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Role of green policy on sustainable supply chain management: A model for implementing corporate social responsibility (CSR)

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Abstract

Purpose – Green supply chain management (GSCM) has become the driver of sustainable strategy. This topic has been gaining increasing attention within both academia and industry for making the industry competitive. With the ever increasing demand for reducing carbon foot prints and greenhouse gas emission, there is a need to study the various parameters and drivers of sustainable development, especially in supply chain management. The need for developing the sustainable model including the drivers of sustainability needs to be designed. The paper aims to discuss these issues.

Design/methodology/approach – Using resource-based theory and value chain analysis; the authors have developed a model for sustainable strategy. The data were collected and analyzed to find the key drivers of sustainability. The data were analyzed with the help of regression and correlation analysis.

Findings – After providing a background discussion on GSCM, the authors categorize and review recent GSCM literature under three broad categories, with a special emphasis on investigation of adoption, diffusion, and outcomes of GSCM practices. Within this review framework, the authors also identified GSCM research questions that are worthy of investigation. The study suggests that the main drivers of GSCM include the environmental policy and the green human resource management by providing them training for adopting sustainability practices. Besides this, another key driver is the sustainability criteria in supplier selection which was found to be enhancing the outcomes of sustainability.

Research limitations/implications – The model suggests that we need to have management support for implementing the sustainability strategy in the organization.

Practical implications – The study guides the managers for implementing sustainable supply chain management practices in the organization.

Social implications – The model including the environment policy (adoption), green human resource management (diffusion), green technology (diffusion), and GSCM.

Originality/value – Additional organizational theories which are considered valuable for future GSCM research are also identified with a conclusion for this review.

Keywords Innovation, Supply chain, Continuous improvement, Supply chain management, Supplier evaluation

Paper type Research paper

Introduction

The eco-friendly strategy has become a competitive strategy for the companies to survive in the emerging markets such as India. Study warned that if not confronted, climate change had the potential to contribute to conflicts and wars over diminishing

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resources such as food and water. By 2050, the combined GDP of the emerging economies will be more than 50 percent of the total GDP of the world. This would not be achieved without leaving carbon foot prints in the world. Moreover, Nidumolu *et al.* found that the quest for sustainability can lead to organizational and technological innovations that can yield both top-line and bottom-line returns for companies. Hollos *et al.* (2012) examined the implications of sustainable supplier cooperation and studied the influence of supplier cooperation on performance of the organization. Moreover, the survey of Western European firms showed that sustainable supplier cooperation has generally positive effects on firm performance across social, green, and economic dimensions. However, the study also showed that only green practices have positive significant effects on economic performance, not social practices such as child labor rules.

The increasing importance of sustainable behavior in business has enhanced its impact on supply chain management. Firms foster sustainability in their supplier base in reaction to growing sustainability requirements in various ways, including sustainable supplier cooperation. Knowledge about the effects of sustainable supplier cooperation on firm performance is limited. Therefore, this study tests antecedents and implications of sustainable supplier cooperation according to the triple bottom line (3BL). A survey of Western European firms reveals that sustainable supplier cooperation has generally positive effects on firm performance across social, green and economic dimensions. However, only green practices have positive significant effects on economic performance (e.g. child labor rules). Moreover investments in sustainability through sustainable supplier cooperation results in sufficient returns (Hollos *et al.*, 2012). Therefore it is important to study the sustainability strategy for supply chain management which will help the organizations to reduce the greenhouse gas emission while transporting goods.

Gupta (2012) suggests that sustainability can attract customers and help in creating competitive advantage for the company. The paper further suggests that industry needs to do better job in creating awareness among their customers about the environment friendly practices used in their businesses. Similarly Gavronski, Klassen, Vachon, Nascimento, and Luis Felipe proposed manufacturer's choice of environmental technologies is expected to be partly driven by the organizational context and receptivity to new ideas and innovation. The author also hypothesized that the organizational learning and knowledge system of a manufacturing plant tends to favor the adoption of pollution prevention technologies and environmental management systems over pollution control technologies of that plant. The study suggests that the plant's social climate and external knowledge exchange are positively related to pollution control, while the stock of knowledge of managers, stock of knowledge of workers, and internal knowledge exchange are negatively related to pollution control.

The present study makes three significant contributions. First, it explains the role of environment policy for enhancing the sustainability strategy on the supply chain management. Second, it refined and validated scales that capture organizational processes within operations which can enhance adoption of sustainability practices among suppliers. Finally, this research highlighted the important role that plant-level social climate has on fostering a greater emphasis on pollution prevention. The managerial implications of this research are twofold. Managers, in order to promote pollution prevention and creating long-term value with green technology, should promote both the social climate and the external knowledge exchange in the plant. Managers also should craft their environmental management systems not as a bureaucratic process of documentation and regulatory compliance, or just to fulfill clients' or parent company requirements.

Literature review

Zhu and Sarkis suggest that green supply chain management (GSCM) practices consist of four major dimensions: internal environmental management, external environmental management, investment recovery, and eco-design. Internal environmental management includes commitment of GSCM by senior managers, support for GSCM by mid-level managers, cross-functional cooperation for environmental improvements, total quality environmental management, environmental compliance and auditing programs ISO 14001 certification, and environmental management systems. The external environmental management including GSCM practices provides design specification to suppliers that include environmental requirements. This cooperation is in the areas of purchased item, cooperation with suppliers for environmental objectives, environmental audit for suppliers' internal management, suppliers' ISO 14000 certification, and second-tier supplier environmental-friendly practice evaluation, cooperation with customer for eco-design, cooperation with customers for cleaner production, and cooperation with customers for green packaging. Investment recovery includes investment recovery (sale) of excess inventories/materials, sale of scrap and used materials, and sale of excess capital equipment. Eco-design includes design of products for reduced consumption of material/energy, design of products for reuse, recycle, recovery of material, component parts, design of products to avoid or reduce use of hazardous, and products and/or their manufacturing process. Researchers indicate that supply chain measurement should involve integrated measures applied to the whole process in order to prevent optimization at one point without reflecting potential consequences at other points in the supply chain. Scapens *et al.* suggests that supply chain performance measurement system is needed to deal with innovative strategies like teamwork and non-financial metrics such as lead times. Characteristics of employees in an organization should be considered as an important variable for the overall supply chain performance (Gunasekaran *et al.*, 2001).

Vickery *et al.* (2001) defined five supply chain flexibilities based on previous operations literature in order to look at supply chain uncertainty problems. The author described the flexibility type including product flexibility, volume flexibility, new product flexibility, distribution flexibility, and responsiveness flexibility. Product flexibility is defined as the ability to customize product to meet specific customer demand. Volume flexibility is the ability to adjust capacity to meet changes in customer quantities. New product flexibility is the ability to launch new or revised products. Distribution flexibility is the ability to provide widespread access to products. Responsiveness flexibility is defined as the ability to respond to target market needs Vickery *et al.* (2001). However the existing SCM performance measurement methods are insufficient to reflect critical SCM characteristics such as the organization's strategic goals and interactions with partners.

Over the past decade, SCM has played an important role for organizations' success and subsequently the green supply chain (GSC) has emerged as an important component of the environmental and supply chain strategies of a large number of companies. Although the term environment or greening has an ambiguous meaning in various fields, the term indicates not only harmonizing corporate environmental performance with stockholders' expectations but also developing a critical new source of competitive advantage in terms of management perspective. According to researchers, environmental management relieves environmental destruction and improves environmental performance by institutionalizing various greening practices and initiating new measures and developing technologies, processes, and products.

Some studies focussed on external environmental factors such as customers and suppliers. To improve their own environmental supply chain performance, organizations need the interactions with the government, suppliers, customers, and even competitors. Cooperation with suppliers and customers has become extremely critical for the organizations' to close the supply chain loop Sarkis *et al* (2011). Importance of the design process in environmental management is well demonstrated by the existing literature. Reuse stands for both the use of a product without re-manufacturing and is a form of source reduction. Recycling is the process which makes disposal material reusable by collecting, processing, and re-manufacturing into new products. As an environmental practice, resource reduction enables firms to minimize waste which results in more efficient forward and reverse distribution processes. Eco-design, design for environmental management, enables organizations to improve their environmental performance and close the supply chain loop by handling product functionality while minimizing life-cycle environmental impacts. GSCM practices are divided into four major dimensions: internal environmental management, external environmental management, investment recovery, and eco-design. Moreover, Jayaraman *et al.* (2012) suggest that adopting an environmental perspective on operations can lead to improved operations. The study further suggests that any operational system that has minimized inefficiencies is also more environmentally sustainable. The study compared green manufacturing techniques in place in two world-class, ISO 14001-certified paint manufacturing firms in India to ascertain the cost benefits that these firms enjoy due to green manufacturing and recycling.

On the contrary, Bouchery *et al.* (2012) identified the need of study of quantitative models in operations management. Their study contributes by revisiting classical inventory methods taking sustainability concerns into account. They designed sustainable-order quantity model which can help decision makers to quickly identify the best option among these solutions.

Dinwoodie *et al.* (2012) designed a framework to facilitate environmental management applies business process principles to identify relevant inputs, processes and outputs. The study further suggests that simplification and optimization phases of business process re-engineering can be tapped by business strategists for enhancing adoption of sustainable practices.

Tang and Zhou (2012) suggest the correlation between profitability and sustainability. However, the balance can only be maintained in the long run if the firm can take a holistic approach to sustain the financial flow (profit), resource flow (planet), and development flow (people) for the entire ecosystem comprising poor producers in emerging/developing markets, global supply chain partners, consumers in developed countries, and the planet.

Aflaki *et al.* (2012) addressed the challenges of finding and implementing profitable energy efficiency projects which is a critical foundation for sustainable operations. The authors focus on manufacturing enterprises. However, the study findings suggest that adoption of sustainable strategies in back office of service operations is very critical. The authors have identified three major value drivers of EE projects: savings intensity, green image, and project complexity. The study also includes a case study of a large manufacturing site is used to illustrate emerging best practices based on Kaizen management principles for integrating EE project management with operations, engineering, and strategy.

Similarly, Sarkis (2012) studied the social issues such as sustainability, poverty alleviation, health care management, philanthropic activities, humanitarian aid, and

education can all benefit from modeling efforts from operations management and production economics researchers. The author defined compasionate operations and included the culmination of major natural and man-made crises, increased environmental concerns, and increased globalization and knowledge, comes a wider awareness of social problems that need to be addressed.

Dey *et al.* (2011) examined the current state of sustainability efforts within the field of supply chain management, more specifically supply chain logistics operations, and to identify opportunities and provide recommendations for firms to follow sustainable operations. The study shows that for firms to implement a sustainability strategy in their supply chain operations, the logistics function needs to play a prominent role because of the magnitude of costs involved and the opportunity to identify and eliminate inefficiencies and reduce the carbon footprint. The study further suggests that firms have a great social responsibility especially with respect to use of non-renewable sources of energy and materials and also with respect to how their products are used and handled once they reach the end of their life cycles.

Huang *et al.* (2009) suggested the concept of closed-loop supply chain (CLSC) management to meet the current environmental challenges and sustainable development. The study suggests that mainly three challenges are there for SCM namely, uncertainty of time-delay in re-manufacturing and returns; uncertainty of system cost parameters; uncertainty of customers' demand disturbances. The study was based on operations of scrap supply chain in the Chinese steel industry.

Some authors have discussed the various perceptions of sustainability in different industries including environmental, operational, energy, health and welfare, safety and security, market, financial, and family sustainability. The author stresses that in any perceptions, sustainability would result into better resource utilization, operational efficiency, and process effectiveness (Badiru, 2010).

Ageron *et al.* (2012) study suggests that sustainability research on supply management has received limited attention. Similarly, Schoenherr (2012) investigated the influence of sustainable business development on manufacturing plant operations focussing on the environmental component. Specifically, on the basis of resource-based view of the firm, the authors have hypothesized the impact of environmental management on plant performance. Environmental initiatives considered include ISO 14000 certification, pollution prevention, recycling of materials, and waste reduction; plant performance is assessed with the dimensions of the four competitive capabilities of quality, delivery, flexibility, and cost. Further, building on the theory of performance frontiers, the authors have investigated these relationships across plants located in different economic regions of the world (plants are classified into emerging, developing, and industrialized regions).

Zhang *et al.* (2012) created a benchmark for the environmental sustainability (ES) initiatives by constructing a cost-based resource efficiency measure for ES from reported financial data. This approach linked the environmental and economic performance outcomes by extracting information from resource-related expenses normalized by revenue per available room (Rev PAR).

Kornfeld and Kara (2011) suggest that manufacturing organizations must routinely deliver efficiencies in order to compete. However, their ability to realize sustainable competitive advantage is hampered by the lack of sustainable objective. Bautista (2012) used the quantitative approach to analyze the present and future situation of the Venezuelan power generation sector and proposed a configuration based on the renewable-energy resources available in Venezuela and without the use of either

nuclear or CCS technologies, and these scenarios were referred as sustainable scenarios (SUS). Sanchez-Rodrigues *et al.* (2010) indicate that the main drivers impacting the sustainability of transport operations are delays, variable demand/poor information, delivery constraints and insufficient supply chain integration. Bilbao *et al.* (2011) framed model associated with the management of pallets throughout the entire life cycle, from materials to manufacturing, use, transportation to end-of-life disposal. Therefore we propose the following hypothesis:

H1. Environmental policy (EP) influences sustainable supply chain management positively.

Walsh and Dowding (2012) examined Coca Cola's corporate sustainability strategy in terms of the sourcing, usage, and replenishment of water used in its beverage production. On the basis of value chain analysis of water, the major economic, social, and environmental issues surrounding sustainable water management were analyzed. Coca Cola's water stewardship initiatives – from rainwater harvesting in Africa to reducing the water used in its operations – demonstrate sustainable water leadership can serve as a solution for water stressed regions of the world. Pinheiro *et al.* (2011) presented a case study of the electrification of a riparian community in the State of Pará, Brazil, with electrification facilities through a small biomass-based power plant, directly firing residues produced by the local economic activity.

Bansal (2005) studied the corporate sustainable development and examined its organizational determinants on the basis of Canadian firms in the oil and gas, mining, and forestry industries from 1986 to 1995. The study findings suggest that both resource-based and institutional factors influence corporate sustainable development. Despeisse *et al.* (2012) studied the sustainable work in the areas of product design, supply chain, production technology and waste avoidance activities. Warren (2012) emphasized on the importance of scenario analysis for the process of analyzing possible future events of sales and operations planning to manage complex issues. The study conducted by researcher shows that being proactive in sustainable operations allows a business to resolve environmental issues leadership and product differentiation (Biddle, 2011). Kleindorfer *et al.* (2005) studied the 3BL reporting concerning the relationship of profit, people, and the planet and enumerated the challenges including integrating environmental, health, and safety concerns with green-product design, lean and green operations, and CLSC.

Gabrielli and José (2009) described the environmental performance issues in three ways: improving its own culture and operations, influencing its suppliers, and championing renewable-energy development. The study further describes the center of its strategy and the company's top managers visibly demonstrate their commitment by joining the teams that go out into the field to audit health, environmental, and safety compliance. Brazilian suppliers run against one another in a battle to see who's greenest. The company has devised a system to measure and monitor their environmental performance – and awards contracts to the high scorers. It has also set its sights on becoming a world leader in biofuel, building a huge R&D network. Therefore, we propose the hypothesis:

H2. Partnering with suppliers for meeting environmental criteria enhances the ES of the organization.

The following methodology was adopted to test the hypotheses.

Methodology

This paper included the respondents from both manufacturing and service firm located in India. The sampling companies which have adopted sustainable practices were included in the research. Questionnaires were mailed to the top management of these firms in 1,000 firms. A variety of industries were included – electronics and allied industries, industrial machinery, and business consultant and services. The valid mailing was 528 surveys, from which 326 responses were received. Of the surveys completed and returned, only 227 were usable. The effective response rate was approximately 23.51 percent. This is acceptable according to research the response rate for a mail survey needs to be less than 20 percent. Moreover, non-response bias was investigated by χ^2. The result was non-response bias. Therefore, for this study, the response rate is considered acceptable.

Variables

All of the variables were obtained from the survey. Researchers used a five-point, Likert-type scale ranging from strongly disagree (1) to strongly agree (5) to measure all constructs. Sustainable strategy variables were adapted from Sarkis *et al* (2011). These assessed the degree of processes, practice and decision-making activities that help to implement the sustainable strategy. Measures of operation flexibility, for both centrality and complexity, were adapted. Firm size was included as a control measure. This is because small firms are believed to be at a disadvantage with respect to their resource endowments compared with large firms, Firm size is operationalized as a dichotomous variable, with a value of zero assigned to small firms (less than 100 employees) and a value of one assigned to large firms (100 or more employees), a commonly used classification.

Factor analysis has a high potential to inflate the component loadings. It was employed to test the validity of data in the questionnaire. The items used to measure each construct that was extracted to be one only principal component. Table I provides factor loadings that are shown to be greater than the 0.40 cut-off and, thus, are statistically significant (Nunnally and Bernstein, 1994). The scales of all measures appear to produce internally consistent results. Thus, these measures are deemed appropriate for further analysis because they express an accepted validity and reliability in this study.

The reliability of the measurements was evaluated by Cronbach's α coefficient. In the scales reliability, Cronbach's α coefficients are greater than 0.60 (Nunnally, 1967). Table I provides an α coefficient higher than 0.60 and Cronbach's α coefficient of constructs have values ranging from 0.61 to 0.86 the lowest coefficient for brand performance and the highest coefficient for brand association. Thus, internal consistency of the measures used in this study can be considered good for all constructs.

Results and discussion

Table I on next page shows the correlation matrix for all variables. Variance inflation factors (VIF) were used to check potential problems relating to multicollinearity, with non-orthogonality among independent variables inflates standard errors. The VIFs range from 1.03 to 2.82 well below the cut-of value of 10 recommended. Thus, they are not correlated with each other between independent variables. Hence, there are no substantial multicollinearity problems encountered in this study.

		Explicit definition of environmental policy	Clear objectives and long-term environmental plans	Sponsoring of environmental events/collaboration with ecological organization	Disposable disposal of waste and residues (separation and preparation)	Environmental criteria in supplier selection	Shipments consolidation	Supplier and NGO cooperation in carbon labeling
Explicit definition of environmental policy	Pearson correlation	1	0.468**	0.279	0.336*	0.172	0.034	−0.280
Clear objectives and long-term environmental plans	Pearson correlation	0.468**	1	0.160	0.652**	0.115	0.042	−0.149
Sponsoring of environmental events/collaboration with ecological organization	Pearson correlation	0.279	0.160	1	0.104	−0.043	−0.051	0.021
Disposable disposal of waste and residues (separation and preparation)	Pearson correlation	0.336*	0.652**	0.104	1	−0.130	−0.061	−0.044
Environmental criteria in supplier selection	Pearson correlation	0.172	0.115	−0.043	−0.130	1	0.844**	0.298
Shipments consolidation	Pearson correlation	0.034	0.042	−0.051	−0.061	0.844**	1	0.422**
Supplier and NGO cooperation in carbon labeling	Pearson correlation	−0.280	−0.149	0.021	−0.044	0.298	0.422**	1

Notes: *,**Significant at the 0.05 and 0.01 levels, respectively (two-tailed)

Table I.
Environmental policy leading to better implementation of sustainability strategy

Table I shows that clear objectives and long-term environmental plans influences the disposable disposal of waste and residues (separation and preparation) by recycling the waste (0.652). Moreover, the study also shows that there is a significant correlation between environmental criteria in supplier selection and the shipments consolidation (0.844). Therefore, study shows that designing the sustainability policy and including the GSC mission will enhance the firm's competitiveness and performance. According to sustainability strategy as organizational process that contributes to firm performance (Zhang *et al.*, 2012); Bhardwaj and Lai (2012) argue that green technology (technopreneurship) enhances the performance of the organization. Surprisingly, with GSCM, the firm performance is enhanced in terms of enhancing the image of the company in the eyes of the customer which gives boost to the sales. A finding inconsistent to Zeithaml *et al.* (2006) argue that sustainability brings back the repeat customers and thus increases firm growth.

The hypotheses of association for macro variables are tested by regression analysis. Since all the relationships are established through correlation analysis, no variables are dropped while carrying out the regression analysis. The stepwise regression models are developed and tested for the eight dependent macro variables.

Table II suggests that having clear objectives and long-term environmental plans also influences the natural environment training programs for managers and employees which in turn enhance the performance of sustainability strategy. Moreover, the first major predictor of sustainability is designing EP as shown in Table II. The other predictors are natural environment training programs for managers and employees. All these variables together explain 41.5 percent of the variance in sustainability; the rest is dependent on other variables and spurious variables not included in the model. The corresponding ANOVA values for the regression model are shown in Table III indicating validation at 99 percent confidence level. The coefficient summary as shown in Table IV gives β values of EP, training the employees on sustainability (TR) and sustainability outcomes measured as customer preference for green products (GP), which are fairly representative of their impact on sustainability. Thus, EP is emerging as a major influence variable for sustainability.

Table IV suggests that clear objectives and long-term environmental plans and providing natural environment training programs for managers and employees also motivates the preference for GP in purchasing. This is because when the organization discloses the sustainability practices data to the customers, it enhances the image of the company's products in the eyes of the customers. Table IV describes the coefficient of regression analysis.

On the basis of the regression analysis, the following sustainability model has been developed (Figure 1). The model shows the drivers of sustainability with the β values.

Model	R	R^2	Adjusted R^2	SE of the estimate
1	0.566[a]	0.320	0.303	1.207
2	0.666[b]	0.443	0.415	1.106

Notes: [a]Predictors: (constant), clear objectives and long-term environmental plans; [b]predictors: (constant), clear objectives and long-term environmental plans, natural environment training programs for managers and employees; Model summary of regression analysis of clear objectives and long-term environmental plans to enhance the employee's adoption of sustainability strategy

Table II.
Regression analysis

Contributions and future suggestion for research

Theoretical contributions and future suggestion for research

The central objective of this study was to highlight the importance of GSCM for the betterment of people, planet, and profit. Result argued that the sustainability strategy would lead to better performances, particularly given the challenging and competitive environment during the period of the study. This study reveals that it is critical to have sustainable policy for better firm competitiveness. This result is consistent with prior result published by Hamel and Prahalad (1991). Entrepreneurial activity involves creating new products leading of competitors and leading of explicit needs of

Model		Sum of squares	df	Mean square	*F*	Sig.
1	Regression	27.392	1	27.392	18.817	0.000[a]
	Residual	58.227	40	1.456		
	Total	85.619	41			
2	Regression	37.955	2	18.977	15.528	0.000[b]
	Residual	47.664	39	1.222		
	Total	85.619	41			

Notes: [a]Predictors: (constant), clear objectives and long-term environmental plans; [b]predictors: (constant), clear objectives and long-term environmental plans, natural environment training programs for managers and employees

Table III. Anova of regression analysis of clear objectives and long-term environmental plans to enhance the employee's adoption of sustainability strategy

Model		Unstandardized coefficients *B*	SE	Standardized coefficients *β*	*t*	Sig.
1	Constant	0.063	0.723		0.088	0.931
	Clear objectives and long-term environmental plans	0.732	0.169	0.566	4.338	0.000
2	Constant	0.538	0.682		0.789	0.435
	Clear objectives and long-term environmental plans	0.850	0.160	0.657	5.322	0.000
	Natural environment training programs for managers and employees	−0.455	0.155	−0.363	−2.940	0.005

Table IV. Coefficient of regression analysis

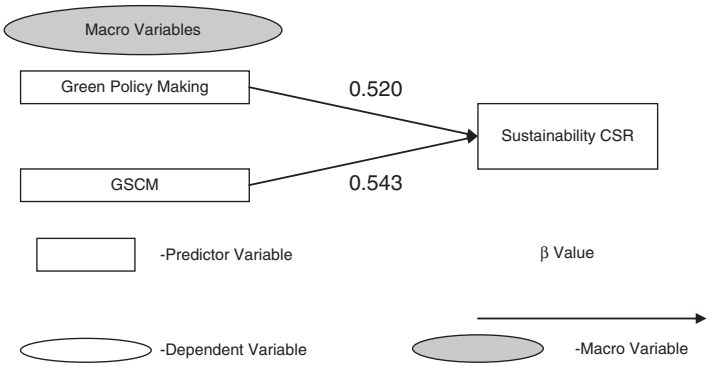

Figure 1. Validated model for macro variables as predictors of sustainable model

customers. This would mean that the organization must be ready to change as quickly as the changing needs of the customer. This leads us to postulate that the entrepreneurial organization will perceive that the organization is ready to change to maintain a sustainable competitive advantage. However, correlation coefficient between GSCM and green policy provide significant positive relationship. This result confirms the dominant effect assumption. Beside, future researchers need to study this relationship from other GSCM point of view. It links strategic management constructs and organization behavior construct. Researcher must review literature from both disciplines and relevant disciplines that prepare the completely understanding and generate contribution of relationship between them.

Managerial contribution

There are several implications of these results for both theory and managers. Although strategic planning is a process for anticipating competitive intensity, the logical sequential process often prescribed in the literature, is not enough to influence performance. Flexibility in strategy is needed to change operational issues, such as designing sustainable products and services or their production. It is interesting to observe that flexibility will, however, be necessary for effective mediation. Implications for managers include designing the strategic vision and mission for achieving minimum emission shipments and reducing carbon foot prints. However, the managers need to motivate their workforce by following the similar principles for enhancing the adoption. Also they need to design the monitoring of such a system and connect these objectives with performance appraisal. Second, flexibility requires managerial ability to generate appropriate alternative decision options with respect to operations. The sustainability strategy will only be effective if it is done in conjoint efforts put in by all the departments together. Also, it is observed that implementation of IT will also enhance paperless transaction.

Conclusion

The paper examines the role of EP in enhancing the adoption of sustainable strategy. Though the study provides some useful insights into the role of EP on firm's competitiveness, certain limitations should be recognized. First, the study used single-informant reports to measure each of the theoretical constructs. An alternative approach would have been to combine information from multiple informants, although the practical difficulties associated with using information from multiple-informant reports are well recognized by management researchers. Second, the cross-sectional research design limits the extent to which inferences can be made about the causal ordering of variables. Finally, the manufacturing sectors and service sector that we studied provided an appropriate setting, although research in other industries is required. Consider that the pace of strategic change in some industries may differ from the manufacturing sectors that we studied.

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