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IMPACT OF GREEN SUPPLY CHAIN MANAGEMENT ON ORGANIZATIONAL PERFORMANCE

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Abstract:

This study evaluated the relation of implementing the green supply chain management on the entire business performance. This research has been done on the organizations in the e-commerce industry based in Karachi, Pakistan. The research has found that there is a direct relationship between green supply chain management, which includes the variables, Cooperation with Suppliers, Green Purchasing, Green Logistics, And Cooperation with Customers and the organizational performance. The results showed that business performance grows if the green supply chain management enhances operational efficiency and operational efficiency. The study has found and that the implementation of the sustainable supply chain in the firm has a positive impact on the economic performance of the company and competitiveness, hence provide a competitive edge to the company. This study also provides a clear image of how important the green chain plays a part in the organizational performance and that is for the well-being of the employees.

Key Words:

Green Supply Chain Management, Sustainability, Green Purchasing, Organizational Performance.

1. Introduction

The terminology supply chain has developed over the past decade as stated by (Seuring & Müller, 2008). Supply chain is an emerging topic of the market, as it connects all the other departments of an organization, which includes marketing, sales, operations, (Chin et al., 2015). (Carter & Liane Easton, 2011), predicted that in the near future the organization that have developed the inter relations of the organization will be the one leading the market and the industry.

An organizational performance can be measured through multiple dimensions, which may include, environmental, financial, economic, competitive, marketing, and operational. In the previous studies that are done, there is a positive relation between the all the dimensions with the organizational performance. Different studies have opted for different dimensions to evaluate the organizational performance. (Rao & Holt, 2005), used economic performance and competitiveness to evaluate the performance of the organization in their study. The organizational performance also includes the organizational image among the public, (Zailani et al., 2012). According to (Carter & Rogers, 2008), the originations that adopts and initiates with new procedures and concepts enjoys first mover advantage in the industry.

In the current time the organizations of all the industry are striving to maintain sustainability among its supply chain process. The organizations are striving hard to ensure the environmental sustainability, that their process which includes materials, wastage, end products are processed and delivered without damaging the environment, (Vachon & Klassen, 2007). To ensure the sustainability and the overall health of the environment, green supply chain is integrated in the process, (Green et al., 2012). With reference to the sustainability and environmental issues in Pakistan, the Sindh government has taken notice and banned the single usage of plastic bags in Sindh on Sep 27, 2019, which was implemented from October 01, 2019 across the province. The notification is regarding any sort of usage which includes banning of selling plastic bags as well, by tribune report. Though the notification has been implemented by the government and the manufacturing industry and other organizations are supporting this implementation in Sindh. This is to evaluate the impact of green supply chain over the organizational performance for a logical understanding.

2. Literature Review

2.1 Organizational Performance

The ultimate performance of the organization with the perspective of financial, economic and marketing, in the industry is the organizational performance, (Green et al., 2012). The overall

organizational performance should be effective and efficient, with reduced cost of purchased items, with lesser wastage, energy consumption, (Zhu et al., 2008a). he further suggests that the organizational performance should be efficient to deliver and produce more in less, in an appropriate effective manner. In a previous research done by (Khan & Qianli, 2017), suggested that the economic performance of an organization can be increased and better performed if the operational activities are sustainable. It helps an organization to lead in the various performances and eventually the organizational performance improves. (Lee et al., 2012), suggests that organizational performance improves when recognized by awards.

2.2 Green Supply Chain

The idea of green supply chain management (GSCM) has evolved from the concept supply chain management and sustainability. Lately climate and environmental issues are an important issue around the world. The issue has been discussed on multiple global forms. Sustainability and being greener is not only discussed on different platforms, but it is now being academically studied and researched in different dynamics and also being practiced by the industry. Organizations are exerting pressure towards strategizing, designing, building and implementing sustainable green operations and green supply chain,(Chan et al., 2012).

2.3 Cooperation with Suppliers

Cooperation with the suppliers is one of the core items in green supply chain according to. The cooperation and collaboration in the green supply chain management with the suppliers complements the entire strategy by the organization. It is more focused towards the strategy side of the supply chain management (Rao & Holt, 2005), which includes managerial level decisions in the retailing sector, operational, and tactical and strategic side. The collaboration with suppliers in green supply chain management helps the organization to numerous ways. The most important is to satisfy all the stake holders, it also helps the organization with new collaborations with the suppliers and also helps in reducing supply chain risks, by achieving economies of scale (Rao & Holt, 2005). The seminars and workshops help the organizations and suppliers to exchange information and frame policies with the help of understanding and loopholes from both the aspect and helps to build mutual cooperation. Hence our first hypothesis is created as:

H1: there is a positive relation of Cooperation with Suppliers on Organizational Performance.

2.4 Green Purchasing

Green purchasing can be defined as a procedure to select the suppliers which have features such as ecofriendly, environmental performance, environmental competence, and support green and sustainable product, and are focused towards sustainable growth. The focus is towards eco labeling, ecofriendly ordering, through emails, to promote paperless environment. Recycle and reduce are the core activities discussed by (Mentzer et al., 2001), in order to achieve the green purchasing activity. It helps in controlling the pollution and also helps the organization to achieve its economical performances (Chin et al., 2015) and also helps the firm to build positive image and reputation in the market. Hence our second hypothesis is created as:

H2: there is a positive relation of Green Purchasing on Organizational Performance.

2.5 Green Logistics

Green logistics is referred to transportation and delivering products or services, in bulk or grouping other orders together, rather than smaller batches in order to achieve minimum usage of fuel. The concept behind green logistic is the minimum usage of fuel consumption to keep the environment clean, rather than to achieve any economic advantage. The goods or services are directly delivered to the consumer or the user, by using alternative fuel vehicles, which may damage the environment. According to (Vasileiou & Morris, 2006), it is reverse logistics that is used in green logistics process. Hence our third hypothesis is created:

H3: there is a positive relation of Green Logistics on Organizational Performance.

2.6 Cooperation with Customers

In any business, customers are the main focus of the business. Customers derive the policies and strategies of the organization. Customers play a key role in the supply chain management as they tend influence towards the strategies of the organizations for adopting green and sustainable practices to eliminate and reduce harmful impact of the organizational practices Freeman 1984. Previous researches have supported the fact that the customers play a positive role and supports the organizations to adopt and implement green practices. Previous reaches have also found that with the valuable feedback, response of customers, and also collaboration with the customers, have helped the organizations to frame the ecofriendly policies and initiatives, Vaccaro and Echeverri (2010). Hence our fourth hypothesis is created as:

H4: there is a positive relation of Cooperation with Customers on Organizational Performance.

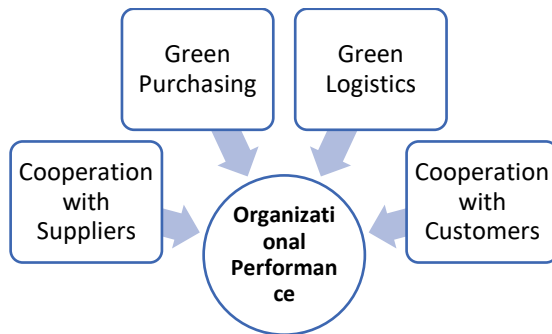
3. Research Methodology

3.1 Research Approach

The research approach for this study is deductive research approach which is concerned with “developing a hypothesis based on existing theory, therefore, it uses tests to determine this hypothesis. It also aids in getting conclusion from general statements (Lindlof & Taylor, 2017).

3.2 Research Model

Figure 1: Research Framework



The above figure depicts the proposed model of GSCM on organizational performance. The rationale for the entire model has been reviewed in earlier researches by (Baldwin & Ford, 1988). The green supply chain model indicates three significant inputs which are “green purchasing, green logistics, cooperation with suppliers and cooperation with customers”.

3.3 Research Type

The type of research for this study is quantitative research. There are mainly two types of research method qualitative and quantitative research methodology (Creswell, 2011).

3.4 Research Population and sample

The research population is a defined group in the research. In this research, the population is the executive staff of the organizations from the e-commerce industry in Karachi. The sample size of the research is calculated from raosoft (Raosoft, 2004), the sample size calculator. The sample size of the study is 200 according to the raosoft calculator with 95% confidence level and 5% margin of error.

3.5 Sampling Technique

This research is based upon probability sampling technique because the population is clearly defined in the research and it is directly based on e-commerce firms in the city of Karachi.

Furthermore, the actual technique used while collecting the data was random sampling from different institutions.

3.6 Research Instrument

The research instrument was structured questionnaire. The questionnaire consisted of two basic parts, demographics which were followed by the main constructs of Green Supply chain Management (Cooperation with Suppliers, Green Purchasing, Green Logistics and Cooperation with Customers), and Organizational Performance. These statements were measured on five-point Likert scale.

3.7 Data Collection and Data Analyses Method

The data collection method in this research is self- administered questionnaire by visiting each organization personally with delivery and collection and internet questionnaire. Each company was visited according to the appointments, and the data was collected with a brief introduction to the line managers about the survey and the thesis and making them understand regarding the questions present in the questionnaires to overcome any misunderstanding which may lead to errors. The data has been gathered through primary sources while, the results are run on IBM SPSS statistics version 23 (Field, 2013).

4. Results

4.1 Descriptive Profile of Variables

Table 1

	N	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Cooperation with Suppliers	209	4.278	.533	-.607	.168	.929	.335
Green Purchasing	209	4.3397	.529	-.908	.168	1.033	.335
Green Logistics	209	4.450	.695	-1.817	.168	4.473	.335
Cooperation with Customers	209	4.2596	.622	-1.037	.168	1.606	.335
Organizational Performance	209	3.97	.629	-.707	.168	.675	.335

The skewness of the data shows that respondents are either rightly skewed, or negatively skewed, that the respondents have likely responded in the same way. The kurtosis is the peak of the curve, the higher the peak the similar the respondents were, and the flat the curve is the greater than variation is present among the response of the data collected. The greater the variation among the data collected means that the findings cannot be generalized. The data collected are much similar and that the findings can be generalized on the sample size.

4.2 Content validity

There are three types of validity, discriminant, content and convergent validity. Convergent validity helps to find whether each question in the construct is related to each other or not. The validity of dependent variable should be more than 0.5. KMO is the test will be conducted in the validity test.

Table 2

Construct	KMO	Bartlett Test for Sphericity	Items
Cooperation with Suppliers	.758	126.250	05
Green Purchasing	.709	95.365	04
Green Logistics	.500	147.215	02
Cooperation with Customers	.750	209.936	04
Organizational Performance	.736	345.458	06

With the above-mentioned table, the KMO of each variable, dependent and independent is above 0.6. The higher value indicates that the instrument used in this research is correct and valid.

4.3 Reliability of Instrument

Reliability of instrument refers to the quality or assessment of the questionnaire. The questionnaire should be consistent and should give a roughly the same results every time that it is tested. The results of reliability should be more than 0.5 for average, more than 0.7 for Cronbach Alpha, and more than 0.6 for composite reliability (Bertelsen, 1998).

Table 3

Construct	No. of items	Cronbach's Alpha
Cooperation with Suppliers	05	.724

Green Purchasing	04	.636
Green Logistics	02	.833
Cooperation with Customers	04	.763
Organizational Performance	06	.751
Overall	21	.819

The above table shows the reliability of the constructs separately and also the overall reliability analysis of all the constructs. Green Logistics has the highest reliability with .833 Cronbach's Alpha, whereas the Green Purchasing has the lowest reliability .636 Cronbach's Alpha yet acceptable. The overall reliability of the construct includes all the variables, dependent and independent, which has .819 Cronbach's Alpha. This suggests that the reliability is high and can be continued for the final project.

4.4 Pearson Correlation

Table 4

	Cooperation with Suppliers	Green Purchasing	Green Logistics	Cooperation with Customers
Cooperation with Suppliers				
Green Purchasing	.569			
Green Logistics	.513	.614		
Cooperation with Customers	.551	.546	.568	
Organizational Performance	.309	.362	.342	.458

The above table clearly shows that all the variables related and also, they have separate identity. The independent variables are all correlated with the dependent variable too. However, the dependent variable organizational performance has a weaker relation with other independent variable, but that is normal as green supply chain and organizational performance are two different variables.

4.5 Regression

Table 5

Model	R	R ²	Adjusted R	Std. Error of the Estimate	Sign.
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1	.480	.230	.215	.557	0.000
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The above table shows the result of regression. Regression analysis basically shows the impact of the data. The result of regression analysis of cooperation with suppliers, green purchasing, green logistics, cooperation with customers and organizational performance is shown in the above table.

4.6 Coefficients

Table 6

		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
Cooperation	with	.018	.095	.188	.851
Suppliers					
Green Purchasing		.151	.102	1.484	.139
Green Logistics		.054	.076	.713	.477
Cooperation	with	.351	.083	4.237	.000
Customers					
Organizational		1.512	.361	4.189	0.000
Performance					

According to the results demonstrated in table 6, does not have any significant impact on organizational performance (B= -.018, Sig. = 0.851), as the significance level is more than 0.05 hence hypothesis one is rejected. As per the result demonstrated in the above table 4.5, the quality of trainer is highly significant (B = 0.151, Sign. = 0.139). Hence the hypothesis 3 is positive and accepted. The hypothesis 3 proposes that there is a positive relation between the green logistics and organizational performance. According to the test results the variable green logistics did play a significant role in relation with organizational performance (B = .054, Sign. = 0.477). The last hypothesis 4 comprising this model is cooperation with suppliers has a positive effect on organizational performance, has a significant effect on organizational performance (B = 1.512, Sign. = 0.000), hence this is also acceptable.

5. Discussion

The general objective of this study was to find the green supply chain on organizational performance together. Previously the studies have been conducted on impact of different sub variables of green supply chain on organizational performance. This study focuses on the

impact of both the variables together, different sub variables of green supply chain on organizational performance. There are four elements of green supply chain (cooperation with suppliers, green purchasing, green logistics, and cooperation with customers) in this study. There are other factors also which are included in green supply chain, but this study focuses on these four specific factors.

The main findings this study includes five hypotheses as per the model of this research. The impact of cooperation with suppliers does not have a significant impact on the organizational performance. The green purchasing, green logistics, and cooperation with customers has a significantly positive impact on the organizational performance. Lastly the main hypothesis, the model summary suggests that as a whole green supply chain have a significantly positive role on the organizational performance in the ecommerce industry in the city of Karachi.

Green supply chain positively influences organizational performance of the employees through 23.0%. The strength of these four, cooperation with suppliers, green purchasing, green logistics, cooperation with customers up to 23.0%. The significance of the model is 0.00, which is less than 0.5, which shows that the research model and the impact are significant and is acceptable. The overall model analysis in the above table shows moderate R² 0.23 and adjusted R value with 0.480. The strength of relation between cooperation with supplier's green purchasing green logistics cooperation with customers are strong, the relation with organizational performance is a bit weaker, as it is not a part of green supply chain, and hence proves that organizational performance is a separate variable than green supply chain.

This study contributes in the theoretical and practical world. Theoretically it shows the relationship between the cooperation with suppliers, green purchasing, green logistics, cooperation with customers with organizational performance. This study contributes that overall cooperation with suppliers, green purchasing, green logistics, cooperation with customers has a positive relation with organizational performance among the employees. This study provides empirical contribution too. It shows the importance of cooperation with suppliers, green purchasing, green logistics, cooperation with customers on organizational performance. This also shows which of the three factors positively influences the satisfaction level of organizational performance, and the policy makers and employers can actually focus the important factors while implementing. This study also provides a clear image how important green chain plays a part in the organizational performance and that is for the well-being of the employees.

6. Conclusion

There are a few limitations in this study. The limitations were because of limited time frame, ease of population, length of the study as a detailed could be done at doctorate level. This study only includes four factors of green supply chain, whereas there many more factors that includes in green supply chain, and same goes for organizational performance. The second limitation was then population; this study cannot be generalized to all the industries in Karachi, because this study focuses on ecommerce industry available in the Karachi.

For future researches, this study can serve as a guideline, and also as an initiative of further research on the same population. Firstly, study in future can include and test other elements of cooperation with suppliers, green purchasing, green logistics, cooperation with customers on organizational performance and their impact on each other, as there are more elements of these variables which may have a highly significant impact on each other. This will help to find which factor has the most influence on the dependent variable. This study can also serve as the basis of testing the same test on different population, like this is conducted on the ecommerce industry, others can conduct this on different industry and do a comparison, which will give a completely different result. It will help to find out the impact of same independent variables on the same dependent variable but in a different industry to test the reaction of same factors.

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Appendices

Appendix-A QUESTIONNAIRE

Impact of Green Supply Chain Management on Organizational Performance

Demographic Data Form

Please mark the response that best describes you. Personal credentials will be kept confidential and will not be misused by anyone.

1.	Origin of capital *	a.	Domestic
		b.	Mixed or foreign
2.	Number of employees *	a.	Up to 10 employees
		b.	From 10 to 50 employees
		c.	From 50 to 250 employees
		d.	More than 250 employees
3.	Market *	a.	Local
		b.	Regional
		c.	National or international
4.	Length of doing business in market *	a.	Less than 5 years
		b.	From 5 to 10 years
5.	Revenue from food products sale *	a.	Less than 25%
		b.	From 25 to 50%
		c.	From 50 to 75%
		d.	More than 75%
6.	Number of suppliers of food products *	a.	Up to 50 suppliers
		b.	From 50 to 100 suppliers
		c.	More than 100 suppliers
7.	Retail formats *		Convenience stores
			Supermarkets
			Hypermarkets

			Different retail formats
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Please select the most accurate response to each item. Your honest and thoughtful replies are appreciated. Your responses will remain confidential and will not be released to anyone.

Rating Scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Using above scale, please select your rating as per your best knowledge about the statements below.

	5	4	3	2	1
Cooperation with Suppliers (COOP)					
1. The company collaborate with suppliers to create environmentally friendly packaging					
2. The company conducts seminars/workshops for suppliers related to environmental protection					
3. The company attends suppliers' seminars/workshops related to environmental protection					
4. The company encourages suppliers to establish their own environmental programs					
5. The company encourages active cooperation with suppliers to reduce the impact of business activities on the environment					
Green purchasing					
1. The company evaluates the environmental practices of suppliers					
2. The company collaborates with suppliers to reduce packaging/ packaging waste					
3. The company does environmental audit for suppliers' internal management					
4. The company purchases eco labelled products					
Green Logistics					
1. Selecting the location of the warehouse/distribution center accordingly					
2. The organization is using renewable energy in the warehouse distribution center					

Cooperation with Customers					
1. The organization cooperate with customers for eco-design					
2. The organization cooperate with customers for cleaner production					
3. The organization cooperate with customers for green packaging					
4. The organization cooperate with customers for developing environmental database of products					
Organizational Performance – Dependent Variable					
1. The cycle time has been reduced					
2. The overall, costs have been lowered					
3. The overall, products' quality has been improved					
4. The customer service has been improved					
5. The project duration has been reduced					
6. Our firm has delivered greater value to our customers					