Our Heritage

ISSN: 0474-9030

Vol-68-Issue-1-January-2020

Green Supply Chain Management

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Abstract

Supply chain management plays an important role in delivering the goods and services to the customers. The green supply chain management aims to integrate environmental thinking into supply chain management. It mainly includes product design, material sourcing and selection, manufacturing process, delivery of the final product to the consumers and its product life cycle management. Consumers are becoming more aware of green issues, pollution, global warming and its impact of non-environmental production in nature. Many companies have found that green supply chain management is a good opportunity to keep earning money and taking care of the planet. This has urged to go in for green products and services. The green supply chain has reduced the environmental pollution and production cost. It also can spur economic growth, create competitive advantage by creating customer satisfaction, positive image, reputation and provides better opportunity to export the products to pro-environmental countries. It will optimize the supply chain. It focuses on satisfying the customers' wants in supplying eco-friendly products. Green initiatives are cost savers and improves public image. This paper focuses on how green supply chain management is helping the companies and the public at large and thereby the initiatives taken by the government to go green and its safety disposal system without degrading the environment.

Key words: Green design, government compliance, green supply chain management, reverse logistics, etc.

1. Introduction

Supply chain management is the need of the hour to deliver the goods to the end users. It involves the follow of goods and services and includes all the processes that transform raw materials into finished products. It involves the active streamlining of a business's supply side activities to maximize the customer value and gain competitive advantage in the market place.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. It starts with the delivery of raw materials from a supplier to a manufacturer and ends with

ISSN: 0474-9030

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the delivery of the finished product or service to the end user. Supply chain management attempts to centrally control or link the production, shipment and distribution of a product. The companies are able to cut the excess costs and deliver products to customer very quickly. This is done by the control of internal inventories, internal production, distribution, sales and inventories of company vendors.The supply chain consists of five parts, namely, the plan or strategy, the source, manufacturing, delivery and logistics andthe return system.

2. Green supply chain management

Green supply chain management can be defined as integrating environmental thinking into supplychain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product as well as end-of-life management of the product after its useful life. It is the principle of reducing waste by increasing efficiencies. Green supply chain is the process of integrating eco-friendly concept in supply chain management to improve environmental sustainability with green practices including, green purchasing, distribution and reuse or recovery called as reverse logistics.

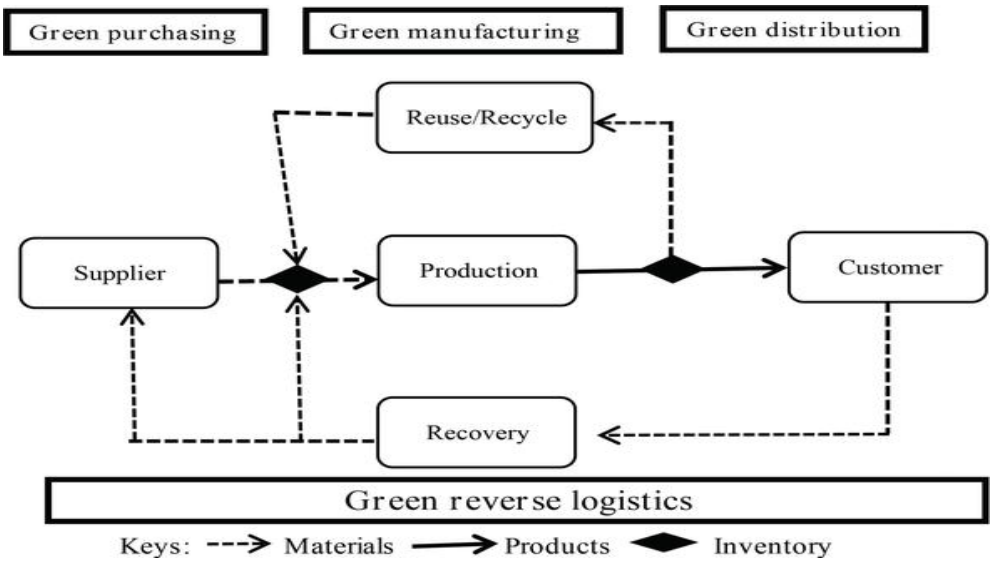

Figure1: **Model of Green Supply Chain Management**

ISSN: 0474-9030

Vol-68-Issue-1-January-2020

The above figure focuses on green supply chain management, as it starts from green purchasing to reverse logistics with the usage of bio fuels and green manufacturing processes.

Green design practices: Green sourcing means purchasing of materials or components which has eco-friendly characteristics. The role of eco-friendly purchasing is the involvement of recycling and re-manufacturing. It increases the overall firms' efficiency.

Designing green input resources: Green production can be though as an environmental strategy used by the company to increase environmental productivity by decreasing input resources in order to obtain the same output.

Decreasing dangerous emissions: Waste management and greenhouse gas emission are basic problems in these days. Greenhouse gas emissions contain carbon dioxide and equivalent gases. Researchers mainly focus on CO2 emissions because CO2 emissions have considerably increased as a result of human activities and global warming has become a threat.

Preventing waste: It is an important dimension of green production. The companies have focused on disposing of waste via practices such as reuse and recycle. Waste can be managed with the help of waste prevention, waste control and waste reduction strategies.

Eco-design: It is also called green design, which includes activities that aim to minimize the environmental impact of products in the whole life cycle. This process begins with supply of resources and continues with production and ends with the disposal of the product which has completed its life cycle.

3. Benefits of green supply chain management

- Sustainability of resources.

ISSN: 0474-9030

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- Lowered cost and increased efficiency.
- Product differentiation and competitive advantage.
- Reducing risk.
- Improved quality of products.

Besides the above benefits, there are additional advantages that can be generated by green supply chain management:

- Effective management of suppliers.
- Dissemination of technology, advanced techniques, capital and knowledge among the chain partners.
- Transparency of the supply chain.
- Large investments and risks are shared among partners in the chain.
- Better control of product safety and quality.
- Increased sales and revenue.
- Beneficial uses for waste.

4. Supply chain compliance

It is the top challenges faced by the supply chain organizations. In 2017, the World Trade Organization ratified the trade facilitation agreement with the intention of standardizing supply chain procedures on a global scale.

Keeping pace with constant change: The supply chain domain continues to transform wildly as more trade requirements are implemented daily. From local

ISSN: 0474-9030

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to national to even international levels, supply chain regulations pose many challenges to U.S. businesses.

Addressing conscious consumers: Today's digital society, consumers are more socially and politically conscious of the supply chain system than ever before. It's becoming increasingly important for consumers to purchase items that were manufactured under the most ethical standards. Questions about human labour, safe working conditions, environmental stress, and material sourcing are now common topics of discussion in public discourse.

Competing with global growth: To reassure customers and to be socially responsible organizations,the companies must adhere to complex and mercurial regulations while also providing full traceability.

Taming the supply chain compliance beast: An analytical expert partners with a company to handle all the necessary paperwork, keep upto date with the constant legislative fluctuations, juggle a multitude of demanding codes required by various agencies, and manage supply chain databases. Current and emerging technological advancements can also serve as powerful tools for achieving the highest level of supply chain integrity. While the use of automation and robotics is nothing new to supply chains, these practices will become more refined over time. As robots become more sophisticated as they accomplish more and increase productivity, counteracting labor shortages. The use of robots also assuages safety compliance concerns by replacing susceptible human employees with automated alternatives.

Improving supply chain visibility to get 360 view: The supply chain 360 view visibilities can be enhanced by getting access to current and complete supplier insurance, safety, environment, sustainability, legal and financial information. This will help to improve visibility and achieve trusted supplier relationships. All the supplier related documents are stored and managed in one central location that can be accessed by a cross- functional team.

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5. Reverse logistics in supply chain management

Reverse logistics is defined as the process of moving goods beyond their typical final destination for things like reuse, capturing value, or proper disposal. Insupply chain networks, materials flow from suppliers through to end customers. The following are four key supply chain analytics: volume, percentage of sales, condition of the product returned and financial value. The purpose and aims of reverse logistic are:

- Reverse logistics: It includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory. It also includes recycling programs, hazardous material programs, obsolete equipment disposition, and asset recovery.

- For a practitioner, the disposition choice is determined by the most profitable alternative.

- Reconditioning: When a product is cleaned and repaired to return it to a “like new” state.

ISSN: 0474-9030

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- Refurbishing: Similar to reconditioning, except with perhaps more work involved in repairing the product.

- Remanufacturing: Similar to refurbishing, but requiring more extensive work; often requires completely disassembling the product.

- Resell: When a returned product may be sold again as new.

- Recycle: When a product is reduced to its basic elements, which are reused – also referred to as asset recovery.

6. Conclusion

Efficient supply chain is the need of the hour. In order to facilitate it, adequate principles have to be adopted such as third party or fourth party logistics, so as to ensure quick flow of goods to the customers. Modern customers are tech savvy in nature, so that e-commerce and e-enabled technologies used in supply chain will hold good such as internet of things, etc.

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ISSN: 0474-9030

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