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Management for sustainability: An analysis of the key practices according to the business size

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ABSTRACT

The mining sector has many challenges with regard to the incorporation of sustainability in the strategies and operations of the industry, given its extractive nature and the numerous social and environmental impacts related to this productive activity. Therefore, this study aims to analyze the relationship between the management practices for sustainability and business performance, according to the size of companies in the Brazilian mining sector. The study of descriptive and quantitative nature was conducted through a survey with companies associated with the Brazilian Mining Association (IBRAM). The main results show that larger companies indicate higher levels of adoption of management practices for sustainability and business performance. The correlation analysis also allowed us to verify that the number of associations between the management practices for sustainability and business performance is higher in larger companies. Thus, the central hypothesis proposed that the *adoption of management practices for sustainability and business performance differs according to the size of companies in the mining sector*, was corroborated, as we found significant differences in the behavior of companies, according to their size, with regard to the management practices for sustainability and business performance.

1. Introduction

The management for sustainability has as its premise the incorporation of aspects relating to the sustainable development in the strategy and operations of organizations, representing an emerging challenge for companies. Lacy et al. (2010) point out that management practices and sustainable products are opening new markets and sources of demand, bringing the need for new business models and sources of innovation, which alter the cost structure of the industry, so that sustainability permeates from corporate strategy to the set of operations of the company.

In addition, Aligleri et al. (2009) emphasize that a company committed to the future and to sustainability is the one that has a business model that evaluates the consequences and impacts of its actions and contemplates social and environmental aspects in its financial vision.

The challenge of a management that integrates economic, social and environmental aspects in a consolidated and strategic manner is increasingly more common in the business environment and highlights the organization's concern about the future, representing a long-term investment.

Society and stakeholders have been increasingly valuing companies that adopt an engaged position with the principles of sustainable development and requiring transparency about the corporate behavior.

The mining sector has many challenges with regard to the incorporation of sustainability in the strategies and operations of the industry, given its extractive nature and the numerous social and environmental impacts related to this productive activity.

A corporate social responsibility agenda for the mining sector stems from the growing need of companies in the industry to justify their existence and demonstrate their performance through the disclosure of their social and environmental actions (Jenkins and Yakovleva, 2006). Since the mining sector is essential to a number of other industries and due to its extractive nature, a sustainability-oriented management that aims at minimizing the social and environmental impacts related to this productive activity becomes a primary factor for their survival and competitiveness.

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Tonelli et al. (2013), defend the need for a new industrial system in the future that would be less homogenous with different business models and different relationships, creating different products and services – requiring new strategies, frameworks, and tools.

Sustainable business models incorporate a triple bottom line approach and consider a wide range of interests of stakeholders, including the environment and society, are important elements in the conduct and implementation of innovation for sustainability, contributing to the incorporation of sustainability purposes and business processes, and serve as a key factor in achieving competitive advantage (Bocken et al., 2014).

It can be seen that several studies have sought to associate size to entrepreneurial behavior (Collins et al., 2007, Corner, 2001, Greve, 2008). Some studies suggest that the business size has a significant effect on the degree of proactivity when it comes to the adoption of sustainable practices, where large organizations are more likely to adopt proactive environmental practices (Aragón-Correa, 1998; Buysse and Verbeke, 2003).

Therefore, given the economic representativeness of the Brazilian mining industry, the challenges related to the adoption of management for sustainability, and the effect of the business size in relation to the degree of proactivity regarding the adoption of sustainable practices, this study seeks to understand: *how the adoption of management practices for sustainability and business performance differs according to the size of companies in the Brazilian mining sector?* To answer this question, this study aims to analyze the adoption of management practices for sustainability, the business performance and the relationship with the size of companies in the Brazilian mining sector.

This study is structured in four sections, in addition to this introduction. Section one corresponds to the bibliographic references and section two covers the methodological procedures of the study. Subsequently, the analysis and discussion of results and the final remarks of the study are presented.

2. Impacts from the management for sustainability

The discussion about sustainable development in the business context represents a relatively new issue, introduced in the 80s, and that has been changing the relationship between the company and the environment. The analysis of the thinking of ecologists and economists, in relation to the subject, leads to the understanding that conventional economic theories cannot guide the future, since they never considered the impact of natural capital. Industries have benefited historically from natural capital, destroying it, and the current industrial system is based on archaic accounting principles (Park, 2008).

In the last ten years, the world's industrial production has increased more than 100-fold and the expected is that the global industrial system is to double its output using 50% of current resources and generating 20% of current CO_2. Thus, the industrial system will be central to the world economy through the coming century, and this will only be feasible through a very different Industrial sustainability 'low-carbon, resource-efficient' approach (Tonelli et al., 2013).

Barbieri et al. (2010) state that companies have joined the sustainable development movement initially due to external pressures, in response to the criticisms and objections from governmental entities and the organized civil society that blamed companies for the processes of social and environmental degradation that affected the planet, and it recently represents a factor of business competitiveness and may be a source of differentiation or qualification to remain on the market.

According to Savitz and Weber (2007, p. 2), a "sustainable company is the one that generates profit for its shareholders, while protecting the environment and improving the lives of people with whom it interacts."

Based on the concept of sustainable organization, the challenge consists in combining economic welfare, social equity and environmental protection based on long-term actions. The integration between the economic, social and environmental dimensions results in a new productive paradigm, from the perspective of sustainable development, emphasizing the sustainability of processes and products, allowing a better quality of life to people from their environment (Daroit and Nascimento, 2004).

The dimensions of sustainability are intrinsic in the concept of sustainable company and are represented from the Triple Bottom Line, which became known in the business environment after the publication of the book *Cannibals with Forks*: *The Triple Bottom Line of 21st-Century Business* in 1997.

The three dimensions of sustainability, commonly referred to as the triple bottom line, should be integrated in a way that, in the environmental sphere, natural resources are used so as not to harm future generations, reducing the impacts from the action of industries. In the economic perspective, it is necessary to preserve the company's profitability rather than compromising its economic development. And finally, in the social sphere, which includes the issue of social justice, the ultimate goal is the development of a fairer world through relationships with all stakeholders (Elkington, 2001).

The premise of the management for sustainability based on the economic, social and environmental dimensions is to enable gains for the company, society and environment. Aligleri (2011, p. 24) defines sustainable management as "a business approach that considers the pattern of organization of ecosystems in the decision-making processes and management practices covering assessment indicators in the economic, environmental and social dimensions."

According to Barbieri and Cajazeira (2009), sustainable management is regulated by a few instruments that facilitate and contribute to the integration of sustainability into business strategy in order to guide the implementation and maintenance of management systems, programs and activities, as well how to ensure a transparent communication with stakeholders and compatibility between the management systems.

According to Holton et al. (2010), the management for sustainability is deemed critical for the development of corporate sustainability, being essentially related to change and organizational development strategy. In this sense, Dunphy et al. (2003) emphasize that the management for sustainability is related to the strategic organizational development, change in the management structure, systems and skills and the availability of a growing number of tools and guidance documents, aiming to help companies implement management for sustainability.

Next, we will address aspects related to sustainability in the mining industry, in order to discuss the specifics features that affect the mining sector in the adoption of a sustainable management.

2.1. Management practices for sustainability in the mining industry

In the mining industry, the incorporation of management practices for sustainability seeks to minimize the environmental impacts related to this productive activity. According to Hilson and Murck (2000), sustainable development in the mining sector requires a commitment to the continuous environmental and socioeconomic improvement at the stages of exploration, operation and completion of activities. In addition to the legal instruments, there are also market inducing mechanisms that have favorably contributed for large mining companies to assume a greater commitment to sustainable development, such as: shares of mining companies on stock exchanges, voluntary and communication such