

ARTIFICIAL INTELLIGENCE IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT ETHICAL IMPLICATIONS IN AUTOMATION, TRANSPARENCY & SUSTAINABILITY

Volume - II

Editors in Chief

Dr. D. Divya | Dr. G. Vignesh

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Artificial Intelligence in Logistics and Supply Chain Management Ethical Implications in Automation, Transparency & Sustainability

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ENVIRONMENTAL SUSTAINABILITY THROUGH GREEN SUPPLY CHAIN MANAGEMENT

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Abstract

Green Supply chain Management (GSCM) has risen as an environmental innovation which integrates environmental concerns into supply chain management. The goal of this innovation is to reduce the environmental impact of a company's supply chain. The study is focused on progress of GSCM. The study corroborates the use of GSCM practices for improving sustainable Organizational Performance. The seek of industrial development in a developing country is to improve the economy by increasing organizational picture and maintain goodwill while minimizing adverse impact on the environmental. GSCM practices are environmental-friendly practices which helps organizations to reduce the cost of logistics, satisfaction of customers and loyalty, reputation and consequently improve sustainable organizational performance.

Introduction

Green Supply chain Management (GSCM) means combination of environment into supply chain management. It aims to minimize the wastages including hazardous chemical, emissions. The increased awareness of green practices has triggered the firms to act in an ethical and social responsible manner in their supply chains. It is a network consists of all parties like manufacturer, supplier, wholesaler, Retailer, customer etc., directly or indirectly from production to the consumption. Supply chains with unsustainable practices exacerbate climate change, habitat destruction, air and water pollution, and deforestation. Traditional supply chains frequently ignore these effects in their pursuit of cost savings, which raises moral questions about their sustainability and long-term viability.

Objectives of the Study

- To know the importance of Green Supply Chain Management.
- To study the objective of Green Supply Chain Management.
- To study the performance of Green Supply Chain Management in Environmental sustainability.

Importance of Green Supply Chain Management

Green Supply Chain Management integrates environmentally conscious practices in the every stage of the Supply chain. By adopting environmental friendly measures, businesses can lower their environmental footprint and meet the growing demand for sustainable operations. GSCM is important because it tackles critical issues like greenhouse gas emissions, waste, and resources inefficiencies. Businesses that practices Green Supply management not only contribute to a healthier environment but also build stronger reputations and long-term customer loyalty.

A Green Supply Chain and its effective management are essential for successful organizations for the following reasons:

Reducing the negative environmental impact of Supply chain Management

As we know our country facing the burden of global warms, climate changing conditions and their inference on socio-economic conditions. If one part of the world is suffering from drought and excess heat waves, the other part is experiencing destructive storms and constant rainfalls. These conditions affect businesses concerning operational disruptions, property damage, employee productivity, and increasing insurance costs. So, immediate action to global warming and its consequences is essential for companies to safeguard their long-term business interests.

Improving resource utilization and process efficiency

One of the primary objectives of a green supply chain management initiative is to reduce waste and promote reuse and recycling. These actions can improve resource utilization at every point of a supply chain and help to create a significant positive impact on the bottom line.

Benefits of Green Supply Chain Management

Considering the benefits of Green Supply Management the Business fraternity is slowly and steadily moving towards it. Some of the important benefits of Green Supply Management are:

Conservation of Nature

The primary benefit of green supply chain management is the preservation of the nature. Sustainable supply chain practices reduce greenhouse emissions, minimize fossil fuel consumption, increase renewable energy usage, and help sustainability as part of the product design process. Many industries are significant contributors to ecological disruption by their operations. Without their active engagement, bringing our ecology back to its place is very difficult.

Economical Benefit

Implementing certain sustainable practices in sourcing, distribution, and manufacturing may causes expenses. However cost savings in energy efficiency, reusage of wastes and recycling, and process efficiency may helps companies' significant savings over the long term. Many organizations have realized the cost efficiency of green supply chain management.

Building Brand Identity

The success of Business mainly depends on company's brand value. Young consumer value sustainability and they wanted to be associated with pre-environment brands. These sustainable brand value increases revenue.

Risk Management

Sourcing, transportation and logistics are highly susceptible to climate changes. Many food processing industries suffer because of climate change-induced disruptions in agricultural activities. Sustainable supply chains can counter such disruptions by diversifying sourcing partners, reducing dependencies on scarce resources and ensuring regulatory compliance.

Environmental Sustainability Through Green Supply Chain Management

Sustainability and green initiatives focus on Dematerialization, Detoxification, and decarbonization.

Dematerialization

It refers to industries' attempt to reduce materials or time needed to produce and deliver products/services required by the customers.

Detoxification

It means the reduction of poisonous and hazardous materials contained in industrial waste during processing of natural raw materials in industries to produce products/services. The poisonous materials which are in the form of industrial waste and pollution contaminate in the environment. The degradation of the environment threatens the living condition of the organisms in the ecosystem.

Decarbonization

It is the reduction of greenhouse gas emissions in the atmosphere that occur when burning fossil fuels for electricity generation. The most abundant GHG is carbon dioxide that has been proven by environmental scientists to be a contributor to the global phenomenon of climate or global warming.

Some of the Green Supply Management Companies are below:

Amazon

Moving to green, Amazon has executed to decarbonising transportation across its business to fulfillment centers, and delivery stations by not only increasing fleet efficiency but expanding the use of low-carbon fuels, and scaling electric and alternative fuel vehicles. Meanwhile in International transportation, Amazon is reducing reliance on air freight and increasing use of ocean freight, as it has lower carbon intensity, in shipping it has committed to using bio fuels. Finally, when it comes to mile transportation, from the place of delivery to the end user, Amazon is looking to Electric Vehicles.

DHL

The industry's first logistics company to commit to net-zero-emissions. This company is focused on exploring sustainable air transportation solutions and is looking to become a leader in sustainable version. In 2023, DHL Express set up the Go Green Plus programme using CO2 insetting and Sustainable Aviation Fuel to enable the customers to reduce CO2 emissions.

DANONE

It is a French multinational food-products corporation which focuses on promoting sustainable agriculture, reducing greenhouse gas emissions and using renewable energy resources. DANONE has planned to reduce its environmental impact, also becoming carbon neutral by 2050 and using 100% renewable electricity by 2030. DANONE is also promoting regenerative agriculture and reducing waste.

Nestle

Nestle has implemented sustainable practices throughout its supply chain and has set goals to reduce its environmental impact. It launched a program to help small hold farmers to improve their sustainability practices, which has positively impacted the environment and local communities.

Conclusion

The concern for environment and organizational sustainability are increasing but there are not much empirical analysis on the strategies and practices. This study mainly projects the relationship between Green supply chain management practices and Environmental performance of manufacturing industries. It is found that application of GSCM practices in the Supply Chain, which is from raw material sourcing to product disposal, it significantly reduce

environmental impact by minimizing waste, optimizing energy usage and promoting sustainable material selection , ultimately leading to a more environmentally responsible business model while potentially generating cost savings and enhancing brand reputation through sustainability initiatives; however, successful adoption requires strong collaboration among all supply chain partners and ongoing monitoring to ensure effective implementation and continuous improvement.

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