Corporate sustainability

Benefits and drawbacks in the implementation of green business initiatives

As the public becomes increasingly cognisant of its effect on the environment, companies are progressively looking for green initiatives to implement and improve their corporate sustainability strategies. Dr Roberto Sarmiento at the Autonomous University of San Luis Potosí, and his team, examined potential trade-offs that could occur during the implementation of a green initiative at an SME in Mexico. The team evaluated the benefits, costs and risks associated with substituting a polluting raw material with a greener substance in the production of a cleaning product, and assessed trade-offs through a novel AHP–BOCR decision-making model.

Governments, and society in general, are becoming more aware of the effects of unsustainable practices, increasing waste, pollution, and resource depletion. This shift in perception has made environmental regulations more stringent and consumers more conscious of the environmental practices of the companies whose products and services they use; as a result, businesses are having to enact green initiatives to meet environmental compliance and be competitive in their market.

However, achieving sustainable aspirations can be difficult for companies, especially small to medium enterprises (SMEs). This leads some experts to question whether transitioning to green technologies, systems, and practices is economically and logistically feasible. Broadly speaking, there are two opposing views on how to approach this problem. The 'win–win' perspective states that sustainability measures should improve, or at least not be detrimental to, a company's key performance metrics. It attests that effective green initiatives can have environmental, social, and economic benefits without negative consequences (Bonacchi and Rinaldi, 2007; Van der Byl and Slawinski, 2015). In contrast, other experts claim that due to the limitations that are inherent to all technology- and human-based systems, 'trade-offs' in the operations of manufacturing and service systems are inevitable (Skinner, 1996; Porter 1996). This essentially means that a win-win approach vis-à-vis environmentally friendly programs is unrealistic, and that a company's accurate assessment of possible trade-offs in implementing a green initiative is crucial when developing an effective corporate sustainability strategy (Porter, 1996).

The topic of trade-offs in corporate sustainability has become an increasingly studied phenomenon. Some experts categorically affirm that trade-offs are 'the rule, not the exception'. Therefore, developing an analytical framework that can aid decision-makers is essential to determine if the potential benefits / opportunities of implementing a green initiative outweigh the risks and costs involved. According to Skinner (1996) and Porter (1996), businesses cannot do away with compromises amongst the different performance metrics that define their operations, meaning that implementing green initiatives will result in at least one form of trade-off.

THE AHP–BOCR MODEL

Dr Roberto Sarmiento and collaborators at the Autonomous University of San Luis Potosí examine the potential trade-offs that a family-run SME in Mexico will encounter when implementing a green project. Based on their research, Sarmiento and his team then aim to determine whether the project should go ahead. Specifically, they wanted to assess the possibility of replacing a toxic ingredient in one of the company's products with a more environmentally friendly substance. To achieve this, they used their bespoke Analytic Hierarchy Process – Benefits Opportunities Cost Risk (AHP–BOCR) model to calculate the impact of the different variables involved in the decision-making process. The research team hopes that this methodology can be applied to any green initiative in an SME, and even in larger firms.

The AHP is a multi-criteria decision-making tool in which the factors in the process are arranged hierarchically with the end goal (in this case, whether or not to apply the green initiative) at the top. It is structured to assess each criteria element in a weighted hierarchy in descending order from criteria, sub-criteria, etc. The numerical results in this process serve as guidance for practitioners regarding the best course of action.


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Achieving sustainable aspirations can be difficult for companies, especially SMEs.

The AHP–BOCR framework developed for this study was customised to help in the identification of potential compromised relationships between pairs of performance metrics that are important to the SME. Having said this, the proposed framework could be applied to any green initiative (or any firm), indicating the importance of this research to the corporate sustainability agenda.

GREEN INITIATIVES FROM AN SME PERSPECTIVE

The company involved in this study was a family-run SME in central Mexico. The study's primary goal was to investigate the possibility of replacing a toxic substance used in the fabrication of cleaning products with a green one. The research team worked closely with the company's managing director to create the categories, sub-categories, and hierarchy within the AHP–BOCR model. Comparing the impacts of the existing substance with the greener one for each element was processed through a specialised software.

The criteria considered included benefit, costs, and risk elements such as 'Higher costs', 'Better corporate image', 'Uncertainty with local suppliers', and 'Diminished water quality', among others. Each category was scored against the options of either keeping the status quo or changing the substance. The model indicated that the trade-off of higher costs for a lower polluting product would be worth it when considering the benefits and costs only. Nevertheless, the risk of

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What trade-offs does a company have to face when replacing a toxic substance with a green one?

'uncertainty with local suppliers' meant that, overall, the project could not go ahead initially. However, in subsequent months with the guaranteed provision of the green substance with a local supplier, the company did decide to implement the change. This endeavour allowed the company to come 16th in a national competition called 'Cleantech Challenge Mexico 2014'. This story of success was featured in the April–May (2015) edition of *Forbes* magazine Mexico.

The study also featured an interview with the managing director, which revealed the company was very willing to increase its sustainability even at the expense of overall higher costs. It should be noted, nonetheless, that other SMEs may not be in a position to pursue a green agenda due to increasing overheads, stifling regulations, or other factors. It is entirely understandable that in some instances, the motivation to achieve environmental sustainability might not be enough.

CAN GREEN INITIATIVES BE A WIN–WIN FOR BUSINESS?

Through this essential study on trade-offs in SMEs when employing green initiatives, Sarmiento and his team explored the possibility of replacing a toxic raw material from a company's cleaning product with a more sustainable substance. Using their novel AHP–BOCR model, they were able to make a definitive decision based on their and the company's criteria of whether they should use this environmentally friendly substance. They determined that although the overall costs would increase, they should go ahead with the green initiative.

The study shows that it takes leading companies to take bold steps, which may incur higher overall costs, for substantial environmental and societal benefits.

This research would indicate that a win–win scenario in employing green initiatives is impossible and should not be expected. It shows that it takes leading companies like the Mexican SME in the study to take bold steps, which may incur overall higher economic costs, for substantial environmental and societal benefits. Furthermore, to increase the likelihood of adopting sustainable practices, companies should collaborate with the government or other organisations.

Future research in the field will significantly benefit from the use of the AHP–BOCR model proposed in this investigation. To obtain a more accurate assessment, more comprehensive criteria could be added to the framework. Further studies could also be performed for larger companies to better understand the trade-offs on a large corporation scale.

Behind the Research

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Research Objectives

Dr Sarmiento studies potential trade-offs that companies face when implementing green initiatives.

Detail

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Bio
Roberto Sarmiento received his PhD in Manufacturing Engineering and Operations Management from the University of Nottingham, UK. He is currently an Associate Professor at the Autonomous University of San Luis Potosí, Mexico. Dr Sarmiento is interested in a variety of topics, including operations management, green supply chain management, decision-making models, and the philosophy of science.

Funding
Roberto Sarmiento gratefully acknowledges 'Programa de Mejoramiento del Profesorado' for the financial support provided to develop the research project [PROMEP/103.5/11/3671].

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Personal Response

Do you believe, as fewer companies see the implementation of green initiatives as a win–win, it will deter some companies from even assessing the possible trade-offs they may have to make?

"As the saying goes, 'nothing is free in this world'. Therefore, it would not surprise me if some firms, especially the smaller ones, would hesitate to get on with an environmental agenda once the reality of trade-offs in the implementation of green initiatives is more widely acknowledged. My hope is that human ingenuity – once again – will result in technological breakthroughs that will benefit society and the environment in general. Meanwhile, our task as researchers is to provide decision-makers with all the information vis-à-vis the benefits/opportunities, as well as the costs/risks, that are inherent to all new initiatives and programs, including green ones."