

SUSTAINABLE PRACTICES ASSESSED BY THE AUTOMOTIVE INDUSTRY AND THEIR IMPACT ON THE ORGANIZATION'S MANAGEMENT

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INTRODUCTION

The automobile industry has been making remarkable contributions to the world's economy and people's mobility. With production continuing at the same rate, there will be two billions cars in road by 2050 (Toyota, 2007a; NUNES, B. 2010, pp. 400). The ecological impact has daily increased too. Hence, all firms are looking to enhance their sustainable performances assessed by their Environmental Operation Management. They cannot rely any further only on the benefits of lean production; rules have changed, the costs are down, and also the margins (Ibdem, pp. 400).

Sustainability is no longer the simple act of not being harmful to the environment or not depleting natural resources for a long-term ecological balance (Dictionary.com). Each company has adopted new interpretations and forms of presenting their environmental practices and initiatives (NUNES, 2010, p. 406). It is as a strategy, in order to be able to stay in the market to still be profitable. In this research, Sustainability is strictly related to the management behavior, more specifically in the automotive industry. Its applications is tied to competition, production strategy and positioning of their products.

So, among all needs of the industry which one is the is "key area for improvement" that "gathers the environmental requirement needs and the company`s goal for profitability?" This is a very common feeling in the midst of management boards.

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[...] Indeed, it is not always that s initiatives will return a profit for an individual initiative or provide a match with all corporative objectives. There will be conflicts, mainly when the initiatives are taken under an opportunity cost analysis. However, the more that businesses consider the importance of managing intangibles, the more environmental issues will become better commended and prove valuable; even starting with an economic or financial analysis” (IBDEM, p.397)

There has also been a growing interest of publications related to the cause and effect of such practices. Thus, to answer the proposed questions this article has one main objective: Identify the sustainable practices on the biggest four automotive industry; and its impact in the Supply Chain Management (SCM) – through a qualitative exploratory web-survey that organizes these practices and how they are measured by the industry. Based on a bibliographical research and a formulary application

OBJECTIVES

Primarily identify the main practices of environmental sustainability in the automotive industry. Secondly, collect updated data in academic papers and scientific journals regarding the main research topics recently developed. Then, based on these theoretical data create a form and apply on the web sites of the main automotive industries throughout the world, evaluating their “self-declaration” of sustainable practices. Finally, compare and analyze the implementation of these practices as a strategic management performance of the automotive industry.

METHODOLOGY

This is a qualitative exploratory web-survey research that happened within the partnership among FAE University in PR, Brazil and Siena College NY, USA. In addition to all logistics courses, that took place in both countries, the article is based on a bibliographical research and, the formulary application. For the first pool of information there were journals/papers from academic renown databases, like *Applied Science Tech Full Text (Wilson)*, *Cambridge Journals Online*, *Emerald Fulltext*, *Environmental Engineering Abstracts (CSA)*, and also Scientific Journals as the, *Engineering Management Journal*, for example. Gathering academic and also peer reviewed journals on the desired field of studies, e.g. SC, SCM, Green Logistics; by the keywords: sustainable/environmental/social and automotive/automobile.

The sample's size of journals was of 14 papers, based on the classification of CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior do Brasil), in English, Coordination for the Improvement of Higher Learning Personnel in Brazil. This principle was applied to meet the criteria for validity and data reliability. Then, as all concepts were analyzed a ratio of comprehension and comparison was also being created. Grounding the start of the second part, the formulary application.

The companies were selected based on the criteria given in the Forbes Magazines of "The World's Biggest Public Companies" – The Global 2000 report; Volkswagen, Toyota, Daimler, Ford. For the web-site, a global or group web-site was preferred instead of local pages. Each web-site had a complete different format, so most of the times the needed information was only found in the issued reports and publications.

The formulary was built in order to then be applied in the websites of the companies. Divided into 7 parts, it was a compound of the main aspects found in the literature that could briefly describe the activities and implementations in regards to sustainability, its characteristics and its influence in the SCM. It considers the possibilities for implementation – internal, external and the triple bottom line of sustainability; the decisions taken by a sustainable supply-chain (SC) management involve quite all the stages of manufacturing effectiveness according to Hayes & Wheelwright; Capacity, Facilities, Equipment and Process Technologies, Vertical Integration, Human Resources and Quality, System (1985, p.4). Finally, it worked as a metric for an evaluation of the companies throughout exploration of the web-sites and published reports.

RESULTS AND DISCUSSION

The first aspects evaluated considered if the company was publishing its green achievements, controlling and results in a global way. All weighted in the stages of manufacturing effectiveness according to Hayes & Wheelwright, as a brief check-list about the location and destination of the activities implemented throughout the firm. Then the tables recreated a simplified SC flow – *Raw Material and Resources, Manufacturing, Final Product, Inventory, Distribution and Sales, Product Use, Recycle and Reverse Logistics*; each step distributed the practices in their actual order and relate to the entire company as a whole. Guiding the assessment to the real efforts and investments in which the firms are making, based in aspects listed by the literature, like Green Building, Eco Design, Greener Manufacturing, etc.

Along with the SC several internal and external practices were found and sorted by the triple bottom line of sustainability – Ecological, Social and Economic (Brundland, 1987) identifying activities developed in the entire globe in several different countries and plants. All these efforts are usually based on the objectives and own metrics established by the company or requested by international standards, like the ISO's (ISO14001, ISO26000) These certifications are held among the awards achieved in order to strength the equity and generate competitive advantage.

CONCLUSION

This survey was an intense discovery that all variables are really deep and complex, they vary from chemicals, minerals and gases, to the happiness index of the employees and the actual dignity and valuation of all the human beings involved. Such complexity is exposed in each tab of the web sites, as even the companies aren't able to cover all topics involved in the clearest ways. There will always be gaps and opportunities for identifying flaws in the reports and/or web-pages. This complexity is definitely present inside the corporations, when leveraging the actual results and benefits from certain actions that can always be understood as opportunistic initiatives for marketing and branding; or, sometimes, as the minimum that big corporations could do to relief their massive environmental impact. Besides any pessimistic outlook, there is an outstanding evolution and a constant effort towards more and more effectiveness; and numerous of these impressive achievements are due to the expenditure of Information Technology – Environmental Technology, towards the way to eco-friendly run the businesses.

There is a visible implementation, by the SCM of the “4Rs” in the production: reduce, reuse, remanufacture and recycle diminishing risks throughout the SC with a better social and economic performance on reduction of wastes and therefore, costs.

Finally, the 4 industries fulfill the all aspects covered by the literature. Despite the fact that there are more environmental than social certifications, the presence of really high standards as guidance for social applications are widely spread, like the ISO 26000 or even their own standards that are also set really high concerning all communities and peoples involved.

Overall the forecasts made in the beginning of the project were met, with quite a few difficulties, but certainly with a better understanding that the automotive industry is definitely a reference for others on the scope of environmental practices, especially when it comes to a sustainable management of the supply chain and all its surroundings.

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