

A Study of Innovative Techniques for Effective and Eco-Friendly Supply Chain Logistics Towards Sri Krishna Warehouse at Trichy


B.Muthuvel¹ and R.Javi Prabha²

¹Dhanalakshmi Srinivasan University, Tiruchirappalli – 621 112¹ ²School of Management



<https://doi.org/10.55041/ijstmt.v2i3.174>

Cite this Article: Prabha, B. . (2026). A Study of Innovative Techniques for Effective and Eco-Friendly Supply Chain Logistics Towards Sri Krishna Warehouse at Trichy. International Journal of Science, Strategic Management and Technology, 02(03). <https://doi.org/10.55041/ijstmt.v2i3.174>

License:  This article is published under the Creative Commons Attribution 4.0 International License (CC BY 4.0), permitting use, distribution, and reproduction in any medium, provided the original author(s) and source are properly credited.

ABSTRACT

Supply chain management is a critical aspect of conducting any business. In this article, we provide an overview of the advancements in supply chain management. In the initial section, we present alternative definitions and key issues related to supply chain management followed by a discussion of complexities associated with managing supply chains. Subsequently, we discuss major inefficiencies of poor supply chain management. Finally, a brief summary of research activity to date and a discussion of future challenges related to supply chain management are presented. Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouse and stores, so that merchandise is produced and distributed at that right quantities, to the right time, in order to minimize system wide costs while satisfying services level required. Modern day supply chains integrate the operations of a firm, its suppliers and its customers and involve all of them in the planning process for providing products and services to delight the customers. This article mainly focuses importance, problems of supply chain management and also importance for integrations of supply chain management to improve business. The organization has enormous opportunities to grow beyond the expectations. With freight cost controlling, Eco friendly supply chain solutions support the automated checking of all freight costs objectively, professionally and comparatively. Thus, an automatic check can be made to see whether the transport invoiced for has really taken place and whether the weight, capacity and tariff are correct

Key words: Supply Chain Management; Operations Management; Manufacturing; Service; Logistics; Sourcing; Outsourcing; Procurement; Competition; Information; Technology; Globalization; Sustainability.

INTRODUCTION

The supply chain is a complex, multi-faceted process encompassing everything from warehouse fulfilment to logistics. With many companies continuing to work towards supply chain optimization, the industry is ripe for innovation. As new technologies emerge that hold promise for streamlining fulfilment processes to speeding logistics, the traditional supply chain is rapidly transforming into a more advanced, more functional process driven by digital technology, artificial intelligence and other innovations.

A supply chain is the connected network of individuals, organizations, resources, activities and technologies involved in the manufacture and sale of a product or service. A supply chain starts with the delivery of raw material from a supplier to a manufacturer, and ends with the delivery of the finished product or service to the end consumer. SCM oversees each touch point of a company's product or service, from initial creation to final sale. With so many places

along the supply chain that can add value through efficiencies or lose value through increased expenses, proper SCM can increase revenues, decrease costs and impact a company's bottom line.

OBJECTIVES OF THE STUDY PRIMARY OBJECTIVE

To know the innovative techniques of effective and eco-friendly supply chain logistics.

SECONDARY OBJECTIVES

- To study how supply chain management is attract in this process
- To analyse the characteristics of effective and eco-friendly supply chain logistics.
- To know the reasons why the companies looking to have green and supply chain.
- To determine what all organization process does the GSCM practices use.
- And to know that is it effective in eco-friendly supply chain
- To explore themes and challenges in making supply chains environmentally sustainable.
- To know the green supply chain management (GSCM) practices that organization use

NEED OF THE STUDY

- Due to the fact that eco-friendly supply chains function as a system or network, problems experienced in one part of the supply chain permeate through to the whole supply chain.
- This can lead to greater inefficiencies in the supply chain as a whole.
- More consideration should be given to the impact of actions and decisions in one part of the supply chain on the rest of the supply chain to ensure best decisions for the supply chain as a whole.
- Due to the poor competitiveness of the industry in comparison with global competitors, the question could be asked if the eco-friendly SCM approach is implemented to the fullest extent with a focus on supply chain wide solutions and efficiencies instead of those of individual parties in the supply chain

SCOPE OF THE STUDY

- The research study named a eco-friendly supply chain logistics function with the industry will assist with comprehension about the client assumption on the lookout.
- The research finding will likewise help in the appropriate execution and plan of showcasing methodologies.
- The research discoveries of this investigation will help the business, to outline certain procedures to improve the deals and the organization and its image picture and rivalries.
- It additionally assists with understanding the business examples of the item and to realize the elements affecting the deals.

LIMITATIONS OF THE STUDY

- The study doesn't manage production of eco-friendly supply chain and logistics function of the industry utilized by individuals in other city.
- This study manages logistics capacity of the industry and it does exclude some other company.
- Most of the client are flighty while noting due to un intrigued and absence of time
- The gathered data might be on misrepresented.

REVIEW OF LITERATURE

V Jain, et.al (2023) the focus of supply chain management (SCM) has shifted from production efficiency to customer-driven and partnership synchronization approaches. To implement this strategic shift requires high-level collaboration between supply chain partners. A supply chain is a dynamic process and involves the constant flow of information, materials, and funds across multiple functional areas both within and between chain members. Finally, three case studies from mineral extraction commodity companies have been presented to demonstrate the potential of supply chain management. The study concludes that supply chain management has tremendous potential to add value as a strategic function for companies in these industries.

Edgar Blanco (2023) traditionally eco-friendly supply chain management has played an operational role within logistics and mineral extraction commodity companies. Recently, cost reduction projects have brought supply chain management into the limelight. In order to clarify the reasons of the evolution of supply chain management and to demonstrate the value of efficient supply chain management within the logistics industry, an analysis of the logistics supply chain has been carried out using Michael Porter's five forces. In addition, a comparative analysis of the supply chain strategy of the four largest logistics companies has been presented, according to Larry Lapide's excellent supply chain framework.

RESEARCH METHODOLOGY

This assessment used the sensible way of thinking for research. This examination relies upon ETS method, giving sensible monetary ascribes rather than speculative credits. Using overwhelm spread sheet regard, we have gathered a money related appraisal model used in this assessment.

RESEARCH DESIGN

Research design is a blueprint of a scientific study. It includes research methodologies, tools, and techniques to conduct the research. It helps to identify and address the problem that may rise during the process of research and analysis.

PERIOD OF THE STUDY

The duration taken by the researcher for the data collection and analysis regarding the profitability analysis of Sri Krishna Warehouse at Trichy

SAMPLING METHOD

Inspecting might be characterized as "The choice of some piece of a total the premise of which judgment or deduction about the total or totalling is made."

Sampling Techniques

The examining procedure utilized in this examination is Accommodation inspecting, when the populace components for consideration in the example dependent on the straightforward entry, it tends to be called as comfort,

Convenience sampling

In this strategy, the example units are picked essential on the fundamental of the comfort to the examination.

SAMPLING SIZE

An extent of 120 respondents are picked by utilizing Multistage Stratified Purposive Sampling procedure

DATA COLLECTION

The essential information for the current assessment are amassed from both major and accomplice information.

Primary Data

Primary data is information collected firsthand for a specific research purpose. It is original and unprocessed, providing new insights directly relevant to the researcher's questions or objectives.

Secondary Data

With a definitive target of the examination, the optional information are in like way used. The data for optional information are amounted to from different Internet battles, Research articles, magazine, Newspapers, and so forth,

CHI-SQUARE TEST NULL HYPOTHESIS

HO: There is no significance relationship between experience in years and opinion about quality of service.

ALTERNATIVE HYPOTHESIS

H1: There is a significance relationship between experience in years and opinion about quality of service.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.956E2 ^a	9	.000
Likelihood Ratio	185.718	9	.000
Linear-by-Linear Association	90.867	1	.000
N of Valid Cases	120		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is 1.40.

RESULT

The Chi-Square tests demonstrate a highly significant association between the variables (Pearson Chi-Square = 195.600, $p < .000$; Likelihood Ratio = 185.718, $p < .000$). The Linear-by-Linear Association (90.867, $p < .000$) also confirms a strong linear relationship, but the results should be interpreted cautiously due to 37.5% of cells having expected counts below 5.

CORRELATION

The table shows that the relationship between position of the company and think about the logistics operation.

Correlations

	POSITION OF THE COMPANY	THINK ABOUT THE LOGISTICS OPERATION
POSITION OF THE COMPANY	1	.842**
		.000
	120	120
THINK ABOUT THE LOGISTICS OPERATION	.842**	1
	.000	
	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

RESULT

There is a strong, positive, and statistically significant correlation ($r = .842, p < .001$) between "POSITION OF THE COMPANY" and "THINK ABOUT THE LOGISTICS OPERATION." This indicates that higher positions within the company are strongly associated with more positive thoughts about the logistics operations.

ANOVA

NULL HYPOTHESIS

H₀: There is no significant relationship between position of the company and delivery activity of the department

ALTERNATIVE HYPOTHESIS

H₁: There is a significant relationship between position of the company and delivery activity of the department.

ANOVA

POSITION OF THE COMPANY	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	81.030	3	27.010	169.939	.000
Linear Term	80.410	1	80.410	505.921	.000
Unweighted	80.750	1	80.750	508.054	.000
Weighted	.280	2	.140	.881	.417
Deviation					
Within Groups	18.437	116	.159		
Total	99.467	119			

RESULT

From the above analysis, we find that calculated value of the F-value is a positive 169.939 value, so H1 accept. Since the P value 0.000 is less than < 0.05 regarding there is a significant relationship between position of the company and delivery activity of the department. The results are significant at 4% level

SUGGESTIONS

- It is necessary to gain reputation for the company and satisfaction for self.
- It is very much innovative and effective.
- And this process is good in recycling and saving our environment. So that we need more process that is used in eco-friendly supply chain
- The more corrugated materials given to the industry fewer raw materials needed to produce new boxes. This keeps their operating costs low, and it could lead to lower costs for new corrugated products.
- Need to reduce paper consumption through RF and RFID. Many of the operations have employed the RF and RFID technologies to go paperless.
- This is been created more sustainability in multiple areas of SCM, from receiving the quality and to picking and dock auditing. This is the main function in Green Supply Chain Management

CONCLUSION

Here the overall results reveal that the Supply Chain Management or an Eco-friendly Supply Chain Management use the reverse logistics (Disposition options such as repair, reconditioned manufacture, recycle and disposal) and they rated their ideas are very much innovative in this modern world. This has been said because the supply chain are trying to find the most efficient solutions to problems. Cutting warehousing costs or finding cost-effective ways of providing same-day shipping, are such process that is been similar to this Supply Chain Management. Also that the Mastered IT/IS team is necessary for project. And those employees are planning to consider the purchased raw materials and Purchased projects that are eco-friendly to the environment. The main findings that I found out that the GSCM or an Eco-friendly Supply Chain Management is useful in modern business management



BIBLIOGRAPHY

- [1] Lambert, D. M., & Cooper, M. C. (2000). Issues in supply chain management. *Industrial marketing management*, 29(1), 65-83.
- [2] Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The international journal of logistics management*, 8(1), 1-14.
- [3] Cooper, M. C., & Ellram, L. M. (1993). Characteristics of supply chain management and the implications for purchasing and logistics strategy. *The international journal of logistics management*.
- [4] Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The international journal of logistics management*, 8(1), 1-14.
- [5] Drozdowski, T. E. (1986). At BOC they start with the product. *Purchasing*, 62(2), 5-11.
- [6] Ellram, L. M., & Cooper, M. C. (1990). Supply chain management, partnership, and the shipper-third party relationship. *The International Journal of Logistics Management*, 1(2), 1- 10.
- [7] Uckelmann, D. (2008, September). A definition approach to smart logistics. In *International Conference on Next Generation Wired/Wireless Networking* (pp. 273-284). Springer, Berlin, Heidelberg.
- [8] Barreto, L., Amaral, A., & Pereira, T. (2017). Industry 4.0 implications in logistics: an overview. *Procedia Manufacturing*, 13, 1245-1252.