of the Producers' Club program, held in Brazil by Walmart and in Portugal by Group Sonae.	In Portugal, consumers create pressure that keeps producers competitive and, as a consequence, the environmental side drives product and process innovation; in Brazil, producers are not encouraged by consumers because of the low consumption of sustainable products.
Lisboa, Matos & Góis (2013)	Investigate the relationship between the characteristics of the board of directors and the level of disclosure of information about CSR.	Linear regression; data collected from companies with values quoted on the official stock market of the Lisbon Stock Exchange.	The empirical evidence found suggests that the characteristics of the board of directors have a relatively weak influence on the level of disclosure of CSR.
Oliveira, Oliveira, Silva & Barbosa (2015)	To verify the evolution of the environmental disclosure of the companies present in the Corporate Sustainability Index (ISE).	Research in 14 companies listed in the ISE, adopters of the IBASE model of Social Balance.	Although many companies act in favor of preserving the environment, their investments did not show an increase in the percentage of environmental indicators in relation to net revenue.

Source: Prepared by the authors.

The study of Bertoncello & Chang Junior (2007) had as its proposal to present a theoretical essay on the understanding of Social Responsibility and whether this practice can bring benefits of differentiation. The main results of the study point out that the increasing complexity of business, the advancement of new technologies and the increase of productivity have led to a significant increase in competitiveness between companies and, therefore, tend to invest more in management processes, to obtain competitive differentials. For companies, social responsibility can be seen as an additional strategy to maintain or increase their profitability and boost their development. This is explained by greater consumer awareness, which seeks products and practices that generate improvement for the environment and the community. Since corporate social responsibility has become an increasingly important issue in the behavior of organizations and has had an impact on corporate goals and strategies.

Barbosa (2007) aimed to verify the alignment of social responsibility practices

with the theoretical framework presented in his work, analyzing whether what is carried out and declared by the companies, corresponds to the social responsibility sustained by theory, and is influenced the creation of value for the investor, offering a benchmark for the improvement of the organizational management. In order to carry out the work, a case study on the company Petróleo Brasileiro S.A. (Petrobras) was carried out, according to the author, due to the expressiveness and representativeness of the same in the Brazilian and international scene. For the collection of data, a documentary research was carried out on Petrobras and its actions of social and environmental responsibility, aiming at the collection of secondary data. We also used the individual semi-structured interview technique, based on a pre-defined script. The results obtained through the analysis of the evidence indicated that the company applies practices of social and environmental responsibility, which are in line with the theoretical foundation of the research, but whose influence on the creation of value, although perceived by the company, can not be verified in this search.

Cardona (2011) proposed to find the links between innovation in companies and social responsibility through four categories that relate them: disruptive innovation, organizational innovation, the relationship between innovation and entrepreneurship and social innovation, highlighting mainly the social impact of innovation in the low-income population. The main results of the article describe that the working conditions found in the working groups responsible for innovations are similar to the conditions of those working groups responsible for social responsibility. Multinational companies present products to countries with less demanding markets and take advantage of these new markets as a source of innovation, discovering new possibilities where they could have a positive impact on their capacity for innovation. In order to achieve the goal in these countries there is a need for great pluralism,

alliances between groups, often antagonistic, both economically and politically.

Tomiello & Guivant (2012) aimed to understand CSR in light of the theory of ecological modernization, which emphasizes the importance of environmental issues in the modernization process. Through a research of a program called Producers' Club the productive chain is encouraged to adopt sustainable and responsible practices, aiming to strengthen small and medium producers through structured actions, forming, training and inspecting them to stimulate quality, innovation and increased productivity. The study was conducted in parallel in Brazil by Walmart and in Portugal by a distribution network called Group Sonae. The main results in the two countries were quite divergent, and in Brazil the producers do not feel stimulated by the consumers by the low consumption of sustainable products; already in Portugal consumers create a pressure that keeps the producers competitive and, as a consequence, the environmental side drives the innovation of products and processes, whose benefits extend to the health of individuals and to the care of nature. Accustomed to meeting the rigor of the European Union, producers have as one of the focal points to conciliate tradition and modernity through products and services accepted by different generations and new manufacturing processes that strive for a balance between technology, craftsmanship and environmental preservation.

Based on data collected between September 2011 and January 2012, companies with listed securities in the official stock market of the Lisbon Stock Exchange, Matos & Góis (2013) aimed at investigating the relationship between the characteristics of the board of directors of companies and the level of disclosure of information about CSR by companies with listed securities on the Lisbon Stock Exchange. At the time of the investigation, the authors used the level of CSR disclosure practices, as a dependent variable, and the main characteristics associated with corporate governance, as

explanatory variables. The empirical results obtained from the study showed that the proportion of non-executive directors on the board is the most influential feature of CSR disclosure practices. The characteristics related to the independence of directors or the duality of power in the Board of Directors did not confirm the initial predictions of influence on the level of disclosure of CSR. In general terms, the empirical evidence found suggests that the characteristics of the board of directors have a relatively weak influence on the level of disclosure of CSR.

Oliveira, Oliveira, Silva & Barbosa (2015) developed a study with the objective of verifying the evolution of the environmental disclosure of companies belonging to the Corporate Sustainability Index (ISE), based on the environmental indicators proposed by the Brazilian Institute of Social and Economic Analysis (IBASE). The survey was carried out in 14 companies listed in the ISE, adopters of the IBASE model of Social Balance for the years 2009 to 2013. The main results indicate that the company that invested the most in internal indicators was CESP, and in external investments, which presented the highest percentage was TRACTEBEL; the most important branch of activity was Electric Power; in the sustainability reports, only Bank of Brazil and CESP showed the expenses related to each resource allocation; although many companies act in favor of preserving the environment in which they are inserted, their investments did not show an increase in the percentage of environmental indicators in relation to net revenue.

3 Methodological notes

This study initially carried out the bibliographic study (Beuren, 2006), with the purpose of elaborating the construction of some relevant aspects about innovation and CSR, as well as presenting results of previous studies that are related to the theme of this proposal of research, not for the purpose of exhausting the content and discussing it, but with the purpose of clarifying the topic to be discussed, for the proper understanding of its results. At this stage the existing literature, as well as national and international scientific articles were searched.

Subsequently, a documentary survey (Beuren, 2006) of the management reports (for being an instrument for the dissemination of the company's information) for the years 2013, 2014 and 2015 of the companies in the electric sector present in the Corporate Sustainability Index (ISE) of BM&F Bovespa, in the year 2015, in order to observe the existence of information about the realization of innovation, CSR actions carried out, and CSR actions that can be considered as innovation. This study can be characterized, according to its objectives, as descriptive (Gil, 2010), with a qualitative approach (Beuren, 2006).

A survey was carried out on BM&F Bovespa website to identify companies in the electricity sector that are part of the Corporate Sustainability Index (ISE) in the base year 2015 (published in 2016), considering that these companies carry out CSR actions. Ten companies were identified: AES Tietê, Eletrobrás, Eletropaulo, Energias BR, Light, CEMIG, CESP, COPEL, CPFL and Engie Brasil. The management and sustainability reports for the years 2013, 2014 and 2015 of these companies were investigated.

In relation to innovation, the incidence of innovation was verified, that is, if the reports indicated that the company had made some innovation. Regarding the incidence of CSR, the aspects listed in Table 5 were investigated.

Table 5: Inquired items about innovation

Items	Yes	Not
Does the company seek to elect suppliers who have sustainability practices?		
Does the company have a corporate social responsibility management system?		
Does it follow external standards and standards (ISO 26.000 or AA 1.000)?		
Promotes art, culture, citizenship, quality of life and income generation activities for young people and adults?		
Do you have a volunteer program?		
Do you have inclusive professional development programs?		
Looking for new sources of energy?		
Do you have process improvement initiatives (management methods and quality tools)?		

Source: Prepared by the authors.

Regarding the incidence of the relationship between innovation and CSR, the items presented in Table 6 were investigated.

Table 6: Investigated items on the relationship between innovation and CSR

Itens	Yes	Not
Does it promote an organizational culture of incentive to innovation?		
Has it implemented innovations that have led to increased quality?		
Has it implemented innovations that caused costs to be reduced?		
Has it implemented innovations that have reduced environmental impacts?		
Has it implemented innovations that have led to improved social actions?		
Is there a dissemination of the concept and innovation strategy in the value chain (including suppliers)?		
Did you design innovation projects?		
Did you participate in any competition of ranking of innovative companies and was considered as one of the most innovative in Brazil?		

Source: Prepared by the authors.

The tabulation of the results presents the average of the period of each company and the average of the sector for the period of 2013 to 2015, in relation to each item used in the research, and are presented in section 4. The analysis of the documentary data was performed through the identification in the management and sustainability reports of the items in Tables 5 and 6, and the analysis of absolute and relative frequency in percentage.

A limitation of the research can be considered in relation to the questions used in Tables 5 and 6, since they were considered for application in the present study, and there was no validation or testing of this instrument prior to its use.

4 Results of the study

The management and sustainability reports from the years 2013 to 2015, made available by the companies, were investigated to verify some aspects related to Corporate Social Responsibility. It was considered the realization or not of a certain aspect of CSR. Table 7 shows the CSR aspects performed by the companies, in percentage, considering the period from 2013 to 2015.

Table 7: Aspects of Corporate Social Responsibility - 2013 to 2015

Aspects of CSR	AES Tietê	Eletrobrás	Eletropaulo	Energias BR	LIGHT	CEMIG	CESP	COPEL	CPFL	Engie Brasil	AVERAGE
Does the company seek to elect suppliers who have sustainability practices?	67%	100%	100%	100%	100%	100%	100%	100%	0%	100%	**87%**
Does the company have a corporate social responsibility management system?	100%	100%	100%	33%	0%	0%	100%	33%	0%	100%	**57%**
Does it follow external standards and standards (ISO 26.000 or AA 1.000)?	100%	67%	100%	100%	33%	0%	0%	67%	100%	0%	**57%**
Promotes art, culture, citizenship, quality of life and income generation activities for young people and adults?	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**100%**
Do you have a volunteer program?	33%	100%	100%	100%	33%	100%	100%	100%	100%	100%	**87%**
Do you have inclusive professional development programs?	33%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**93%**
Looking for new sources of energy?	33%	100%	100%	100%	100%	67%	0%	100%	100%	100%	**80%**
Do you have process improvement initiatives (management methods and quality tools)?	33%	100%	100%	100%	67%	100%	100%	100%	67%	0%	**77%**
Average	*63%*	*96%*	*100%*	*92%*	*67%*	*71%*	*75%*	*88%*	*71%*	*75%*	*80%*

Source: Research data.

Based on Table 7, considering the average performance of a particular aspect by the companies, it can be highlighted that the item "Promotes activities of art, culture, citizenship, quality of life and income generation for youth and adults" was carried out by all companies surveyed during the period considered. On the other hand, the items "The company has a corporate social responsibility management system" and "Follow external norms and standards (ISO 26.000 or AA 1.000)" were pointed out as the least performed.

By analyzing by company, it can be verified that Eletropaulo was the only company that performs 100% of the aspects analyzed, followed by Eletrobrás (96%) and Energias BR (92%). The companies with the lowest averages were: AES Tietê (63%) and Light (67%).

The aspects with the lowest percentages, in relation to AES Tietê were: "to have a voluntary program - 33%", "search for new sources of energy -

33%", and "has initiatives to improve processes - and quality tools - 33%". It is therefore considered for this company the need to intensify these aspects for the coming periods.

According to Light, the lowest percentages were for the following aspects: "the company has a corporate social responsibility management system - 0%", "follows external standards and standards (ISO 26.000 or AA 1.000) - 33%", and "Have a volunteer program - 33%".

According to the results presented in Table 7, it can be suggested that companies are interested in developing CSR activities and presenting them in their management and sustainability reports. This practice can bring benefits of differentiation, corroborating with the results of the study by Bertoncello & Chang Júnior (2007). Table 8 presents the aspects of the relationship between Innovation and Corporate Social Responsibility for the period from 2013 to 2015.

Table 8: Aspects of the relationship between Innovation and CSR -2013 to 2015

Aspects of the relationship between Innovation and CSR	AES Tietê	Eletrobrás	Eletropaulo	Energias BR	LIGHT	CEMIG	CESP	COPEL	CPFL	Engie Brasil	AVERAGE
Does it promote an organizational culture of incentive to innovation?	100%	67%	100%	100%	33%	100%	0%	100%	67%	0%	**67%**
Has it implemented innovations that have led to increased quality?	67%	100%	100%	100%	100%	100%	0%	100%	33%	0%	**70%**
Has it implemented innovations that caused costs to be reduced?	67%	100%	100%	100%	67%	67%	0%	67%	0%	0%	**57%**
Has it implemented innovations that have reduced environmental impacts?	33%	100%	100%	100%	33%	100%	0%	100%	100%	0%	**67%**
Has it implemented innovations that have led to improved social actions?	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	**90%**
Is there a dissemination of the concept and innovation strategy in the value chain (including suppliers)?	67%	0%	100%	100%	0%	100%	100%	100%	0%	100%	**67%**
Did you design innovation projects?	67%	100%	100%	100%	100%	100%	100%	100%	0%	33%	**80%**
Did you participate in any competition of ranking of innovative companies and was considered as one of the most innovative in Brazil?	100%	33%	100%	67%	33%	100%	0%	0%	100%	67%	**60%**
Average	**75%**	**75%**	**100%**	**96%**	**58%**	**96%**	**38%**	**83%**	**50%**	**25%**	**70%**

Source: Research data.

Analyzing the results presented in Table 8, in relation to the average of the companies of a given item, it is possible to emphasize that those most pointed out by the companies in the reports were "implemented innovations that caused social actions" (90%) and "Elaborated innovation projects" (80%). On the other hand, the items that were less pointed out are: "implemented innovations that caused cost reduction" (57%), and "participated in some competition for the ranking of innovative companies" (60%).

Analyzing by company, it is observed that Eletropaulo was the only company that presented 100% of the items in its reports, also note the companies Energias BR and CEMIG, both with 96%. Engie Brasil (25%) and CESP (38%) had the least information about the relationship between innovation and CSR.

It is suggested that most of the companies surveyed carried out innovation activities in CSR, and this may bring favorable results for the company, corroborating with the study by Cardona (2011) and Tomiello & Guivant (2012). Table 9 shows the absolute, relative and relative frequency in % of companies in the studied period.

Table 9: Aspects of CSR - Absolute, relative and relative frequency in %

Aspects of CSR		2013	2014	2015	2013 to 2015
AES Tietê	Sample size	8	8	8	24
	Absolute Frequency	6	6	3	15
	Relative Frequency	0,75	0,75	0,375	0,625
	Relative Frequency %	75,0%	75,0%	37,5%	62,5%
Eletrobrás	Sample size	8	8	8	24
	Absolute Frequency	8	8	7	23
	Relative Frequency	1	1	0,875	0,958
	Relative Frequency %	100,0%	100,0%	87,5%	95,8%
Eletropaulo	Sample size	8	8	8	24
	Absolute Frequency	8	8	8	24
	Relative Frequency	1	1	1	1
	Relative Frequency %	100,0%	100,0%	100,0%	100,0%
Energias BR	Sample size	8	8	8	24
	Absolute Frequency	7	7	8	22
	Relative Frequency	0,875	0,875	1	0,917
	Relative Frequency %	87,5%	87,5%	100,0%	91,7%
LIGHT	Sample size	8	8	8	24
	Absolute Frequency	7	5	4	16
	Relative Frequency	0,875	0,625	0,5	0,667
	Relative Frequency %	87,5%	62,5%	50,0%	66,7%
CEMIG	Sample size	8	8	8	24
	Absolute Frequency	6	6	5	17
	Relative Frequency	0,75	0,75	0,625	0,708
	Relative Frequency %	75,0%	75,0%	62,5%	70,8%
CESP	Sample size	8	8	8	24
	Absolute Frequency	6	6	6	18
	Relative Frequency	0,75	0,75	0,75	0,75
	Relative Frequency %	75,0%	75,0%	75,0%	75,0%
COPEL	Sample size	8	8	8	24
	Absolute Frequency	6	7	8	21
	Relative Frequency	0,75	0,875	1	0,875
	Relative Frequency %	75,0%	87,5%	100,0%	87,5%
CPFL	Sample size	8	8	8	24
	Absolute Frequency	5	6	6	17
	Relative Frequency	0,625	0,75	0,75	0,708
	Relative Frequency %	62,5%	75,0%	75,0%	70,8%
ENGIE Brasil	Sample size	8	8	8	24
	Absolute Frequency	6	6	6	18
	Relative Frequency	0,75	0,75	0,75	0,75
	Relative Frequency %	75,0%	75,0%	75,0%	75,0%

Source: Research data.

Analyzing the results of Table 9, it can be seen that the lowest relative frequencies of the period from 2013 to 2015 were from AES Tietê (62,5%), with emphasis on the relative frequency of 2015 (37,5%), and Light (66,7%), which had a decrease in their relative frequency over the period analyzed. It can be inferred that the companies with less relative frequency were the ones that showed least in their reports CSR actions.

On the other hand, Eletropaulo (100%), Eletrobrás (95,8%) and Energias BR (91,7%) had the highest relative frequencies in the analyzed period. COPEL also stands out because it presents an increase in the relative frequency over the analyzed period, unlike Light, which presented a decrease in the years surveyed. Table 10 shows the absolute, relative and relative frequency in% of the aspects of the relationship between innovation and CSR.

Table 10: Relation between innovation and CSR - absolute, relative and relative frequency in %

Aspects of the and CSR	Relationship between Innovation	2013	2014	2015	2013 to 2015
AES Tietê	Sample size	8	8	8	24
	Absolute Frequency	8	7	3	18
	Relative Frequency	1	0,875	0,375	0,75
	Relative Frequency %	100,0%	87,5%	37,5%	75,0%
Eletrobrás	Sample size	8	8	8	24
	Absolute Frequency	7	5	6	18
	Relative Frequency	0,875	0,625	0,75	0,75
	Relative Frequency %	87,5%	62,5%	75,0%	75,0%
Eletropaulo	Sample size	8	8	8	24
	Absolute Frequency	8	8	8	24
	Relative Frequency	1	1	1	1
	Relative Frequency %	100,0%	100,0%	100,0%	100,0%
Energias BR	Sample size	8	8	8	24
	Absolute Frequency	8	8	7	23
	Relative Frequency	1	1	0,875	0,958
	Relative Frequency %	100,0%	100,0%	87,5%	95,8%
LIGHT	Sample size	8	8	8	24
	Absolute Frequency	6	4	4	14
	Relative Frequency	0,75	0,5	0,5	0,583
	Relative Frequency %	75,0%	50,0%	50,0%	58,3%
CEMIG	Sample size	8	8	8	24
	Absolute Frequency	8	8	7	23
	Relative Frequency	1	1	0,875	0,958
	Relative Frequency %	100,0%	100,0%	87,5%	95,8%
CESP	Sample size	8	8	8	24
	Absolute Frequency	3	3	3	9
	Relative Frequency	0,375	0,375	0,375	0,375
	Relative Frequency %	37,5%	37,5%	37,5%	37,5%
COPEL	Sample size	8	8	8	24
	Absolute Frequency	7	6	7	20
	Relative Frequency	0,875	0,75	0,875	0,833
	Relative Frequency %	87,5%	75,0%	87,5%	83,3%
CPFL	Sample size	8	8	8	24
	Absolute Frequency	4	4	4	12
	Relative Frequency	0,5	0,5	0,5	0,5
	Relative Frequency %	50,0%	50,0%	50,0%	50,0%
ENGIE Brasil	Sample size	8	8	8	24
	Absolute Frequency	1	3	2	6
	Relative Frequency	0,125	0,375	0,25	0,25
	Relative Frequency %	12,5%	37,5%	25,0%	25,0%

Source: Research data.

In the results indicated by Table 10, one can identify that the highest relative frequencies of the analyzed period were the companies Eletropaulo (100%), Energias BR and CEMIG (both with 95,8%). It can be inferred that the companies with the highest relative frequencies were those that most presented in their reports aspects of the relationship between innovation and CSR.

On the other hand, the companies with the lowest relative frequencies were the following: Engie Brazil (25%) and CESP (37,5%). Also noteworthy is the decrease in the relative frequency, in the analysis period, of AES Tietê and Eletrobrás.

5 Final considerations

Considering the objective of describing the actions and innovations in CSR that matter most to companies in the electric sector, present in the Corporate Sustainability Index (ISE) of BM&F

Bovespa, the management and sustainability reports were investigated in 2013 to 2015, it was possible to highlight some relevant aspects about innovation and CSR.

Regarding the CSR activities presented in the management or sustainability reports of the companies surveyed, during the period from 2013 to 2015, the items "the company has a CSR management system" and "follows external norms and standards (ISO 26.000 or AA 1.000)" presented the lowest averages, compared with the other aspects.

It can be inferred that having a CSR management system and following external norms and standards are aspects of lesser relevance for the companies surveyed, to the detriment of the other aspects presented. It is understood that the companies surveyed should give more importance to the CSR management system, since it is an important instrument that will provide planning and control of CSR activities, and, thus, contribute to the decision making process about the best CSR activities that companies should carry out, and, consequently, to disclose in their management and sustainability reports. This may attract potential investors seeking to make their investments in companies that properly perform and disclose their CSR actions.

Still on the aspects about CSR, it can be inferred that promoting art, culture, citizenship, quality of life and income generation for youth and adults, as well as having programs of inclusive professional training and having volunteer programs, the companies surveyed, to the detriment of other aspects, during the period studied. This shows that companies are worried about developing CSR activities aimed at the individual's development and their interaction with society; it is considered that these aspects may provide, besides the benefits to those assisted by the respective activities, a favorable image of the company.

Regarding the aspects of the relationship between innovation and CSR, the items "implemented innovations that caused costs reduction", "participated in some competition of ranking of innovative companies", "dissemination of innovation concept and strategy in the value chain", "promotes an organizational culture of incentive to innovation", and "implementation of innovations that caused reduction of environmental impacts" were the aspects that presented the smallest means in the analyzed period.

Regarding innovation in CSR, it can be inferred that implementing innovations that reduce costs, participating in the ranking of innovative companies, disseminating the concept of innovation strategies in the value chain, promoting organizational culture to encourage innovation and implementing innovations that reduce the environmental impacts, were the items that mattered least to the companies surveyed. This demonstrates that such actions should be encouraged by companies, as they may have an impact on the financial performance, the organizational structure focused on innovation in CSR and on the image related to their environmental concern.

It is worth noting that the implementation of innovations that led to the improvement of social actions and the development of innovation projects were the items that matter most to the companies surveyed, to the detriment of the other items surveyed, since they presented the highest averages in the period studied.

Regarding the limitations of the study, we can mention the analyzed period (2013 to 2015), the companies of a certain sector (electric) and the items selected for the research. As recommendations for future studies, it is recommended to add the idea of expanding the sample with the CSR calculation of company innovations, even from different sectors, so that new (especially multivariate) statistical analyzes can be conducted in the future in order to to have results for the confirmation of hypotheses of relations.

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