Original Article

Journal of Social Welfare and Management
Volume 10 Number 3, September - December 2018
DOI: http://dx.doi.org/10.21088/jswm.0975.0231.10318.53

Optimizing Holistic Supplychain Management Practice: An Exploratory Study on Green Logistics Companies in Chennai City

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Abstract

Logistics industry in India is gaining momentum at fast pace with the evolution of infrastructure and technological innovations with the emergence of new types of top logistics companies in India. The Indian logistics industry is defined by its ability to function as an integral service to the customers in helping them ameliorate their overhead costs in the logistics sector in India. Logistics is regarded as a crucial sector of the economy to offer cost-effective solutions for shipment and transportation of goods that supports various other commercial sectors. Logistic industry in India is evolving rapidly, it is the interplay of infrastructure, technology and new types of service providers, which defines whether the logistic industry is able to help its customers reduce their costs in logistic sector and provide effective services. The recent Indian logistics sector comprises of inbound and outbound segments of the manufacturing and service supply chains. Green logisticsis a form of logistics which is calculated to be environmentally and often socially friendly in addition to economically functional. It describes all attempts to measure and minimize the ecological impact of logistics activities. This includes all activities of the forward and reverse flows of products, information and services between the point of origin and the point of consumption. It is the aim to create a sustainable company value using a balance of economic and environmental efficiency. Logistics companies in India are waking up to the global trend of offering green services to their customers and are showcasing what they do to reduce their carbon footprint. The objective of research paper is to measure holistic Supply chain Management practices among suppliers and customers of green logistics companies in Chennai city.

Keywords: Rfid Technology; Supplier(S) Relationship Management; Manufacturing Flow Management; Audit Performance of Supply Chain and Supply Chain Function.

Introduction

The logistics industry of India is currently estimated to be around US$ 160 billion. With implementation of GST the sector is expected to benefit and touch US$ 215 billion over the next two years, as per the Economic Survey 2017-18. The government's focus going forward is to bring down the cost of logistics which is at 14.4 per cent of India's GDP at present. The aim is to bring it down to 10 per cent level in the next four years. This is a very significant move and will boost the competitiveness of the sector and will be significant for its further growth. Green logistics is concerned with reducing environmental and other negative impacts associated with the movement of supplies. Green supply chains seek to reduce negative environmental impact by redesigning sourcing/ distribution systems and managing reverse logistics to eliminate inefficiencies. Internationally, logistics firms are already offering such solutions as part of their strategy to reduce their environmental impact. Such a move was prompted by a mix of regulatory requirements and demand for such services from customers, who are keen to be seen as 'carbon-conscious'. The green logistics in supply chain management is a powerful way to differentiate a company from its competitors and it can greatly influence the plan success. With increased awareness to corporate responsibility and the requirement to meet the terms with

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Received on 06.11.2018, **Accepted on** 03.12.2018

environmental policy, green logistics in supply chain management is becoming increasingly important for Indian manufacturers. Companies that have adopted GSCM practices with a focus on distribution activities have successfully improved their business and environmental performance on many levels.

The objective of the researcher paper was to find out the effectiveness of green logistics companies in supply chain management practices among suppliers and customers and identify the strategy adopted by the logistics service providers in Chennai city.

Literature of Review

Anderson, David L, Britt, Frank F, Favre, Donavon J. (2015). The authors' finds that these principles help managers decide how to proceed; we revisited the supply chain initiatives undertaken by the most successful manufacturers and distilled from their experience seven fundamental principles of supply chain management. Segment customers based on the service needs of distinct groups and adapt the supply chain to serve these segments profitably. Customize the logistics network to the service requirements and profitability of customer segments. Listen to market signals and align demand planning accordingly across the supply chain, ensuring consistent forecasts and optimal resource allocation. Differentiate product closer to the customer and speed conversion across the supply chain. Manage sources of supply strategically to reduce the total cost of owning materials and services. Develop a supply chain-wide technology strategy that supports multiple levels of decision making and gives a clear view of the flow of products, services, and information.

Chieh-Yu Lin, Yi-Hui (2016). They studied about the purpose of this paper is to study the factors influencing the adoption of RFID technology and the relation between RFID technology adoption and supply chain performance for logistics companies. Determinants of RFID technology adoption are analyzed from the technological, organizational and environmental perspectives. A total of 574 logistics companies were analyzed. Logistics companies' willingness to adopt RFID technology are significantly influenced by the explicitness and accumulation of technology, organizational encouragement for innovation, quality of human resources, and governmental support. There is a positive association between the willingness to adopt RFID technology and supply chain performance for green logistics service providers

Sharma, Manikee Madhuri (2016), the authors said that the top companies from everywhere the world practice a powerful novel source of competitive advantage. It is called the Supply Chain Management and it embraces all of those integrated actions that bring product to market and craft satisfied customers. The Supply Chain Management Program assimilates topics from manufacturing operations, purchasing, transportation, and physical distribution into a cohesive program. Successful supply chain management, then, synchronizes and integrates all of these activities into a unified process.The paper accentuates upon the application of Supply Chain Management and adding the 'Green' element to it so as to emphasize upon the need of environment friendly systems. The growing significance of GSCM is motivated mainly by the mounting deterioration of the environment.

Fatorachian, Hajar; Shahidan, Malihe, Kazemi, Hadi (2017) This research aims to investigate the role of internet in improvement of each part of supply chain as well as overall supply chain integration such as Supplier(s) relationship management, Manufacturing flow Management, Demand Management and Order Fulfilment. This study highlights the main issues for supply chain managers faced with implementing E-supply chain management, illustrating the impact of internet on improvement of supply chain processes.

Need for the Study

The Study of Supply Chain Management can focus on management process and the skills needed to perform theactivities involved. The three important domain areas of Supply Chain Management are facilities location, Supply Chain Management levels and mix, and transport facilities. Supply Chain Management function is concerned with providing servicelevels to customers and managing costs appropriately for the company. Study of Supply Chain Management includes principles and practices related to the above issues.

This research & findings are considered important to provide an insight into the various Supply Chain Management functions needed to be carried out in Green Logistics Companies for the optimum andeffective use of resources available in the organization how satisfactory they are to the internal & external customers. It also helps the organization in understanding the need

for considering the green house initiatives and selecting an economical warehouse/distribution centers. The study also provides an insight into the need for quick customer services and handling of various complaints in aneffective manner.

Statement of the Problem

In the present global scenario, when the world has become borderless, organization started to purchase the products from all parts of the world. They had started dictating their terms to the SCM Service Providers to deliver their product at the right time and minimum price. To compete and survive in the market, the LSPs are trying to re-engineer their processes and trying to cut their internal costs from all corners. They need to relocate their warehouses, collaborate with their counterparts and optimize the existing resources. In order to provide the information and tracking facilities to the customers, they are going in for the online product tracking system and also for Global Positioning System.

The Present study will explore various factors whicharerespons ibleformeasuringtheeffectiveness of the Supply Chain Managementof green Logistics industry. It will compare the existing levels of the effectiveness of the Supply chain and will suggest few strategies for the improvements. The studies did not address the effect of supply chain quality management practices on the performance of Green Logistics Companies in Chennai city.

This study therefore sought to fill this research gap by examining the effects of supply chain quality management practices on the performance of Green Logistics service providers.

Objective of the Study

- To know whether the customer are satisfied with the existing range of service pattern of the Green Logistics companies in Chennai city.
- To identify the factors responsible for measuring Supply Chain Effectiveness of Green Logistics companies in Chennai city.
- To examine the relationship between SCM practices and organizational performance of the firm.
- To study the integrated function of supply chain management practices adopted by Green Logistics companies in Chennai city.

Scope of the Study

This study seeks to examine the supply chain quality management practices on performance of Green Logistics Companies in Chennai city. The study examined the influence of benchmarking, employee involvement, supplier integration and outsourcing on performance of LogisticsService providers in Chennai city. The study also helps the future researchers to understand and to make improvements based on structure & culture of the organization and emerging trends in Supply Chain Management functions.

Research Methodology

Research Design

The present researchdesign is descriptive and diagnostic in nature as it describes what is happening, why it happening and possible solution is for it via understanding and analyzing the suppliers and customers assessment towards the efficiency of Supply chain management practices of Green Logistics services providers in Chennai city.

Sampling Design

Population

The study of various characteristics relating to items\individual belong to a particular group is called as population. The population of the study consists of the different customersusing Supply chain management activities ofGreen logistics companies in Chennai city. The sample size of the actual study consisted of 71 customersusing green logistics in Supply chain management practices.

Sampling Technique

The sampling technique used was probability sampling method is adopted in this study. It refers to the technique where the probability of each cases being selected from the total population is known. The sampling technique used was Random Sampling wherein every item of the population has an equal and likely chance of being selected in the sample. Here, the selection of the item solely depends on the chance and therefore, this method is also called as a Method of Chance Selection.

Data Collection Method

The present study has employed both the primary and secondary data. Data was collected only through primary source. Primary data was collected through questionnaires. For this purpose support from Green logistics companies were received.. To analyze the trends of green logistics in supply chain management services, secondary data has been collected from the websites, journal and reports.

Data Analysis

Reliability Test

Table 1: Case Processing Summary

		N	%
Cases	Valid	12	100.0
	Excludeda	0	.0
	Total	12	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2: Reliability Statistics

Cronbach's Alpha	No of Items
.902	38

Inference: The Cronbach's alpha coefficient for 38 items is 0.902 suggesting that the items have high level of internal consistency.

Chi Square Test

Null Hypothesis (H0): There is no association between effectiveness of Green Logistics Companies in managing supply chain and size of the firm.

Alternate Hypothesis (H1): There is association between effectiveness of Green LogisticsCompanies in managing supply chain and size of the firm.

Table 3: Effectiveness of Green Logistics in Managing Supply Chain * Size of the Firm.

		Cross Tabulation			
		Size of the Firm			
Count		small size	Medium size	large scale	Total
Effectiveness of Green Logistics in Managing Supply Chain	Excellent	0	0	14	14
	Good	0	14	0	14
	Averaage	0	15	0	15
	Poor	15	0	0	15
	Very poor	0	0	13	13
Total	15	29	27	71	

Table 4: Chi-Square Tests.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	142.000a	8	.000
Likelihood Ratio	150.781	8	.000
Linear-by-Linear Association	3.621	1	.057
N of Valid Cases	71		

a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is 2.75.

Inference: The Pearson chi square significant value is 0.000 which is lesser than 0.05. Hence reject null hypothesis. Hence there is association between effectiveness of Green Logistics Companies in managing supply chain and size of the firm.

One Way Anova Analysis

Null hypothesis (H0): There is no significant difference between the experience of the firm and their perception towards the factors responsible for measuring supply chain management.

Alternate hypothesis (H1): There is significant difference between the experience of the firm and their perception towards the factors responsible for measuring supply chain management.

Table 5: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Planning For Supply Chain	Between Groups	76.319	3	25.440	28.096	.000
	Within Groups	60.667	67	.905		
	Total	136.986	70			
Supplier's Relationship Management	Between Groups	140.245	3	46.748	464.658	.000
	Within Groups	6.741	67	.101		
	Total	146.986	70			
Manufacturing Flow Management	Between Groups	125.164	3	41.721	46.077	.000
	Within Groups	60.667	67	.905		
	Total	185.831	70			

Product Development Manaement	Between Groups	115.037	3	38.346	95.285	.000
	Within Groups	26.963	67	.402		
	Total	142.000	70			
Customer Service	Between Groups	157.009	3	52.336	130.050	.000
	Within Groups	26.963	67	.402		
	Total	183.972	70			
Damand Management	Between Groups	83.333	3	27.778	30.678	.000
	Within Groups	60.667	67	.905		
	Total	144.000	70			
Order Fulfilment	Between Groups	140.245	3	46.748	464.658	.000
	Within Groups	6.741	67	.101		
	Total	146.986	70			
Returns Management	Between Groups	119.992	3	39.997	397.555	.000
	Within Groups	6.741	67	.101		
	Total	126.732	70			
Audit Performance of Supply Chain	Between Groups	76.319	3	25.440	28.096	.000
	Within Groups	60.667	67	.905		
	Total	136.986	70			

Inference: Here p values is lesser than 0.05. Hence reject null hypothesis. There is significant difference between the experience of the firm and their perception towards the factors responsible for measuring supply chain management.

Kruskal-Wallis Test

Null hypothesis (H0): There is no significant difference between the organizational performance towards supply chain management and the type of business.

Alternate hypothesis (H1): There issignificant difference between the organizational performance towards supply chain management and the type of business.

Table 6: Ranks

	Type of The Business	N	Mean Rank
Opinion About Utilizing Best Rfid In Present Competative World	Retailer	15	22.00
	Wholesale	13	36.00
	Import/ export company	14	7.50
	Total	42	

Table 7: Test Statisticsa,b.

	Opinion About Utilizing Best Rfid in Present Competative World
Chi-Square	41.000
df	2
Asymp. Sig.	.000

a. Kruskal Wallis Test
b. Grouping Variable: Type of the Business.

Inference: Since p-value = 0.000 ≤ 0.05 = α, we reject the null hypothesis. At the α = 0.05 level of significance, there exists enough evidence to conclude that there is significant difference between organizational performance towards supply chain management and the type of business.

Kendall's W Test

Null hypothesis (H0): There is no significant difference between the mean ranks towards integrated function of supply chain management practice adopted by Green Logistics Companies.

Alternate hypothesis (H1): There is significant difference between the mean ranks towards integrated function of supply chain management practice adopted by Green Logistics Companies.

Table 8: Ranks.

	Mean Rank
Selection of Supplier's	3.25
Purchasing	4.39
Trasporting	4.60
Manufacturing	3.56
Stock	3.65
Warehousing	4.18
Distribution	4.39

Table 9: Test Statistics.

Test Statistics	
N	71
Kendall's Wa	.064
Chi-Square	27.398
df	6
Asymp. Sig.	.000

a. Kendall's Coefficient of Concordance.

Inference: It reveals that since p value is less than 0.05, the null hypothesis is rejected at 5 percent level of significance. Hence it is concluded that there is significant difference between the mean ranks towards integrated function of supply chain management practice adopted by Green Logistics Companies.

Finding of the Study

- The Cronbach's alpha coefficient for 38 items is 0.902 suggesting that the items have high level of internal consistency.
- Using chi square Analysis, it is found that The Pearson chi square significant value is 0.000 which is lesser than 0.05. Hence, reject null hypothesis. Hence, there is association between effectiveness of Green Logistics Companies in managing supply chain and size of the firm.
- Using One Way Anova, it is reveals that p values is lesser than 0.05. Hence reject null hypothesis. There is significant difference between the experience of the firm and their perception towards the factors responsible for measuring supply chain management.
- From Kruskal Waalis Test, it is found that p-value = $0.000 \leq 0.05 = \alpha$, we reject the null hypothesis. At the $\alpha = 0.05$ level of significance, there exists enough evidence to conclude that there is significant difference between organizational performance towards supply chain management and the type of business.
- Using Kendall W test, it reveals that p value is less than 0.05, the null hypothesis is rejected at 5 percent level of significance. Hence it is concluded that there is significant difference between the mean ranks towards integrated function of supply chain management practice adopted by Green Logistics Companies.

Suggestions

On the basis of the findings of the Study the researcher proposes following suggestions To the Green Logistics service providers.

- It is suggested that the Green Logistics Companies should develop the information systems that enhances and integrate the supply chain. This has been shown in the research that the competitiveness of firms in terms of lower costs, improvement in customer value, and maintenance of long term competitive advantage in the rapidly changing, customer driven, internet enabled, e-commerce business environment should be adopted through only information system.
- Information technology and communication plays a vital role in manufacturing company. Hence all the employees should be trained with the software packages which help to improve overall performance of the company. The existing software packages are not user friendly to the employees of Green Logistics Companies, so the company should standardize uniqueness in software packages based on the requirements of current business activities instead of custom made.
- The Green Logistics Companies should focus customer service requirements and performance, as well as the influence of customer service levels on customer behaviour, should be understood and monitored for both immediate and downstream customers in a supply chain.
- The segmentation is used to design a supply chain with more efficiency to manage complexities, increase flexibility and adoptability. This will improve the product availability at a lower cost. The Green Logistics Companies should create supply chain segments by analysing data on demand, product information, supply source, storage location, and transportation and inventory policies.

Conclusion

GreenLogistics and supply chain management are observed as the areas in which logistics service providers, by virtue of their expertise, are able to offer the most added value to transactions in the freight trade. Freight forwarders, as "logistics service providers," play an important role in supply chain management, as an increasing number of firms outsource their logistics function. These third party logistics providers are now becoming more involved in the design, management, and control of firms' supply chains. The selection of a Green logistics provider is critical to supply chain competitiveness. Green logistics plays a pivotal role in the design and provision of an integrated supply chain that responds to the customers' needs. In order to help their customers, logistics service providers need to behave more like partners of their customers. This means that logistics providers

are involved not only in lowering their customer's costs by reducing waste in ordering operations, but also in integrating the supply chains. The objectives were to make the partnerships so tight and seamless that the logistical services provided become part of the customers' own businesses. It can be concluded that SCM can increase the productively and pave the way to use the cost management techniques as well as to increase the profitability of the organization. The study confirms the view that implementation of GLSCM activities, namely green purchasing, environmental collaboration with suppliers and green manufacturing, positively contributes to operational performance in logistics industry.

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