Organizational performance and adoption of sustainable practices in the agribusiness industry

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Abstract

Agriculture contributes greatly to the Brazilian economy, especially to grain production and export. This study shows that the adoption of sustainable practices by multimodal cargo terminals in intended to comply with regulations and legal requirements. Furthermore, sustainable actions might be related to company performance, although this topic needs to be explored further.

Keywords: sustainability, performance, multimodal terminals.

Introduction

One of the most predominant sectors of the Brazilian economy today is agriculture, especially the production and export of grain. Logistics gains great national importance in terms of transporting crops produced in each region of the country, moving them to ports and multimodal terminals so that they can be sent to different sales destinations.

The aim of this study is to observe the implications in organizational performance linked to the logistics of grain transport, specifically multimodal cargo terminals, as a result of the adoption of sustainable practices. The methodology adopted is exploratory and descriptive, so as to facilitate the construction of hypotheses and improve familiarity with the subject (Gil, 1991).

The paper begins with a theoretical understanding of the variables related to sustainable practices, which, presumptively, influence organizational performance. Then, the data collected from the survey of a sample of 33 cargo terminals in Brazil is presented; along with characterizing the sample, the data reflect the perceptions of the respondents with regard to the identified variables. Finally, the data analysis is presented, suggesting the occurrence of changes in the performance of organizations that adopt sustainable practices.
Sustainable practices as a strategy for sustainable performance

It is natural to immediately associate the search for best performance in an organization with the implementation of strategies, or rather, with the process of turning intentions into actions. The process of strategy formulation, although extensively studied, is most often confronted with the problem of “how to” and not “what to” do (Hrebiniak and Joyce, 2001; Mintzberg, 1994; Pfeffer and Sutton, 2006). Generally, managers spend considerable time creating scenario analyses and formulating projections of optimal strategies, without concentrating their efforts in putting the strategy into action (Pfeffer and Sutton, 2006). According to Murphy (2007), creating a strategy for an organization is important, but maintaining it is what is more essential.

Weick and Roberts (1993) highlight that the competitive edge that reflects the superior performance of an organization is not presented as a result of the strategy itself, but as a result of “how” it was implemented, necessitating the understanding of activities in terms of “what people do,” how they interact, as well as what influences their own behavior. For Whittington (1996), when the strategy is presented as one of the functions in the management of organizations, it is shaped by a mixture of instinct, routine, analyses, spontaneity, mistakes, and luck.

In a broader analysis of the concept of strategy, Pettigrew (1977) defined it as comprising of a set of events, values, and actions that develop as a result of the context in question. This context specifically involves the positioning of the strategy over time, the culture of the organization, the environment for actions with regard to change and stability, the structure and activity of the organization focused on technology and, finally, the organization of the company in terms of leadership and internal policies. In consideration of these aspects, analyses are formed at various levels, such as micro (daily activities), meso (company culture and leadership systems used), and macro (relating to environmental activity), which are located and interrelated as they compose the contexts of the company.

Thus, we believe that the practices adopted by the company have a significant influence on organizational results, illustrating that good performance is not necessarily linked to excessive rationalization with regard to plans. The implementation of appropriate strategies may even be the result of unilateral actions in the company, developed in parallel with the core strategies of the organization (Barley, 1986).

On the other hand, when we associate sustainable practices with superior performance—or competitive advantage—new dimensions beyond economic advantage should be observed. Diniz (2011) states, as expressed in the Brundtland Report, that the classic definition of sustainability would be “development that meets the present needs without compromising the ability of future generations to meet their own needs” (World Commission, 1987). According to Diniz (2011), this idea has been discussed moderately, without defending “preservation at any cost”; however, criteria to offer guidance for decision-making concerning this topic are needed (Krugman, 1995).

Several studies have demonstrated the contribution generated by the balance between social, economic, and ecological factors derived from Brazilian companies that choose to adopt sustainable practices in their processes, since these serve not only their direct but also their indirect stakeholders, investing in maintaining their ability to serve them in the future (Gonçalves et al., 2012; Pimenta and Gouvinhas, 2012; Cunha et al., 2011; Demajorovic et al., 2011; Brito and Berardi, 2010; Benedetti et al., 2009; inter alia). A possible generic strategy is to make its environmental, social, and economic capital grow without ceasing to contribute to the
sustainability of the public domain (Dyllick and Hockerts, 2002). To put the strategy into action, one good alternative lies in choosing the level of sustainability desiring the creation of sustainable practices that are geared to its stakeholders (Marrewijk, 2002).

Kaydos (1991) states that the need to achieve peak performance is a balance between the actions pursued, not just the optimization of one variable in particular. Thus, having a clear definition of the company's strategies and what performance means for everyone involved in the processes prevents independent efforts, assisting in the search for the desired result.

In the current context, achieving high levels of performance has proven to be strongly linked to corporate sustainability: Barbieri and Cajazeira (2009) argue that sustainable businesses contribute to sustainable development, since they can continually pursue high levels of performance in social, economic, and environmental terms, through so-called social responsibility.

Murphy (2002) indicates that financial measures alone are insufficient for a performance analysis that justifies investment in a company, as in the case of Information Technology. An integrated set of measures is necessary to shed light on what will help achieve the goals and objectives in the environment and generate high performance. Among the justifications for financial performance measures are, inter alia, a short-term focus as well as a lack of expertise in the evaluation of intangible assets, focusing on future or past performance. Measures of a non-financial nature include staff turnover, response time, delegation of power to employees, customer satisfaction, and customer retention.

Several agents such as NGOs, governments, investors, insurers, media, consumers, and civil society have begun to hold companies responsible for actions that take into account the impacts that their activities caused, in a global movement aimed at rescuing trust, ethics, and solidarity. Zago and De Paula (2007) state that this pressure on the products and processes of companies ultimately causes a conflict between different values and visions, such as long-term versus short-term, corporate name versus maximization of expected profits, cooperation versus competition, and economic sustainability versus social sustainability.

**Data analysis**

This paper is characterized, with regard to its specific objectives, as descriptive and exploratory. To facilitate the construction of hypotheses and improve familiarity in the studied subject through further explanation, exploratory research is defined by Gil (1991) as having its main objective in the development or discovery of new ideas on the studied subject, involving bibliographic surveys, questionnaires, and interviews, along with adopting a more flexible character.

The approach used in this paper was mixed, with both qualitative and quantitative methods being used (Creswell, 2007). The combination of these two allows for a vision that is both phenomenological as well as positivist, taking advantage of the benefits of each type (Araújo and Oliveira, 1997). In addition to conceptualizing variables such as sustainability and performance, we look to create a descriptive exploratory analysis of the influence of sustainable practices in the performance of multimodal terminals of the transport chain of grains in Brazil.

The data used in the study were drawn from questionnaires employed in the project “Multimodal Terminal Performance of the Grain Supply Chain,” involving this and other related studies. To develop the theoretical foundations and basis of the terms used in the analyses, bibliographic research was conducted using secondary data sources, thus allowing a better approach to the topic of study (Cervo and Bervian, 1996).
The period used to collect data on the multimodal terminals, which characterize the focus of the study, lasted from October 2011 to February 2012, with questionnaires being applied in all regions of the country. The total sample comprised of 33 respondents, consisting of 9 terminals from the Midwest region, 10 from the South, 5 from the Northeast, 13 from the Southeast, and 4 from the Northern region. The questionnaires used in the field research were of a semi-structured form, with both closed and open questions, expanding the possibilities of qualitative and quantitative analyses.

The data collected through the questionnaires refer to several terminals in all the regions of the country, namely the Midwest, North, Northeast, Southeast, and South. Chart 1 presents information that helps characterize the study sample, indicating the amount of grain handled in the previous twelve months by each terminal included in the research. It can be seen that the bulk of handling occurred in the Midwest region (4CO), amounting to seven million tons per year, followed by terminals located in the South, Southeast, and North of the country.

Through a percentile analysis (see Chart 2), we can view the amount of handling in each region, outlining a chart that reflects the degree to which each region is responsible for the overall handling of grain in the country. Looking at the chart, the two regions that are seen to have contributed the most to the handling of crops in the previous year were the South and Midwest, together composing more than 50% of the amount handled nationally. The Southeast also shows an influence, representing 24% of all cases in the study period. Next, we observe the North and Northeast regions, comprising the remaining 20%.
Table 1 shows the characteristics of each terminal and their transaction possibilities between logistical modes such as road, rail, and waterway. Of all the terminals interviewed, only 55% responded regarding modes. Of this, 44% presented road transport to rail transpositions, 33% conducted road-waterways movements, and only 17% reported performing transactions between all three types of modes described, all of these being located in the South.

Table 2 shows the services offered by the studied terminals. Through the data, we were able to verify that the terminals have activities mostly related to storage, transshipment, drying, and cleaning. The other services were cataloged as rare due to their presence in national terminals, such as the customs service, found in only a few places such as the Midwest and Northeast.

The remaining 6% of respondents who claim to have conducted rail-road transport are also in the South, the Midwest composed only of multimodal transport involving road-rail and road-waterways modes. The Southeast region did not provide any response with regard to these items.

Table 2 shows the methods of modal transportation found in the terminals.

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>CO</th>
<th>S</th>
<th>SE</th>
<th>NE</th>
<th>N</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEWED</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>33</td>
<td>100%</td>
</tr>
<tr>
<td>RESPONDENTS</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>18</td>
<td>55%</td>
</tr>
<tr>
<td>Road-rail</td>
<td>4</td>
<td>2</td>
<td>SR</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>44%</td>
</tr>
<tr>
<td>Road-waterways</td>
<td>4</td>
<td>0</td>
<td>SR</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>33%</td>
</tr>
<tr>
<td>Waterways-rail</td>
<td>0</td>
<td>0</td>
<td>SR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Road-rail-waterways</td>
<td>0</td>
<td>3</td>
<td>SR</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>17%</td>
</tr>
<tr>
<td>Rail-road</td>
<td>0</td>
<td>1</td>
<td>SR</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>Rail-waterway</td>
<td>0</td>
<td>0</td>
<td>SR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Waterway-rail</td>
<td>0</td>
<td>0</td>
<td>SR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

[C0 = Midwest, S= South, SE=Southeast, NE= Northeast, N=North]

We can see that the terminals that have a greater number of activities aimed at processing crops are those found in the Midwest and South. The Northeast had the lowest rates of available services. Again, the Southeast provided no responses.

The following charts illustrate the actions taken by the terminals in each region with respect to the concept of the environment and sustainability, that is, how many of these follow
specific policies in this context, and how many follow the previously established standards. The data were divided into regions, seeking a more general view on these measures present in Brazil. We noticed how many of the respondent terminals have environmental policies in the business environment (Chart 3). Most are concentrated in the Midwest region, followed by the South and North. In the Northeast, only one terminal confirmed having policies concerning the environment in their processes. In the following chart, the percentage of terminals that have policies in relation to the respondents is presented.

As previously noted by other authors, such environmental policies have become important in the current business environment, since investors and even stakeholders are looking for companies that take steps aimed at sustainability with regard to work, whether concerning their resources or making business contacts. Despite the small number of terminals involved in this development, we can see a link between the volume of transport of logistical points and the development of such policies.

Respondents in the sample were also classified as to whether they complied with established environmental standards. As can be seen from Chart 4, most terminals that comply with the standards are located in the Southern region. Analyzing the proportion of terminals that answered the questions, only the North region had 100% of its terminals meeting the specifications, with only 37% of respondents in the Midwest region doing so.

Through Table 3, we can examine the percentage of responding terminals that adopt sustainable practices, whether this is compliant with established legal standards, or even if they
have documented policies. It can be observed regarding the question of “health and safety” that the majority of respondents have formal procedures related to both health and safety at work (94%) as well as to the environment (89%). Moreover, only 17% have not adopted a minimum standard for environmental management of the terminal. Regarding the acceptance and dissemination of environmental activities between the parties, the index is still lower, with 78% of respondents reportedly having a policy with such characteristics. Despite this, we observed that only 61% of respondents claim to comply with legally established environmental standards.

**Table 3: Percentage of Positive Responses Regarding Sustainable Actions.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>% of positive responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal procedures for receiving, recording and responding to the demands concerning: health and safety at work.</td>
<td>94%</td>
</tr>
<tr>
<td>Formal procedures for receiving, recording and responding to demands concerning: the environment.</td>
<td>89%</td>
</tr>
<tr>
<td>There is no formally established minimum standard for environmental management of the terminal.</td>
<td>17%</td>
</tr>
<tr>
<td>Does the terminal have a documented environmental policy approved by management and widely disseminated among the parties?</td>
<td>78%</td>
</tr>
<tr>
<td>Complies with established legal standards</td>
<td>61%</td>
</tr>
</tbody>
</table>

In Table 4, we observe that, although few in number, there are terminals that reported having practices that surpass those required by law, adapting themselves to the concepts of searching for differentiation and competitive advantage. The table shows that 11% of respondents have actions that go beyond the legal standards required and that these are associated with cost reduction and revenue generation for the terminal, whereby the adopted practices not only contribute to the image of a sustainable company but also provide financial benefits to the terminal, generating changes in earnings performance and creating a rare competitive advantage over others.

**Table 4: Percentage of Positive Responses Concerning Actions Surpassing Those Required.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>% of positive responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surpasses legal standards and is associated with cost savings or revenue generation for the terminal. In this case, cite at least one adopted practice</td>
<td>11%</td>
</tr>
<tr>
<td>Is superior to the legal standards and provides for pollution prevention and/or cleaner, continuous production improvement. In this case, cite at least one adopted practice</td>
<td>17%</td>
</tr>
</tbody>
</table>

Continuing the data analysis, we can see that 17% of respondents say they have practices that surpass those that are required, but that such actions are more strongly connected to pollution prevention and cleaner improvements. Thus, we see that only a few terminals can surpass expectations concerning their actions related to the environment, and only a small portion of these can connect sustainable practices to financial and revenue gains.

Finally, in Tables 5 and 6, we present a comparative analysis that considers the degree of performance and sustainable action among certain terminals in the sample. Analyzing the
variable of “price” (Table 5), almost 90% of respondents that have a high degree of performance are seen to conduct some kind of environmental practice, while only 36% of terminals with average performance act in this manner. Based on the same table, it is observed that while no terminal with average performance adopts practices that surpass those required by law, because of the reduction of pollution, 22% of respondents with high performance actually do so. These results point to a possible connection between the level of sustainability developed by a company and its market performance.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of performance</td>
<td>Average</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
</tr>
<tr>
<td>Implementation of environmental practices, recycling, educational campaigns</td>
<td>36.3%</td>
</tr>
<tr>
<td>Existence of waste treatment of equipment maintenance offices</td>
<td>18.2%</td>
</tr>
<tr>
<td>Surpasses legal standards and is associated with cost savings or revenue generation for the terminal.</td>
<td>9.1%</td>
</tr>
<tr>
<td>Surpasses legal standards and provides for pollution prevention and/or cleaner, continuous production improvement.</td>
<td>0%</td>
</tr>
</tbody>
</table>

When analyzing the performance variable of “quality of service” (Table 6), this perception is repeated, since only 25% of respondents with an average performance level claim implementing sustainable practices, showing no positive responses to any other variable related to the environment. The terminals that have a high degree of performance participate in all the items connected with the sustainable actions, amounting to almost 70% of terminals that perform environmental practices; these also involve recycling and educational campaigns as part of their processes.

<table>
<thead>
<tr>
<th></th>
<th>Quality of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade of Performance</td>
<td>Average</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
</tr>
<tr>
<td>Implementation of environmental practices, recycling, educational campaigns</td>
<td>25%</td>
</tr>
<tr>
<td>Existence of waste treatment of equipment maintenance offices</td>
<td>0%</td>
</tr>
<tr>
<td>Surpasses legal standards and is associated with cost savings or revenue generation for the terminal.</td>
<td>0%</td>
</tr>
<tr>
<td>Surpasses legal standards and provides for pollution prevention and/or cleaner, continuous production improvement.</td>
<td>0%</td>
</tr>
</tbody>
</table>

Conclusion

Through the analyses, and backed by the literature, we can conclude with regard to the terminals studied that the adoption of sustainable practices in such companies may be associated with their superior performance. It is noted that there is an apparent vocation for creating
performance strategies aimed at using sustainable practices that corroborate established superior performance, not only in economics terms but also in environmental and social terms.

The presentation of high rates of adoption of sustainable practices, in contrast with the lower proportion of 61% of respondents that claim to comply with established legal environmental standards, points to an apparent interest in developing sustainable practices for these terminals. This is because such actions are present in most companies, including those that did not claim to adopt practices that are intended to comply with legal requirements. According to Schwartz and Carroll (2003), companies that, in their legal domain, surpass compliance may not just be avoiding litigation, but anticipating it in relation to the understanding of their role in fulfilling social responsibility.

Furthermore, we emphasize that only a small proportion of respondents (11%) could in fact create a connection between the adoption of actions aimed at improving environmental problems and a return that can now be measured by policymakers. This points to a gain in revenue, which can be reflected in the direct performance of these terminals.

When confronted with data concerning the competitive performance of the sample terminals with the adoption of sustainable practices, one can also see an apparent connection between such actions and better performance on the part of the companies, since the majority of respondents with a high degree of competitiveness presented the implementation of some practice or another focused on the environment.

Thus, we conclude that sustainable actions can indeed influence the performance variation of multimodal terminals. However, both the discussion based on a multivariate data analysis and the broader verification of the adoption of these practices still need to be explored further so that forms of conducting sustainability aimed at organizational performance beyond the economic competitive advantage of organizations can be substantiated.

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