PalArch's Journal of Archaeology of Egypt / Egyptology

IMPACT OF GREEN SUPPLY CHAIN ON CUSTOMER SATISFACTION AND COST EFFICIENCY IN SAUDI AIRLINES

Noha Adel Babeear[1], *Ahmed Attia*[2]

[1,2] Effat College Of Business, Effat Universit Qasr Khuzam St.,Kilo. 2, Old Mecca Road.

P.O.Box 34689 Jeddah 21478 Saudi Arabia

Email: [1]nababeear@effatuniversity.edu.sa, [2]ahattia@effatuniversity.edu.sa

Noha Adel Babeear, Ahmed Attia. Impact of Green Supply Chain on Customer Satisfaction and Cost Efficiency in Saudi Airlines -- Palarch's Journal of Archaeology of Egypt/Egyptology 18(15), 9-16. ISSN 1567-214x

Keywords: Cost Efficacy, Customer Satisfaction, Green Supply Chain Management (Gscm), Managers, Saudi Arabia

ABSTRACT

Green Supply Chain Management (GSCM) focuses on integrating environmental thinking into the activities of supply chain management. There are very few studies on the green supply chain and its impact on performance, particularly in Saudi Arabia. Moreover, managers are not fully aware of the impact of the green supply chain on customer satisfaction and cost efficiency. Thus, this work was done to analyze the impact of green supply chain on customer satisfaction and cost efficiency. The research methodology was based on the quantitative method in which the survey and statistical analysis of the two variables (cost efficacy and customer satisfaction) were carried out. The sample of this study included 121 employees of Saudi Airlines. The data collected was analyzed in terms of reliability, correlation, ANOVA and regression analysis of green supply chain management practices, customer satisfaction and cost-effectiveness. The key findings of this work have shown that there is a strong positive impact of GSCM on customer satisfaction and cost efficiency.

CCS Concepts

• Information systems→Database management system engines • Computing methodologies→Massively parallel and high-performance simulations.

INTRODUCTION

The various environmental issues that arise at present have become important to business organizations as their stakeholders, customers, business competitors, non-governmental organizations and employees, are increasingly demanding that the firms address these environmental and social sustainability issues [1]. The organizations have focused on minimizing the environmental

impact by managing increasingly complex supplier relationships [2]. Supply Chain Management (SCM) plans and controls business processes, ranging from raw material suppliers to customers [2]. This management unites the various partners in the supply chain and is therefore a key starting point for the implementation of sustainability plans. Green Supply Chain Management (GSCM) focuses on integrating environmental conservation practise into the activities of Supply Chain Management [3].

This has gained popularity due to an increase in environmental degradation, such as increased CO_2 emissions, climate change, etc., which threatens the existence of humans and natural inhabitants [4]. The integration of environmental issues into the SCM has become a strategic issue for organizations if they wish to satisfy all stakeholders linked to them through the Supply Chain (SC) [4]. It is also a key source for organizations to achieve competitive advantages as well as to cope with increasing environmental regulations at various SC levels, such as at regional, national and international level [5]. The implementation of GSCM in organizations is expected to improve their business performance and enhance the image of their brand, which would ultimately lead to increased profitability of the company in the business market [6].

GSCM practices are commonly believed to represent an environmentally friendly image of the organization along with the products, processes, systems and technologies used by the organization [7]. It can be defined on the basis of a philosophy study as the elements of supply chain management that combines environmental factors as a single concept [7]. Green supply chain management has important objectives related to the various environmental performances, such as risk control, meeting market expectations, achieving good business performance and complying with the rules and regulations [8]. GSCM also emphasizes the efficiency, effectiveness and breadth of the implementation of green practices, along with other activities and initiatives to reduce environmental degradation [8].

Chin et al. [9] analyzed the relationship between GSCM, environmental collaboration and sustainability performance. The results have shown that environmental cooperation has been proposed as a catalyst for the relationship between GSCM activities and sustainability efficiency. Jabbour et al. [10] have analyzed the implementation and integration of green human resource management (GHRM) and green supply chain management (GSCM). The findings have shown that both GHRM and GSCM can be integrated with the appropriate framework for enhanced organization output and customer satisfaction. Cousins et al. [11] reviewed the efficiency and policies of GSCM and found that GSCM techniques are linked to enhancements in environmental and value-based efficiency. Zhu et al. [12] reviewed the implementation and practice of GSCM between Japanese and Chinese-based manufacturers and found that the awareness of GSCM policies between the two manufacturers was good and implemented in their respective organizations. Vanalle et al. [13] reviewed the practices of GSCM in the Brazilian automotive industry and found that the implementation of GSCM techniques had a significant impact on financial and environmental efficiency.

Many organizations, particularly in developing countries, are adopting green solutions to reduce negative environmental impacts in their businesses rather than adopting a proactive approach to reducing waste or pollution sources [8]. GSCM practices are used by organizations to gain competitive advantage in the growing market against their competitors, with the logic that customers who are aware of environmental degradation would choose a company that adopts the practice of GSCM, and therefore that particular organization would have a competitive advantage [8]. In addition, the organizations that implement GSCM practices are cost-effective as they focus on the conservation of materials, the reduction of energy use, etc., which gives the organization a better public image and reduces environmental liabilities. Thus, this work was done to explore the impact of the green supply chain on customer satisfaction and cost efficiency in Saudi Airlines.

METHODOLOGY

For this work, quantitative method was used. Survey and statistical analysis were done in this work. Figure 1 shows the development flow of the hypotheses. In this work, the following hypotheses were developed. They are H1: Green supply chain management has a significant relationship with customer satisfaction, and H2: Green supply chain management has a significant relationship with cost efficacy. The sample of the research is the 121 employees of the Jeddah branch of Saudi Airlines. The data collected through the survey was assessed by statistical assessment of reliability, correlation, ANOVA, and regression analysis of green supply chain management practices, customer satisfaction, and cost effectiveness.

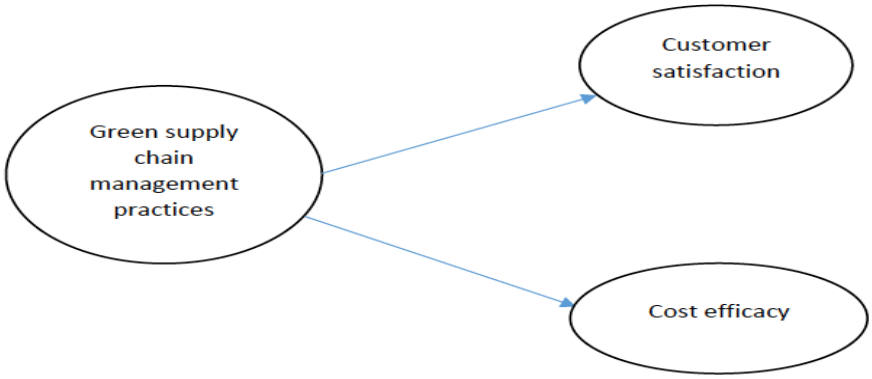

Figure 1. Research Model

RESULT AND DISCUSSION

Survey analysis

The questionnaires survey were conducted between February 2019 and April 2019. Responses were filled by employees Saudi Airlines, Jeddah, Saudi Arabia. Based on Table 1, the number of years worked in this organization are less than 3 years (33.9%), 3 – 5 years (36.4%), and over 5 years (29.8%). In

addition, this company private owned organization, with 100% of ownership. Furthermore, this organization has been operating for more than 5 years.

Table 1. Number Of Years In The Organization

No. of years	Percentage (%)
Less than 3	33.9
3 - 5	36.4
Over 5	29.8

Reliability analysis

Table 2 shows the reliability test for cost efficacy and customer satisfaction. Based on Table 2, it has been shown that Cronbach's formula needs to see whether the cost-effectiveness variable (Cronbach's alpha > 0.65). Since the value of Cronbach's alpha is 0.772, an acceptable form of reliability indicates that the cost effectiveness of this study is reliable. Furthermore, based on Table 1, for customer satisfaction, since the value of Cronbach's alpha is 0.845, it is a strong form of reliability stating that the customer satisfaction is reliable for this study.

Table 2. Cronbach's Alpha

Variable	Cronbach's Alpha
Cost efficacy	0.772
Customer satisfaction	0.845

Correlation Analysis

This test is used to determine the validity of the hypotheses and to see if the variables are related to each other. This is basically used to test the relationship analysis between variables that can range from positive (+ 1) to negative (-1) or have no relationship (0) at all. The analysis of the variables are shown in the Table 3. The Pearson correlation values define correlation. The average green supply chain (GSC) has a value of 0.607, cost effectiveness (CE) has a value of 0.644 and customer satisfaction (CS) has a value of 1. Thus, they have a significant relationship with each other and are positively linked.

Table 3. Correlations Analysis

Variable	Analysis	GSC	CE	SE
GSC	Pearson Correlation	1	0.721	0.607
	Sig. (2-tailed)		0.000	0.000

	N	121	121	121
CE	Pearson Correlation	0.721	1	0.644
	Sig. (2-tailed)	0.000		0.000
	N	121	121	121
SE	Pearson Correlation	0.607	0.644	1
	Sig. (2-tailed)	0.000	0.000	
	N	121	121	121

Regression Analysis

Table 4 shows the results of regression analysis for cost efficacy (CE) and Table 5 shows the ANOVA results. Based on Table 4 and Table 5, it can be seen from the tables above that the R square (model coefficient of determination) is 0.519 and that there is variance in the green supply chain management. With ANOVA test being done, it shows that there is no significant difference between the variables. The overall statistical significance of the model reveals that the model is significant with significance value of 0.000.

Table 4. Regression Analysis For Cost Efficacy

Variable	R	R Square	Adjusted R Square	Std Error of the estimate
CE	0.721	0.519	0.515	0.56389

Table 5. ANOVA Analysis For Cost Efficacy

Model	Sum of squares	df	Mean square	F	Sig.
Regression	40.899	1	40.899	128.622	0.000
Residual	37.839	119	0.318		
Total	78.738	120			

Table 6 shows the results of regression analysis for customer satisfaction (CS) and Table 7 shows the ANOVA results. It can be seen from the tables above that the R square (model coefficient of determination) is 0.369 and that there is

variance in the green supply chain management with respect to this variable. With ANOVA test being done, it shows that there is no significant difference between the variables. The overall statistical significance of the model reveals that the model is significant with significance value of 0.000.

Table 6. Regression Analysis For Cost Efficacy

Variable	R	R Square	Adjusted R Square	Std Error of the estimate
CS	0.607	0.369	0.364	0.67698

Table 7. ANOVA Analysis For Cost Efficacy

Model	Sum of squares	df	Mean square	F	Sig.
Regression	31.872	1	31.872	69.543	0.000
Residual	54.539	119	0.458		
Total	86.411	120			

OVERALL DISCUSSION

In this work, the use of statistical methods such as the reliability and validity test, correlation analysis, ANOVA, coefficients, and regression analysis was added to the hypotheses test. The results concluded that green supply chain management added cost effectiveness and customer satisfaction, as demonstrated by the testing and validation of the variables that demonstrated a positive and significant relationship between them. Therefore, hypotheses H1 and H2 are accepted. The outcome of this work is in line with the work of Chavez et al. [14] where it was confirmed that the implementation and the practice of GSCM has enhanced customer satisfaction for an organization. Furthermore, the work of Safari and Omidvari [15] have confirmed that the application of GSCM improves the cost effectiveness of an organization.

Moreover, the work of Aroonsrimorakot and Laiphrakpam [16] stated that the coordination of natural issues within the supply chain management (SCM) has become a key issue for the organization. The use of GSCM in organizations is relied on to improve their business execution and to take a picture of their image, which would at last lead to an improvement in the profitability of the company in the business by reducing costs and attracting customers by satisfying them with all aspects [16].

CONCLUSION

The study explored the impact of the green supply chain on customer satisfaction and cost efficiency in Saudi Airlines. The findings of this work have shown that the implementation of green supply chain management has added cost-effectiveness and customer satisfaction to the positive outcome. Hence, it is concluded that the practice of using green supply management by the Saudi Airlines organization helps to reduce costs and improves customer satisfaction. For future work, the authors aim to expand research and its involvement by choosing more cities and industries and adding more content to the subject under study.

REFERENCES

Fahimnia, B., Sarkis, J., & Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. *International Journal of Production Economics*, *162*, 101-114.

Johnsen, T. E., Howard, M., & Miemczyk, J. (2018). Purchasing and supply chain management: A sustainability perspective. Routledge.

Luthra, S., Garg, D., & Haleem, A. (2016). The impacts of critical success factors for implementing green supply chain management towards sustainability: an empirical investigation of Indian automobile industry. *Journal of Cleaner Production*, *121*, 142-158.

Rajeev, A., Pati, R. K., Padhi, S. S., & Govindan, K. (2017). Evolution of sustainability in supply chain management: A literature review. *Journal of Cleaner Production*, *162*, 299-314.

Formentini, M., & Taticchi, P. (2016). Corporate sustainability approaches and governance mechanisms in sustainable supply chain management. *Journal of Cleaner Production*, *112*, 1920-1933.

Jabbour, C. J. C., de Sousa Jabbour, A. B. L., & Sarkis, J. (2018). Unlocking effective multi-tier supply chain management for sustainability through quantitative modeling: Lessons learned and discoveries to be made. *International Journal of Production Economics*.

Teixeira, A. A., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Latan, H., & De Oliveira, J. H. C. (2016). Green training and green supply chain management: evidence from Brazilian firms. *Journal of Cleaner Production*, *116*, 170-176.

Singh, A., & Trivedi, A. (2016). Sustainable green supply chain management: trends and current practices. *Competitiveness Review*, *26*(3), 265-288.

Chin, T. A., Tat, H. H., & Sulaiman, Z. (2015). Green supply chain management, environmental collaboration and sustainability performance. *Procedia Cirp*, *26*, 695-699.

Jabbour, C. J. C., & de Sousa Jabbour, A. B. L. (2016). Green human resource management and green supply chain management: Linking two emerging agendas. *Journal of Cleaner Production*, *112*, 1824-1833.

Cousins, P. D., Lawson, B., Petersen, K. J., & Fugate, B. (2019). Investigating green supply chain management practices and performance. *International Journal of Operations & Production Management*.

Zhu, Q., Qu, Y., Geng, Y., & Fujita, T. (2017). A comparison of regulatory awareness and green supply chain management practices among

Chinese and Japanese manufacturers. *Business Strategy and the Environment*, *26*(1), 18-30.

Vanalle, R. M., Ganga, G. M. D., Godinho Filho, M., & Lucato, W. C. (2017). Green supply chain management: An investigation of pressures, practices, and performance within the Brazilian automotive supply chain. *Journal of cleaner production*, *151*, 250-259.

Chavez, R., Yu, W., Feng, M., & Wiengarten, F. (2016). The effect of customer-centric green supply chain management on operational performance and customer satisfaction. *Business Strategy and the Environment*, *25*(3), 205-220.

Safari, F. M., & Omidvari, M. (2017). Effect of green supply chain management on production costs, quality and productivity using structural equation modelling. *International Journal of Industrial and Systems Engineering*, *27*(3), 427-441.

Aroonsrimorakot, S., & Laiphrakpam, M. (2017). Implementing green supply chain management practices in organizations in Thailand: A review in search for key factors in GSCM implementation. *Journal of Thai Interdisciplinary Research*, *12*(6), 8-14.