Major Research Project Report

on

STUDY ON GREEN SUPPLY CHAIN PRACTICES IN AMAZON INDIA AND CUSTOMER PERCEPTION TOWARDS GREEN PRACTICES

Submitted by

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DECLARATION

I, Ayushkam Pandey, student of MBA Batch 2020-20 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-110042, declare that the Project Report on **"GREEN SUPPLY CHAIN MANAGEMENT PRACTICES FOLLOWED IN AMAZON AND CUSTOMER PERCEPTION TOWARDS THE GREEN PRACTICES"** is submitted in partial fulfilment of Degree of Masters of Business Administration is the original work conducted by me.

Anything which appears to be not my original work, has been duly and appropriately referred/cited/acknowledged. This report has not been submitted to any other university/institution for the award of any other degree, diploma and fellowship.

Student Name:

Place:

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CERTIFICATE FROM INSTITUTE

This is to certify that, Mr. Ayushkam Pandey (2K20/DMBA/28) has satisfactorily completed the Project Report titled **"GREEN SUPPLY CHAIN MANAGEMENT PRACTICES FOLLOWED IN AMAZON AND CUSTOMER PERCEPTION TOWARDS THE GREEN PRACTICES".** The content of the report, in whole or part, is his original report and has not been submitted anywhere else for the award of any credits/degree whatsoever to the best of my knowledge

The project is submitted to Delhi School of Management, Delhi Technological University, during the academic year 2020-22, in partial attainment of the essential requirements for the award of the degree of Master of Business Administration (MBA).

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Ayushkam Pandey
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EXECUTIVE SUMMARY

Supply chain management can be referred as – ‘a collection of methods for effectively integrating suppliers, manufacturers, warehouses, and retailers to ensure that goods are manufactured and distributed in the appropriate amounts, to the right places, and at the right time, in order to minimize system-wide costs while meeting service level requirements.’ Any company, industry or organization has some supply chain practices. The supply chain includes many functions and activities within and outside the industry, company, or organization.

There has been much talk about sustainability and environmental issues in recent decades. Green supply chain management ensures that public and corporate policies are effective in greening their operations, gaining market share, boosting business image and reputation, and increasing earnings. Green supply chain management or commonly known as GSCM, entails integrating environmental and economic goals into the operational plan management. This type of integration reduces the carbon footprint while enhancing financial benefit and efficiency. It is a broader concept that maximizes revenue while minimising environmental effects and improves the social well-being of the different stakeholders involved. Green practises are taken into account at the SC level, including internal practises and inbound and outbound linkages, as well as making room for systemic potential and systemic techniques.

The Indian e-commerce business is experiencing a good shift in Indian customers' attitudes about online purchasing. The Indian e-commerce market is expanding, with established e-Businesses like Amazon, Flipkart, Snapdeal, and others and new creative e-Business start-ups such as Grofers Aaramshop.com, and others. Nevertheless, the way Amazon has created a new level of competition, others follow its footsteps. Amazon entered Indian market in 2012 and by 2013, it was functional and since then, it has successfully captured the e-commerce business in India with leaps and bounds.

Amazon’s supply chain is one of the remarkable feat in the retail supply chain. The Bezos machine is constantly improving every part of the network to deliver on their goal of customer pleasure – and their aim of being the most prominent and fastest-growing retailer. This ambition is also a significant driving element behind the Amazon supply chain's ongoing development. As the retail behemoth has responded

to growth, it has never failed to engage in service development to support and fuel further growth.

Amazon's invention rate is fantastic, which makes it challenging for competitors to stay up to its level. The retail colossus has stirred up the supply chain management business, forcing competitors to invest cautiously in their supply chain and eventually making increase their efficiency. It’s fascinating to watch what else Amazon can and will accomplish in the future, from growing the number of fulfilment facilities to extending their delivery fleet, building new technologies, even producing products and following green and sustainable means.

Apart from these, consumers in India are now showing their concerns about the environment and moving towards more sustainable products. With the easy availability of the internet, the consumers can quickly get any information onto their screens. They can choose between a number of options available online and continuous curiosity for information regarding what they are buying and what others are buying. It has been observed that customers are gladly paying a slightly higher price for a category of a product if it has been manufactured or delivered to them using greener practices and even encouraging others to do the same.

Now, looking at Amazon’s exceptional supply chain practices, there are still a few factors where they are lacking in adapting to greener practices. Although they have a few of these practices already incorporated within their organization, there are a few regions that they are lacking from a customer perspective. As consumers are getting aware of sustainability, they are now willing to contribute in any way possible to move towards more environment-friendly products and services. Amazon has successfully reached almost every region in India; the result of this study indicates that there are few factors they are lacking behind, and seeing the change in consumers buying behavior, moving and adapting few of the greener practices will benefit both.

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Chapter 1

INTRODUCTION

The internet technology era has not only altered the style in which companies are conducting business, but also the methods used in supply chain management, such as how firms communicate with one another and how each member in the supply chain is influenced and how even a small improvement can benefit the company along with contributing to decrease in its carbon emission. This study paper aims to understand better supply chain management for online E retailing and how it affects how retailing is done. The primary operations involved in the supply chain and their correct management are of great significance in the retailer's success or failure. In a country like India, the internet commerce business has proliferated over the last few years.

The concept of supply chain management has gotten much attention in the last few decades because of the following factors: most businesses favouring worldwide sourcing of supplies, consumer's demand for on-time delivery of high-quality products, and the omni-present dynamism and instability in international markets. Such conditions necessitate strategic and well-established supplier relationships, contributing to enterprises' rising interest in leveraging supply chains (Sarkis, Zhu & Lai, 2011).

The notion of sustainability, often said as the green supply chain, mixes ecologically friendly operations within the traditional supply chain that includes selecting and procuring supplier materials, product design, manufacturing and assembly of goods, distribution, and life cycle management. In lieu of minimizing the negative consequences of business and supply chain operations, the green supply chain adds and/or creates value via the activities of the entire chain.

The environmental deterioration has resulted in new supply chain development standards. People must address the concerns of building a green supply chain and developing equitable environmental policy as soon as possible. The government develops a green standard for items and offers the industry an environmental incentive. If the product satisfies the requirement, the maker may be awarded an eco-label. The

environmental benefits of development-intensive green goods may be continuously enhanced by a growing green standard (Gao, Xiao, Wei & Zhou, 2020).

Environmental innovation is an important factor in today's economic success. Using the Schumpeterian perspective on how a firm's perception of the green success of competing enterprises drives its pursuit and creation of environmental innovation through green supply chain implementation activities. Firms are intimidated from their competitors' success in environmental management efforts, thus pursuing supply chain integration projects. Green supply chain integration tends to have a favourable impact on creating incremental environmental innovation, but only customer integration appears to have a significant beneficial impact on developing radical environmental innovation (Dai, Cantor & Montabon, 2015).

The supply chain is critical for manufacturers, distributors, and retailers in determining product prices and profitability. The primary focus of this study will be on the methods for cost optimization, operational enhancement, and delivery performance improvement in e-retail supply chains such as Amazon. It will also offer several methods for e-commerce supply chains to function efficiently in the Indian e-commerce market by implementing greener practices.

1.1 Background

We typically underestimate the significance of supply networks in our daily lives. Because of the vast supply chains that bind customers, sellers, and manufacturers via multiple channels, we may now acquire anything, from groceries to high-priced gadgets from a nearby or afar store. A common misconception is that supply chain as a notion only refers to manufacturing. Supply networks are still critical in today's service-based industry. It would be intriguing to investigate the origins and development of such a popular notion.

In India's main cities, the reduced time required for internet purchases is significant for online commerce. Customers from small towns and cities are frequently lured to the internet route owing to the availability of a diverse choice of products. Due to growing competition in this business, retailers provide various services such as warranties and replacements for electronic devices, free home delivery, and flexible payment choices at reasonable prices. (Johnson, 2018).

The competitive environment in this market involves the integration of the online retailer with a network of enterprises inside the supply chain. As a result, there is a greater emphasis on Supply Chain Management (SCM), a problem for large corporations. Improving all connecting links in the supply chain, according to SCM philosophy, leads to an increase in overall supply chain performance. The term "supply chain management" refers to a wide range of topics. It is essential in attaining organisational objectives.

Figure 1.1: Extended supply chain
Source: *Own analysis*

GSCM promotes value development throughout supply chain enterprises to decrease their total environmental impact, not simply the supply chain's ecological impact. While the paramount objective of GSCM is to minimize CO2 emissions, additional quantifiable advantages for an organisation comprise improved asset effectiveness, reduction in waste, higher innovation, cost savings, the reuse and recycle of raw materials, better returns, and customer perception of value. The attitude of each party toward its upstream and downstream supply chain is a critical factor towards the

success of GSCM. The project demands significantly improved cooperation, transparency, and integration of supply chain processes and systems to be practical. (Matos and Hall, 2007).

Green or ecological procedures require firms to employ social and environment friendly methods while connecting with consumers, suppliers, dealers, and staff. Companies have initiated to brand themselves as 'green.' Even the public sector and state governments are focusing towards environmental challenges such as global warming, pollution, and water contamination and have started to take actions to avoid environmental damage. In a survey called 'Consumer Greendex' conducted by the National Geographic Society and the international polling firm Globescan (2010) to determine consumers' green attitudes, the top scoring consumers were in developing economies such as India, Brazil, and China, while industrialized countries ranked last.

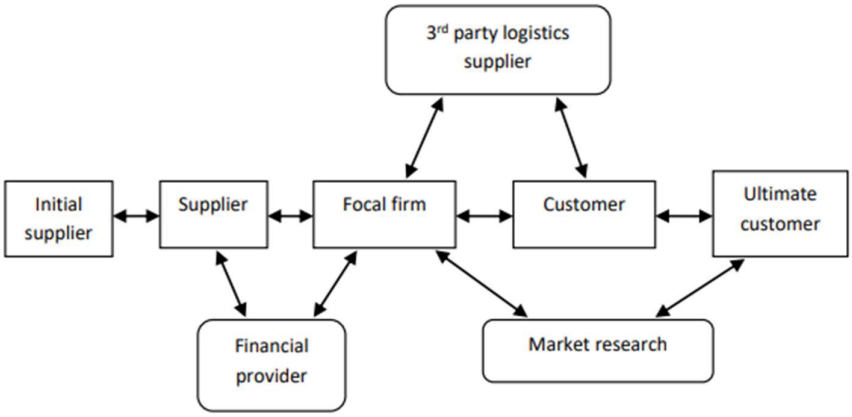


Figure 1.2: Ultimate Supply Chain
Source: *Own Analysis*

With more competition in the market, one would expect to see increased product offers. As a result, it has become critical for online retailers to properly manage their supply chain processes to effectively regulate the supply and demand components of their product selection. The goal for retailers and their supplier partners is to manage this chain to provide value to customers at a reasonable cost. The management of this chain is a significant problem for a retailing organisation, especially given the understanding that reducing the time of the supply chain channel reduces costs and gives competitive advantage (Miller, 2015).

GSCM may be used in nearly any sector. There will always be a better, more environment-conscious approach to gathering customers' resources and packaging commodities or items. However, success is dependent on the acceptance of sustainable techniques by the entire firm and all suppliers. As customer awareness and regulatory requirements develop, organisations that use greener supply chain management approaches will gain a competitive edge over those hesitant to employ GSCM. As a result, the industry's emphasis on GSCM producing value for customers and shareholders has shifted. For example –

1. Due to supply chain and packaging proficiency, Dell saves more than $20 million per year. In actuality, by 2008, the industry pioneer had accomplished its goal of carbon neutrality.

2. The popular soda brand, Pepsi cola, changed their plastic shipping containers from the hard grade plastic to reusable plastic for their one litre and 20-ounce bottle and this led them to save $44 million; moreover, they went on to retain roughly 196 pounds of corrugated material as well.

To begin, Amazon.com was founded in 1994 by Jeffrey P. Bezos, and it is currently one of the world's highest-grossing online retailers, with an estimated book value of $1572 billion. On July 16, 1995, the Amazon website was established. To begin with, Amazon began as an online bookshop; yet, the corporation had unique ways of building itself that distinguished it from its competitors. The company provided discounts of up to 30%, allowing consumers to publish their own book evaluations on its website. It ceaselessly tried to enhance the simplicity of placing purchases using technical alternatives such as "1-Click" searching. These ways are acquired from Amazon's customer-focused mission values: "Our vision is to be the Earth's most customer-centric company; to build a place where people can come to find and discover anything they might want to buy online" (Leslie and Robert, 2015).

Beginning with books, the firm has evolved into a variety of product categories, including electronics, multimedia, and digital downloads, personal care products, children and new-borns, home and field, and vehicle and industrial. Amazon has also expanded its product and service offerings to not only serve the consumers but the merchants, enterprises, and content providers also, along with the corporate as a

whole, developing devices such as Kindle e-Readers, Fire Tablets, Fire TV sticks, Echo Dot, and a few more in the near future. Amazon provides services such as Amazon Prime, a membership program that includes free shipping and access to their OTT platform, which contains numerous huge award-winning movies and TV shows and access to their music streaming service, Amazon Music. Overall, the primary corporate focus was to provide a wide variety of options at the lowest possible cost with outstanding client information by providing quick, easy-to-use practicality, prompt client support, and genuine customer fulfillment; and it is not constrained to these, they have also stepped into online monetary transaction services, which provide a wide variety of benefits to consumers with a robust security mechanism.

Aside from this, third-party merchants can sell their products on Amazon's retail websites via its Merchant and Amazon Marketplace programs. The corporation collects either fixed charges, revenue share fees, or per-unit movement charges due to this. Likewise, corporations worldwide support businesses through Amazon Web Services (AWS), which provides cloud computing, various database, and analytics services for any type or size of business.

Amazon's Supply Chain Network

Each organisation has its own supply chain for sorting or defining structures. However, in order to gain the most benefits, the organisation must maintain control of the supply chain. By adopting effective supply chain management, the organisation can ensure that the right product or service is available at the right time, in the right place, and at the reasonable price (Kamal, 2007). Amazon is one of the organisations with the utmost exceptional supply chain practises for responding to clients quickly. As a result, this paper will outline the Amazon Company, do a supply chain analysis, provide recommendations, and discuss implementation challenges.

Following the theory of supply chain in the preceding sections, we will look at Amazon's supply network in India. It starts and ends with the consumer, suggesting that it is a continuous process that begins when the client orders any goods on Amazon for the first time. It immediately gets into their virtual basket. They pick a delivery service mode, including overnight and numerous shipping alternatives, after hitting the buy button and mode of payment. Amazon has a system in place where orders are

recorded, registered, and processed while the client is kept up to date on the status of their purchase, how long it will take to ship the product, and the related shipping expenses. Amazon has a clan-like supporters, and customers pick it for one critical reason: efficient supply chain management.

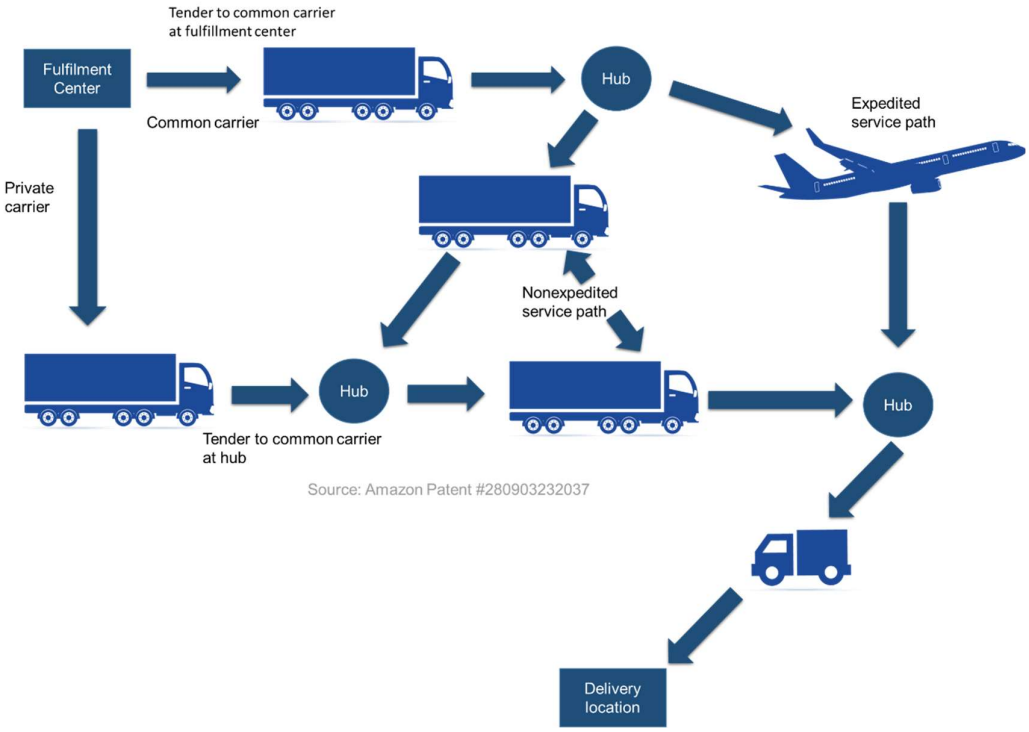


Figure 1.3: Amazon's supply chain
Source: *Customer centric logistics: Amazon's Supply Chain success case*

Along with providing the benefits to retailers or store owners, Amazon provided ratings, reviews, suggestions, one-day delivery, fixed time delivery, easy return or exchange facilities, and safe online transaction over time to increase its customer base. By incorporating these facilities on their website and mobile application, Amazon created its own brand value all over the country. Amazon's success can be said as a concentration on client satisfaction and measurability as Amazon understood that the most immense challenge in country like India, would be a consumer's urge to get hands-on products instantly as they get from a physical store (Sangvikar, Kolte, Pawar & Khadke, 2021).

1.2 Statement of the problem

Green supply refers to how supply chain management and industrial procuring and purchasing may be innovated while keeping the environment in mind. Environmental supply chain management entails the buying function participating in actions such as material reduction, recycling, reuse, and replacement, incorporating environmental concerns into supply chain management, encompassing product design, material sourcing and selection, manufacturing processes, final product distribution to the consumer, and product life cycle management beyond its useful life. These definitions show various author's emphasis and motive on green supply chains and their management. The need of agreement in practice and definition of green supply chain is unsurprising. Its core aspects of green environmental management and supply chain management are still proportionately young research and practice fields. Last few decades have seen much focus on supply chain management. The government of few developed and developing countries are encouraging the business giants to incorporate greener techniques to reduce overall carbon emissions.

This project intends to study Amazon's supply chain management practices and its changes since its beginning and investigate whether there are opportunities to improve supply chain management practices to influence the company. The research also shows the vital partnerships of the firms to preserve their stocks, the critical outcomes due to an exemplary inventory management system and the fundamental causes behind it—as well as a distinct strategy on how the supply chain may be enhanced further.

Many laws, rules, and regulations have been brought into effect to limit the exploitation of the Earth's natural resources. Businesses and organisations must shorten any procedures that contribute to the problem and embrace environmentally-friendly policies. Amazon is one of the world's largest firms, not only in India. It has embraced numerous techniques throughout the years, including regularly inventing new technologies and processes to increase its efficiency in delivering to consumers and satisfying environmental standards. Also, as customers, when an individual learns that by purchasing a product from a firm that adheres to some green standard, they form the impression that they contribute to the environment.

1.3 Objectives

- To understand the supply chain practices in e-commerce giant Amazon
- To understand the green practices incorporated by Amazon to grab the customers
- To study the complexities and barriers, those are in between Amazon and the customers
- To understand the customer perception towards greener practices that Amazon is following
- To understand what greener practices can be incorporated into Amazon that would benefit them at large.

1.4 Scope of this study

This project will give a closer look at what all green techniques can be used in the traditional supply chain management so that companies can work more efficiently and deliver better products to the customers by reducing reliance on natural resources and providing back to the environment gradually. It is not a hidden fact now that companies need to strategize more efficiently to compete with the present competition in the market. Now-a-days, any company needs to show that they are contributing something to the environment if they want to gain a good number of customers without compromising the product quality.

Over the last few decades, there have been huge debates on how much the Earth's resources have been used, and pollution has increased many folds. Many policies and regulations are made, and government worldwide has forced business giants to incorporate these policies if they want to continue. This not only has encouraged the companies to adopt the greener methods but the consumers are also understanding the benefit of the greener practices and even a tiny change can benefit the environment one way or the other.

In this project, the supply chain practices of Amazon will be studied and try to see whether any of the greener practices are being followed or not by these e-commerce giants of India. Also, if any other practices can be incorporated into the existing system.

Consumers and manufacturers have prioritized sustainable commodities such as energy-efficient electronic appliances, organic foods, lead-free paints, reusable and recyclable paper, and phosphate-free detergents. Indian firms are increasingly emphasizing green techniques in their supply chain or logistics. Several studies back up the claim that today's consumers prefer sustainable merchandise and have a favourable attitude toward companies that implement such policies. According to various opinion polls performed in India and worldwide, buyers show a strong preference for environmentally friendly products and businesses, yet action is uncertain. We will also look at customer perceptions of organisations that use greener techniques and whether such knowledge might influence their purchasing behavior.

Chapter 2

LITERATURE REVIEW

Sarkis and Zhu (2011) provide an overview on various organisational ideas that have seen use in the fledgling GSCM Their study focuses on GSCM studies that used an organisational theoretic lens to base their research, particularly on the adoption and spread of GSCM techniques. The material featured in the journal has accurately tested and extended upon organisational theories or used theories for descriptive objectives, with a significant emphasis on GSCM adoption and its performance consequences. They also help by recognizing specific GSCM adoption and practise traits which might be linked to distinct organisational theories. They discovered that there is a significant possibility for extending GSCM research using a variety of organisational theories. The paper can also be said as a resource for scholars in GSCM or other logistics domains looking to promote organisational theory development along with implementation of sustainable practices. The majority of the work is based on applying a number of organisational theories connected to GSCM in the literature. They briefly explain critical features of various theories, exemplary GSCM studies and the topics they studied, and what are the prospects for continuing the inquiry utilising these theories in the introduction of these organisational theories.

Srivastava (2007) says that there is a heightening desire for sustainable choices and their incorporation into supply-chain management and practices. There is an absence of an extensive foundation for green supply chain management (GSCM). Its foundational lack also impacts regulatory bodies, which create rules to solve social and environmental issues to allow for commercial and economic advancement. A simple categorization is necessary to help academics, researchers, and practitioners in understanding the integration of GSCM from a larger point of view. The research gives an in-depth and original look at the topic of GSCM. Green supply chain management has its genesis in environmental and supply chain management literature. Incorporating a ‘green’ element into supply-chain management includes considering the impact and connections between supply-chain management and the environment. The investigator’s objective determines the border of GSCM, as it does the concept of

supply-chain management. The definition and breadth of GSCM have varied in the literature, ranging from green purchasing to entire green supply chains flowing from supplier to manufacturer to customer and even reverse logistics (Zhu and Sarkis 2004). The GSCM is defined in this journal as 'encompassing environmental factors into supply-chain management, including product design, material sourcing and selection, manufacturing processes, product distribution, and product life cycle management beyond its useful life'.

Sharanya and Nair (2018) describe that marketing was formerly the connection between the consumer and the supply chain. The consumer contacted marketing, and if the information provided by the consumer contained order modifications, the changes were sent to the supply chain via the sales and operations planning system and the master production schedule. The supply chain department never got connected with the client or learn anything about him or her. This technique, however, was failing because the supply chain was focused majorly on cost and meeting deadlines, but the consumer typically sought approachability and flexibility. A new unconventional technique was designed in which the supply chain was able to meet the consumers, digitally or in person. The supply chain would focus on what consumer wanted, commonly referred to as the consumer-centric supply chain. Like many other advancements in supply chain management, the consumer-centric supply chain is the result of the merging critical elements, the 'amazon effect' being one of them. As a result of the Amazon effect, consumers' expectations of supply chain management are changing (Melnyk and Stanton, 2017). Also, technology has changed how people buy and their expectations, whether end consumers or corporations. Its advantages include 24-hour customer service, rapid order placing, a constant flow of order information, and guaranteed delivery. Amazon continues to innovate in terms of both products and services, along with managing its physical supply chain with accuracy and efficiency, enabling mass acquiring of its reasonably priced hardware, which acts as a platform for software, video and music content, which can be sold individually or as other benefits of its Prime membership program.

Razak and Ibrahim (2020) state that while the term supply chain is defined a one-way, linear relationship between the various contributors involved in it (e.g., from resource extraction, processing, component manufacturing, system integration, final assembly,

and so on), the chain can be stated as a network of individuals and organisations. Typical supply chain management (SCM) organizes, implements, and controls supply chain activities as effectively as possible but overlooks and externalizes considerable expenses from a narrow perspective**.** However, a green supply chain takes a more prominent, systems-level approach that reintegrates some of these costs and eventually converts them into valuable sources. Green supply chains thus alter the traditional supply chains in two fundamental ways: they boost the environmental sustainability and effectiveness of the prevailing forward supply chain while adding a completely new reverse supply chain**.**

Holweg and Helo (2014) address that over the years, numerous scholars have obtained in-depth understanding of the operational and strategic elements of establishing and maintaining supply networks. When analysing this vast area of study, there is a constant schism linking the 'value chain' perspective, which evaluates the characteristics of value creation and allocation, and the operational 'supply chain' perspective, which compares strategies and tools for designing and operating effective inter-firm networks. Typically, the value creation and supply chain views do not interact: the value creation perspective attempts to capture a tremendous value in financial terms, whereas the supply chain viewpoint seeks to build operationally structured supply networks. In variance with their academic beginnings, these two traits are both essential (and hence inadequate) elements of a firm's supply chain approach. As a result, in this study, an exploratory case study was undertaken to explore on a unified view of the value and supply chain. They proposed five significant decisions that characterise it as the type of value given (driven by an organization's core skill), operational footprint decisions for production, sourcing, distribution, risk management approach, and order fulfillment strategy (hidden in that, product customization), and buffering strategy (Chavez, Yu, Feng & Wiengarten, 2014).

Sustainability is an issue for several sectors. Environmentally friendly businesses attract many customers, and corporations work hard to solve problems and enhance internal procedures. Firms' efforts may be insufficient if they do not have a concrete plan for dealing with this issue. The primary objective of the green supply chain is undeniably to reduce pollution in the air, water, and waste. Nonetheless, green business increases company performance and functioning by reducing waste output, reusing

and recycling, minimizing manufacturing costs, boosting asset productivity, generating a positive image, and raising consumer delight. The most effective endeavour for sustainability is a total supply chain overhaul. Eco-friendly behaviour influences just one product development in various industries of business. The multiple production processes allow supply chain managers much leeway when incorporating green solutions. Firms must leverage their supply networks strategically to maintain and gain a competitive advantage. This demonstrates supply chain management's increased significance as a field of research and study during the last few decades (Lehmacher, 2017).

2.1 Definition of Green Supply Chain Management

The emergence of GSCM as a strategy can be linked to widened public consciousness and concern about increasing pollution, carbon emissions, and diminishing environmental conditions among individuals, governments, and businesses. Moreover, the United Nations' growing urgency and attention on Sustainable Development has prompted businesses and governments to develop and innovate around their supply chain systems, a critical component of creating products and services. One of the United Nations Sustainable Development Goals is to 'make certain of sustainable consumption and production patterns.'

Green supply chain management is said as 'using sustainable resources and transforming such inputs into outputs that can be recovered and reused at the end of their life cycle to establish a sustainable supply chain.' One of the most recent innovations to improve Supply Chain Management abilities is GSCM (Anil and R.R, 2011).

GSCM is a cross-disciplinary area that has sparked curiosity from academics and businesses in recent years. This tendency is evidenced by the abundance of special issues regarding the topic in renowned operations and supply chain management (SCM) publications. This emerging field's continuing academic growth and development need the generation of new information and insights. The knowledge gained from the GSCM literature will aid in the development and comprehension of these and other fields. Each stage of the supply chain is covered by GSCM, from product concept through distribution. Closed-loop production, low energy

consumption and ethical sourcing are vital initiatives. This endeavour allows manufacturers and producers to save money on power-driven manufacturing, waste disposal procedures, etc. Although incentives are sufficient to change, some companies just use GSCM to their environmental advantages. A world that leaks from its resources will not gain or maintain existence for anybody. Responsible creation of products preserves the globe by lessening environmental strain (Aronow and Hofman, 2014).

Cooper and Lambert defined SCM as "the delivery of enhanced customer value at the lowest cost via effective management of upstream and downstream links with the integration of important business operations" in their research paper "Supply Chain Management: More Than a New Name for Logistics."

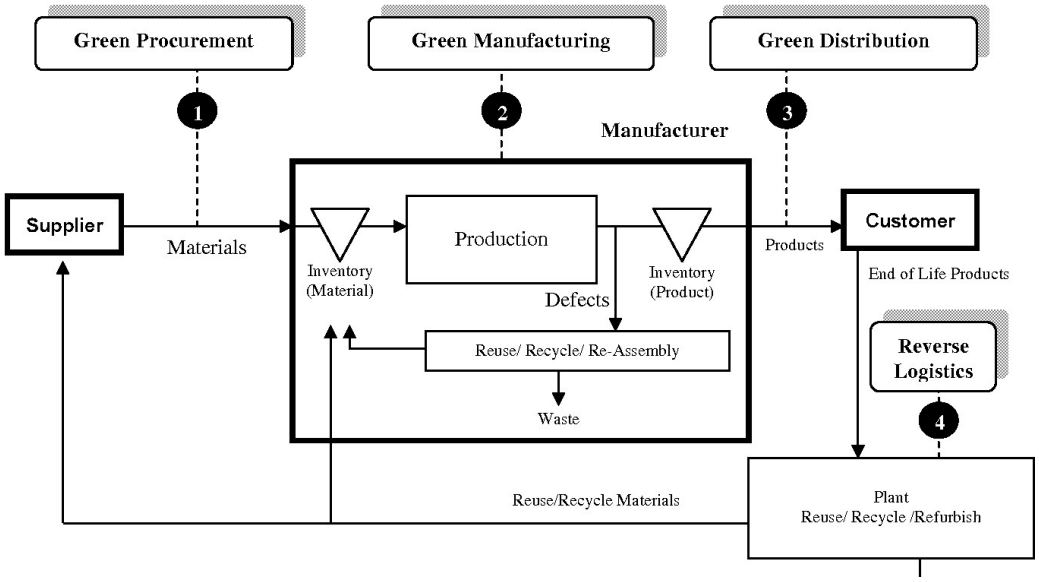


Figure 2.1: A typical Green Supply Chain Management
Source: *The implementation of Green Supply Chain Management Practices*

Some of the early work on Green SCM can be dated back to the 1970s, when the subject addressed water and air pollution caused by industrial production and manufacturing. It then experienced worldwide environmental change due to excessive carbon and other greenhouse gas emissions, which was unexpected. This resulted in the development of several departments for environmental protection, and the techniques began to be adopted worldwide. It also aided in developing strong inter- and intra-industry ties at all levels. These early advancements were primarily oral and

philosophical, creating several GSCM ideas and practices. As the subject evolved, informal case studies developed into theoretical development explorations and, later, theory testing practical research and a more complex conventional modeling approach for evaluation of GSCM. Implementation of reliable procedures in the late 1980s and early 1990s. When major businesses, such as DuPont, understood that injuring the environment and its customers was a way to profit, and numerous major industry mishaps resulted in significant environmental harm, the proven and experimented procedures went into effect. Many studies have chronicled the many strategies and activities that have led to the effective deployment of Green SCM across multiple sectors over the years, and it is a continual process (Loudon, 2011).

2.2 Major concepts and strategies in Green Supply Chain Management

"GSCM = Green purchasing/procurement + Green manufacturing/materials management + Green distribution/marketing + Reverse Logistics"

The GSCM acknowledges the implementation of the fundamental sustainability approach. It highlights on how green practices are implemented in enterprises to protect the environment while improving business and economic success. As environmental awareness rises worldwide, businesses are getting pressurised from various shareholders, including the government and consumers, to limit their adverse environmental effects. To be ahead in the game and gain market and consumers, the corporate sector needs to consider incorporation of sustainability into its business processes in the service and manufacturing industries and decrease their end-to-end supply chain costs. The escalating indications of global warming, environment deterioration, climate change, waste, and air pollution have drawn international attention from specialists and professionals to be more environmentally friendly and seek the ideal and precise answer to 'Green' difficulties throughout the preceding few decades.

The fact that the green supply chain is relatively a new idea that is gaining acceptance with the purpose of improving sustainable performance across the whole supply chain network. The successful strategies and techniques for adopting green supply chain management to achieve higher environmental sustainability are as follows.

Green Design **-** Designing a safe product that produces the least pollution and consumes low energy from its counterpart. It should not be dangerous during storage, transportation, distribution or disposal once its product life cycle has ended. DFE (Design for Environment) is the process of creating goods that have no harmful side effects on humans or the environment, are cost-effective, and are environmentally benign. This approach must be introduced during the product design phase.

It all comes down to developing a product or service that encourages environmental sustainability. Companies have a clear potential to become more ecologically responsible in their product remanufacturing. Serious businesses with elaborated supply chains should study the advantages of reverse logistics (RL). Designers, who are fundamentally bothered about product performance, must also consider the influence of design elements on manufacturing energy/material requirements and their alternate or extra usage (reusability, re-manufacturability, recyclability and repairability). Redesigned commodities will be helpful only when they can provide no less than the same services as the things which they are replacing. By prolonging the life of current equipment, no additional raw materials are required to create new products. Create technically durable goods, which can be used time and again, harmlessly recoverable after use, and ecologically beneficial after their disposal.

Green Material Sourcing or Green Purchasing **–** With increased environmental concerns, procurement authorities have been obliged to re-evaluate their present sourcing and purchasing tactics and their impact on the environment and its sustainability. Recycling and remanufacturing are essential components of environmentally aware buying. Green sourcing encourages reduction in waste by improving recycling, remanufacturing, and other operations. Product costs are reduced due to the efficient execution of a green purchasing strategy, and firms' environmental and financial performance, as well as their market reputation, improve.

Green purchasing, also known as green material sourcing, is an environment friendly purchasing strategy that makes sure that acquired items or materials meet the purchasing firm’s sustainable objectives, such as reducing waste sources, increasing recycling, reuse, resource reduction, and material substitution. It also makes certain that purchasing or supply chain managers address the topic of environment sustainability while obtaining inputs, in addition to the traditional purchasing criteria

of cost, quality, and delivery. Sustainable materials help to conserve resources by cutting acquiring costs and carbon emissions. Usage of bamboo, tencel, linen, and cork, are a few examples from the construction and textile industries. These are either renewable or need less energy to acquire and produce, and their usage is said to sustainable and works just as their counterparts. The amount of energy required in making or manufacturing a material, from purchase through refining, is equivalent to its assimilated energy. Green manufacturing minimises embodied energy and hence has a lower environmental effect (Rao, 2002). The textile industry has constantly been condemned for its role in damaging pollution. Greenpeace responded by launching the Detox My Fashion campaign, which aims to remove toxins used in clothing manufacture. Like Burberry, Nike, and Puma, several companies have improved their supply chains.

Life-Cycle Analysis **-** Everything that is made or manufactured, goes through a series of life cycle stages, from extraction of a material through the end of its life. The phrase 'Life Cycle Analysis' refers to the scientific approach to analyzing the consequences of the materials that passes through our economy. At the beginning of any sustainable or circular economy sanctioning process with a system, life cycle thinking approach is the best way to get started.

A critical component of Green Design and Green Purchasing is life-cycle analysis. It was developed to evaluate the contribution of environmental and resource-related items to the manufacturing process. This evaluation includes raw material extraction, production, distribution, remanufacturing, recycling, and final disposal. It examines and quantifies the energy and materials utilized and wasted and the product's impact on the environment. Another factor to consider when doing a life-cycle analysis is government legislation (Sunil and Sodhi, 2014).

Reverse Logistics (RL) **–** Activities associated with reverse logistics are distinct from traditional logistics jobs. The requirement for two or more companies, industries, organisation or markets to cooperate, supply unpredictability, return conveyance choices, and delay supposition, are all characteristics of reverse logistics networks. The process by which a manufacturer gathers earlier delivered commodities from the point of consumption for recycling and re-manufacturing is said as reverse logistics. This method is frequently used in the automobile sector, especially by BMW and GM.

The recovery procedure begins with the collection stage. Products are selected, collected, and transported to re-manufacturing plants.

Reverse logistics systems investigate how firms maintain items after completing their purpose. GSCM promotes recycling and reuse, although materials can be disposed of in a variety of ways if recycling is not an option. This approach is a closed-loop system because it incorporates materials that flow out and can be returned or reused after its refurbishment. Consumers send broken or recycled things back to the manufacturer, who either discards or refurbish them. Sierra Nevada Brewing Co. uses a closed-loop system to compost its food waste and transform it into fertilizer for its on-site plants and grows barley and hops on the land. By taking this environmentally friendly method and reversing the supply chain, the company claims to have diverted 99.8 percent of its rubbish from landfills (Srivastava and Srivastava, 2012).

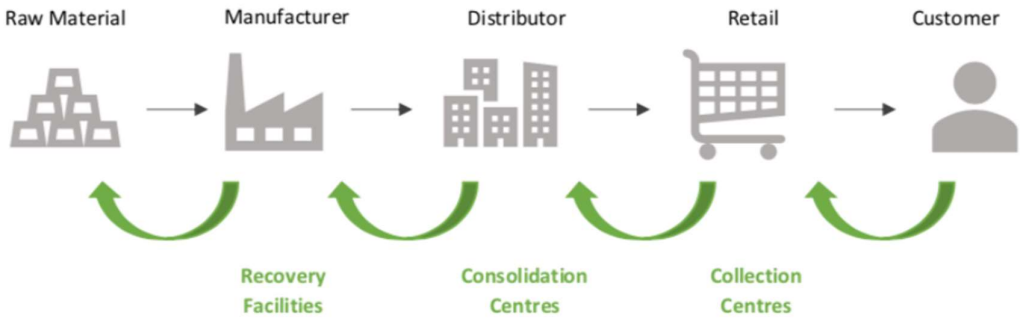


Figure 2.2: Reverse Logistics, green arrows represent the way for reverse logistics
Source: *Reverse logistics – What future potential it holds*

Just-in-Time **–** JIT method in supply-chain management requires getting materials to be in the right place at the right time. Manufacturers, warehouse or store owners only bring in as many supplies as needed to avoid excess inventory. Businesses may avoid overpaying for commodities and cramming their warehouses by using JIT. Implementing the approach requires practice, but it can assist in streamlining manufacturing when done correctly. Data analysis is critical because managers must speculate client spending pattern to meet demand.

JIT method is employed by Toyota in automotive manufacturing by strictly sticking to the rules. Jidoka, a system that effectively prevents faulty, malfunctioning and problematic automobiles from leaving production, is used in combination with JIT. As

a result, Toyota designs automobiles in the shortest period while maintaining the highest quality.

Green Manufacturing **-** Green manufacturing approaches seek to combine socially responsible and sustainable practices into production to decrease negative impacts while enhancing company profitability. Green manufacturing methods improve process efficiency. Using green resources may create a competitive edge by cutting product prices and enhancing product quality. The lean and green manufacturing industries try to decrease wastage and improve production capability. Green manufacturing strategies reduce the negative environmental effect of manufacturing processes, whereas green manufacturing enhances enterprises' operational, environmental, and financial performance.

This is a vital part of environmentally friendly operations. The solutions for reducing energy and resource usage in flow systems, to decrease the usage of fresh materials, it is based on three areas of research: pinch analysis, industrial energy, and life cycle analysis. The waste of resources and energy caused by poor design or severe defects should be minimized. Intel has attempted to increase the number of transistors in a single chip, resulting in fewer chips to produce and discard. Using less energy is good for the environment. It is also plainly beneficial to the corporation since it cuts expenditures and decreases potential environmental liabilities in the long term. Identifying areas where high amounts of energy are used may lead to changing the product or its use to generate significant energy savings. Significant gains in energy efficiency may frequently be achieved at little or no cost, even with net savings, through a focused program (Hook and Wright, 2015).

Green Packaging **-** Packaging design is crucial to meeting a company's environmental objectives. However, it serves some demands associated with the product's distribution, it is not a core service given by the product. In any case, it has a wide-ranging environmental influence. The following concepts may apply to packaging. Limit the size of the packaging to what is necessary. Create reusable or recyclable packaging, and employ standardized packaging. A fumigation certificate must be obtained for international transportation of timber pallets and boxes. Packaging must be designed so that it may be reused and recycled. Packaging should be sturdy enough to prevent any dangerous item contained within it from leaking out and endangering

the environment. Xerox redesigned its packaging strategy and built packaging-reuse facilities in the United Kingdom, the Netherlands, and the United States to restructure its packaging strategy. It also reduced the amount of interior packaging to reduce waste (Prashant, 2014).

Figure 2.3: Green packaging
Source: *Ultimate guide to sustainable packaging*

Green Transportation **-** Long-distance transportation, which uses fossil fuels, adds to greenhouse gas emissions. The GSCM promotes alternative fuels and the growth of regional suppliers and manufacturing ties. Some firms may need to downsize and buy materials from fewer suppliers to follow the plan. They must consider how they may alter their products and packaging to harbour new suppliers.

Green transportation initiatives have the potential to boost a company's image while simultaneously cutting its costs. By enhancing transportation system efficiency, logistics overheads may be lowered, and customer connections can be enhanced to increase profitability. Green transportation techniques help organisations reduce their effect on the environment while improving delivery time and quality along with decreasing the expenses. Improving transit modalities can be difficult. Most modern forms of transportation create some level of pollution, and environmentally friendly alternatives are not always readily available or economical. The Environmental Protection Agency created the SmartWay initiative to tackle the issue. It supports

manufacturers in selecting environmentally-friendly freight carriers, tracking emissions, and utilizing fuel-efficient technologies to deliver goods (Allen, 2017).

Use of Renewable Energy and Bio-fuels **-** Global logistics and supply chain operations rely majorly on energy and fossil fuels, the principal sources of climate change, global warming, and pollution as carbon and greenhouse gas emissions grow. Supply chain operations need renewable and reusable energy and biofuels to achieve long-term environmental sustainability and economic growth. Renewable energy and biofuels not only increase corporate profitability but also cuts carbon emissions and other pollutants. Also, fossil fuels are costlier than biofuels and other forms of energy. Due to stringent regulatory limits, stringent government standards, and customer awareness, the business sector is under pressure to use biofuels, sustainable and renewable energy in their operations and supply chain processes. Bioenergy minimizes carbon emissions while enhancing company profitability by improving its image and reputation (Bhateja, Babbar, Singh and Sachdeva, 2011).

Green Certification **-** LEED, Green Globes, Energy Star, and other related acts and strategies demonstrate a company's dedication to sustainability. They demand that firms meet uncompromising standards to demonstrate their commitment to environmentally friendly operations. By reviewing and enhancing their present production procedures, supply-chain certification ensures that businesses adopt environmentally acceptable ways.

The China Environmental United Accreditation Centre awarded Canon a top-tier certification for its green supply chain. By detoxifying industrial processes and establishing reverse logistics process, the company has cut greenhouse gas emissions by 37.7 percent since 2008. It continues to mitigate its impact by complying with the United Nations Sustainable Development Goals.

Green Building and IT Practices - Using greener building design, construction, and maintenance approaches. Compared to energy-efficient lights, natural illumination saves a significant amount of electricity. Every day, water must be recycled. Roof gardening and gardening in the surrounding area can both be helpful. As recognized by the United States and other nations, LEED certification (Leadership in Energy and

Environmental Design) is necessary. Long-term green behavior necessitates investment in renewable energy sources such as solar, wind, etc.

A green IT strategy must include several automated procedures that decrease carbon footprints. Paper use must be decreased by automated invoice/payment processing. Orders are created and sent via EDI.

2.3 Key Drivers for Green Initiative

Government Compliance – Climate change is increasing and will have more far-reaching implications. Ironically, the market and nature colliding simultaneously suggest that we need to find better and improved ways to be more sustainable. Companies are finding incentives to go green, act in accordance with government regulations, or meet consumer expectations and going green impacts a company's thinking and strategy and its supply chain. To be sure, the emphasis is rightly on lowering water usage and finding alternate energy sources for server farms and making supply chains more sustainable and ecologically friendly. Manufacturers' next objective is green and sustainable business methods, and 'Going Green' is the next stage in the lean, just-in-time revolution.

Because of the rising relevance of environmental concerns, regulatory organisations have been pushed to reinforce environmental laws and policies. To tackle climate change, global warming, and pollution, governments have passed severe environmental regulations, and businesses are required to minimize the negative effect of their supply chains on environmental sustainability. As a result, it has become increasingly important for firms in the supply chain to follow standards in order to implement environmentally friendly practises (Kushwaha, 2011).

Technological Innovations – Making a persuasive case for strategic supplier partnerships to use the supply chain and execute GSCM methodologies. This study aimed to understand better the significance of cooperation between original equipment manufacturers (OEMs) and their suppliers in decreasing the environmental impact of manufacturing processes. The study was conducted across many United States automobile assembly plants and revealed that solid relationships with suppliers, aided

by proper incentive systems, resulted in the practical application of revolutionary environmental technologies (Geffen and Rottenberg, 2000).

Financial ROI – During the 2009 recession, business leaders analyzed their supply chains to see whether their use of global, open supply-chain standards was enough to maximize their return on investment and position their organisation for success. It might influence the future of their businesses. More significantly, they are ready to engage with their trade partners by administering data sharing with participants in their operations and supply chains, thinking globally. This leads to actionable visibility, which standards may provide (Diabat and Govindam, 2011).

Supply Chain Efficiency – Businesses connect their supply chains to reduce operational costs and increase consumer satisfaction. Companies seldom adapt their business processes, and as a result, inefficient activities continue unabated, resulting in wasteful waste and pollution. Manufacturing and industrial activities are often recognized as the most severe threats to environmental protection. Businesses that want to transition to a green supply chain should examine all of their operations to determine if there are any areas where a greener strategy may benefit their bottom line. Companies should re-evaluate each step of the supply chain to determine if a more sustainable strategy may benefit from eliminating incompetent practices. Many firms that have gone through this process have discovered procedures in which raw materials were wasted, resources were mismanaged, and unnecessary energy was lost due to poor equipment. Product companies may employ various business strategies to promote environmental sustainability while also increasing economic success (Purba and Diane, 2005).

Corporate Responsibility – Green initiatives are related to the wider theme of corporate social responsibility (CSR), which maintains that corporations have duties to their investors, shareholders, society, and the environment. Many businesses go to the International Organization for Standardization (ISO) to implement green and CSR activities in response to shareholder demand and escalating regulatory mandates.

The ISO 14000 guideline for environmental management systems (EMS), comparable to the ISO 9000 standard for quality, sets best practices and benchmarks for green activities. The ISO 26000 corporate social responsibility provides a standard

bodywork and regulaitons, for creating CSR requirements. Environmentally conscious governments and corporations will embrace these standards and pressure their suppliers and vendors to do the same. The green policy aims to continuously seek methods for the company to strengthen its green credentials as part of its continuous process upgradation under lean quality efforts.

2.4 Benefits of Green Supply Chain Management

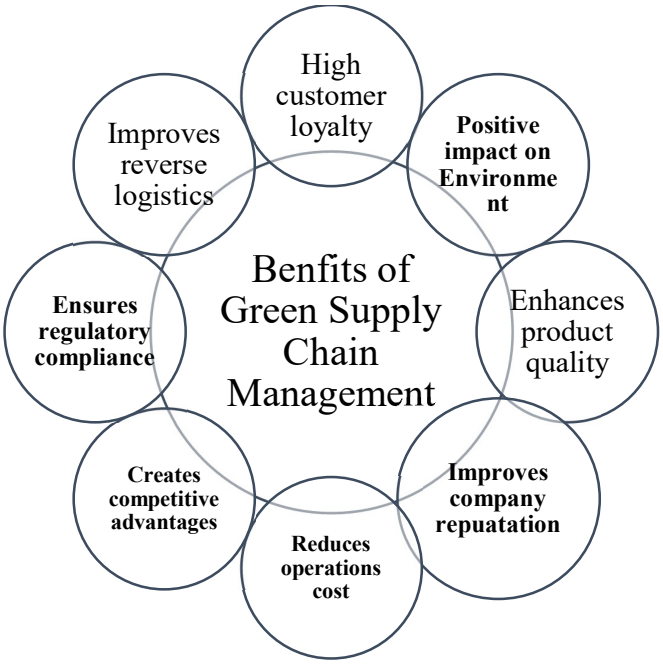


Figure 2.4 Benefits of Green Supply Chain Management

Source: *Own analysis*

Aside from having a good influence on the environment, businesses may benefit from greening their supply chains in the following ways:

1. **Cost Reduction** - Companies that embrace digital technology that help them become green may save money. IT solutions that help reduce energy usage, substitution, and recycling can have a favourable impact on a company's financial results. Businesses that adopt green initiatives strive to reduce greenhouse gas emissions, which results in shorter travels and fewer shipments. As a result, expenses are lowered since automobiles use less gasoline and have less wear and tear. Nike, for example, changed the way its

new edition shoes were created, reducing labor costs by up to 50% and material utilisation by 20%, resulting in 0.25 percent higher profits.

2. **Lean manufacturing** - Buyers frequently prefer vendors that adopt lean manufacturing to eliminate waste while maintaining productivity. This is a terrific opportunity for individuals who want it since they can get high-quality things for a much-reduced price. Toyota, for example, created a socio-integrated system that allowed it to deliver a better-quality product at less cost and with a lower lead time by eliminating wastage.
3. **Sustainable Resources** - If a firm has incorporated green practices in its supply chain, there will be a procedure or policy that allows the given product to be duplicated or recycled at the same rate as consumed.
4. **Adaptable -** According to the second annual CDP Supply Chain Report, which compiled climate change data from 710 suppliers, 6% of major firms now reject suppliers that fail to limit carbon emissions. This proportion is predicted to rise to 56% in the future. Businesses are finding reasons and motivation to participate in the green drive, whether to comply with government regulations or to meet the expectations of their customers or clients.
5. **Transportation** - Fuel consumption is reduced as a result of better planning and execution. When we employ the services of a digital freight agency, we can be assured that we will receive the required commodities by sea or road within the set time limit, and it will be more cost-effective and transparent. A digital freight forwarder is recommended because they can provide end-to-end transportation visibility while also delivering the lowest and best way to distribute our items via their green supply chain strategies.
    - Identify possibilities to form collaborative shipping programs with other shippers to pool warehouse or truck resources.
    - Carefully examine transportation operations. Consolidated shipping may not usually imply a lower environmental effect. Consolidating shipments can save money and help the environment. However, if several journeys between warehouses are avoided, employing less-than-truckload (LTL) shipments may make more sense in some circumstances.

- Analyze the backhaul network. Avoid empty trucks by seeking internal product movement or reverse logistics first. Work with a broker to identify a backhaul partner if there are no viable interior possibilities.
- Routing optimization should be revisited regularly. Market factors, fuel prices, traffic patterns, and road development can affect delivery times, costs, and emissions. To improve and validate, regular analysis is required.

6. **Digital Transformation** – One might have probably heard stories about how a dangerous product slid through the cracks and into the supply chain. This is harmful not just to the person but also to the company. Such scenarios are improbable when digital security mechanisms that ensure transparency. Furthermore, digital information is not just for security. Many businesses have begun to go paperless to lessen their carbon impact. Businesses prefer environmentally friendly items. One advantage of hiring a digital freight forwarder is that they may eliminate the need for paper in our interactions, minimizing our carbon footprint. It also provides detailed transaction information, making supply chain management easier to handle.
7. **Eco-Friendly Packing** - Are the packing materials recyclable? Environmentally friendly items must be used, such as wood pallets and containers. If we convert to disposable packing materials, we will save money. Green supply chain approaches will aid in increasing brand loyalty for the firm. Reduce the use of packaging, particularly plastics.
    - To accommodate more on a pallet and in each shipment, increase the stackability and packability of items.
    - Develop shipment packaging that can be reused.
    - Return shipping containers that were previously used for outbound shipments.
    - When possible, use combined shipments.
8. **Supply Chain Network Design** - A broad picture vision is required to adopt the changes that will significantly impact sustainability and the bottom line. It is good to use modelling tools to examine different supply chain network architecture scenarios.

- Reduce the amount of space utilized in a warehouse, the number of times each item is handled, and the distance travelled inside the facility by optimizing warehouse architecture.
- Review the network architecture regularly, significantly if the organization expands via mergers and acquisitions. These efforts may result in job losses.
- To analyze network design optimization possibilities, use modelling tools.
- To assess the effects of establishing a resilient and robust supply chain for sustainable efforts, apply risk and environmental aspects to network design.
- Measure water waste, non-hazardous waste, and scrap material usage using sustainable measures.

9. **Reverse Logistics** - The return, recycling, and refurbishing process are often neglected yet critical sources of opportunity. Retail brick and mortar stores generate 4 billion pounds of garbage and 11 billion pounds of CO2 per year. E-commerce returns account for 10-20% of total purchases.
    - Examine how products are returned. Determine if a centralized returns site is more efficient if consumer goods returns are routed to various warehouses.
    - What can be done in the field if one does not have to physically return things to a central location? Are they able to recover raw materials? Product reconditioning?
    - Create a closed-loop supply chain.
10. **Building Brand Reputation and Gaining Competitive Advantage** - With so much information available on the internet these days, having a green supply chain will help the brand's image. Businesses that sell environment-conscious and technologically advanced products will be able to build and sustain their brand image. Customers want to buy from environmentally concerned businesses, and becoming green is an excellent way to demonstrate to them that the company has embraced the green trend. According to a poll, customers are willing to pay more for things that ensure green logistical methods and transparent supply chains.

Chapter 3

RESEARCH METHODOLOGY

A research design is a logical and rigorous structure for carrying out a research project. It describes the approaches and procedures for acquiring the necessary information to solve the problem. It entails customising data collecting and analysis settings in order to strike a balance between relevance to the study objective and procedural efficiency. It defines the research objectives as well as the tactics that will be used to attain them. Consequently, a research design serves as the conceptual foundation for doing research.

To successfully complete the project, data is taken from secondary resources by referring to various research papers, white papers, journals, online websites, and news articles to comprehend the reality of Amazon's supply chain practises and whether the organisation is using any greener practises or not, or whether they have adopted some of their own practises in order to meet the current environmental demands.

The preceding chapter offered a synopsis of relevant literature. The assessment of linked literature provided me with a clear understanding of how to proceed with the study and a strategy and technique to employ.

The study's technique is exploratory and qualitative research. In these sorts of studies, the specialist relies heavily on information obtained from direct perception, interviews, surveys, centre meetings, member perception, reports produced in distinctive situations, archives, and curios. It is based on various literature review, an experiment, and a few case studies rather than a survey or a sample size. This is not the only pillar upon which every scientific endeavour is built. It is a type of design utilised in tandem with descriptive and causal aspects. It aids in learning about the problem or cause from several perspectives, allowing one to conduct their research and arrive at a more accurate conclusion.

Conclusive research is also utilised to arrive at a more accurate conclusion or better judgment. The purpose of this form of study is determined, and data needs are developed in accordance with that. Following the collection of data, numerous tools

and approaches are employed to aid in the production of more accurate results and conclusions.

A questionnaire is used to collect primary data to better understand a customer's insights towards greener practices and whether or not a company's or a brand's greener practices influences their purchasing habits. The core data acquired is unique and is primarily based on simple survey questions.

As the title suggests, secondary data is also gathered for the study to acquire insights from other researchers in the area. The primary goal of secondary data is to enhance the analysis and give better results or ideas on the study's chosen topic. The data for this study was gathered from a variety of scholarly publications, blogs, papers, dissertations, and websites.

I collected 110 sample units through the questionnaire and based on the data collected, I would get an opinion on what the majority thinks about the pattern of their buying behaviour. Also, it had questions like if they find out that a particular company uses a greener practise to deliver the product of their choice, and whether or not the product was able to live up to their expectations, or from some other brand that is not using a greener practise for their product.

For better understanding and conclusive results, statistical hypothesis, also known as confirmatory data analysis, a statistical inference approach is used. By observing a process modelled by a set of random variables, two or more statistical data set are compared, by sampling, is compared to a synthetic data generated by an idealized model.

The questionnaire primarily featured questions regarding an individual's purchasing behaviour, whether they conduct some research about the company or the goods, and whether they meet a specific criterion that helps the environment. It also asks whether a firm's policies influence them and whether they are willing to move to a better product or company that follows a better standard for the environment and in general.

Chapter 4
DATA ANALYSIS

Primary research is conducted to obtain customer perceptions of environmental sustainability purchases for data analysis. Following that, secondary research is conducted using exploratory research and multiple research papers, journals, blogs, articles, and news stories to better glance at what all supply chain practices Amazon has incorporated into its system. That gives a good idea about all of the methodologies used by Amazon for its efficient and up-to-date supply chain and how it is constantly adapting technologies and methodologies to move towards greener practices that are being followed by various organisations all over the world, not just in India.

4.1 Data Collection Procedure

The study's primary research was conducted to determine the customer perspective of greener methods used by a firm or brand in the production process and delivering it to the customers. The core data for the study was obtained using a standardized questionnaire and distributed to respondents by mail, WhatsApp, and social media accounts. A total of 110 responses were obtained, and the questionnaire was structured as follows: initially, demographic data such as age, employment, and income bracket were collected. Following that, the second section included questions about customers' psychographic attitudes about a brand or firm's environmental sustainability and green activities. A 5-point **LIKERT SCALE** was used, ranging from strongly agree = 5 to strongly disagree = 1.

4.2 Data Analysis

4.2.1 Descriptive Analysis

Table 4.1: Age group of respondents

Age Group	Count of Age Group	Percentage
18 - 25	84	76.36
25 - 30	20	18.18
30 - 40	3	2.73
40 - 50	2	1.82
above 50	1	0.91
Total	110	

Figure 4.1: Demographic question 1

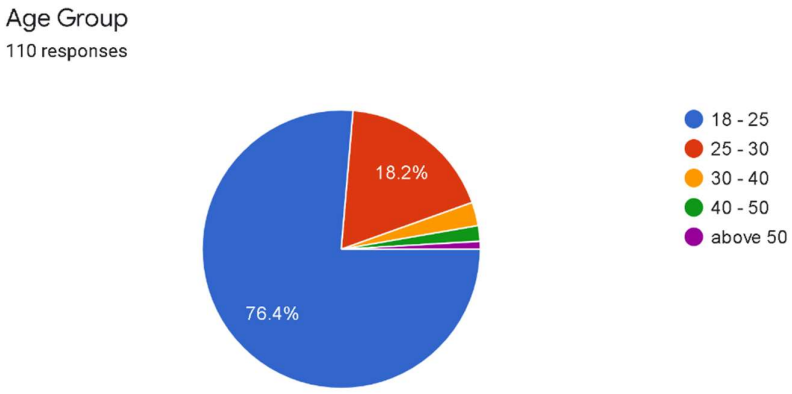


Table 4.2: Occupation of Respondents

Employment status	Count of Employment status	Percentage
Employed	44	40.00
Part time employed	4	3.64
Student	57	51.82
Unemployed	5	4.55
Total	**110**	

Figure 4.2: Demographic question 2

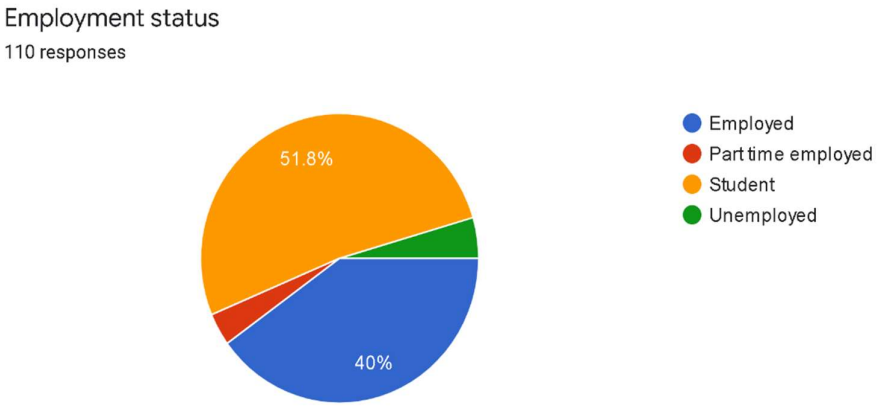
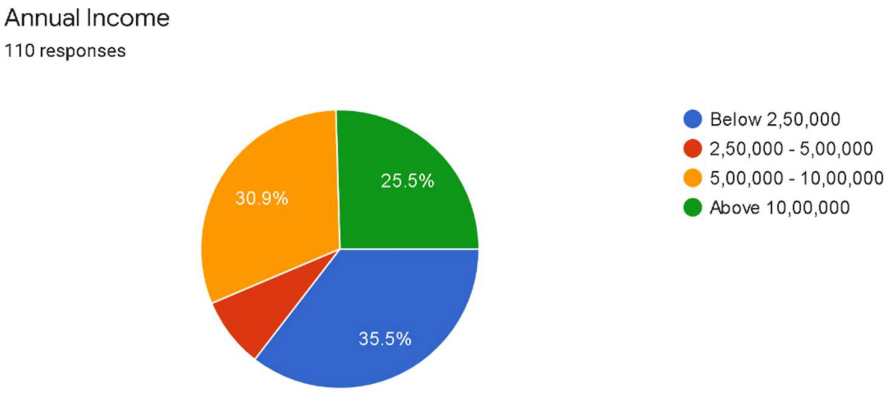


Table 4.3: Income bracket of Respondents

Annual Income	Count of Annual Income	Percentage
2,50,000 - 5,00,000	9	8.18
5,00,000 - 10,00,000	34	30.91
Above 10,00,000	28	25.45
Below 2,50,000	39	35.45
Total	110	

Figure 4.3: Demographic question 3

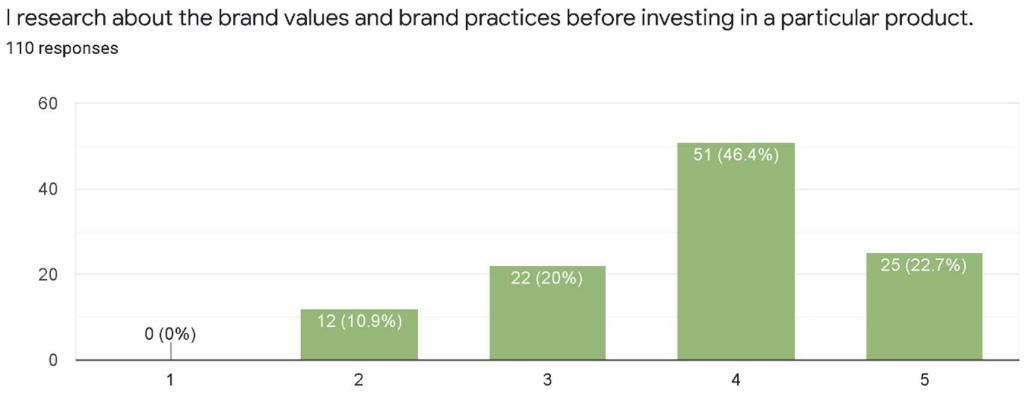


Analysis:

Summarization of demographic information: A total of 110 respondents and as per their age number of respondents: 18-25(76.36%), 25-30(18.18%), 30-40(2.72%), 40-50 (1.81%) and above 50 (0.9%). The distribution of respondents as per their occupation: Employed (40%), part time employed (3.63%), Student (51.82%) and Unemployed (4.55%). The distribution of respondents according to their income bracket: Below 2,50,000 (35.45%), 2,50,000 – 5,00,000 (8.18%), 5,00,000 – 10,00,000 (30.9%) and above 10,00,000 (25.45%).

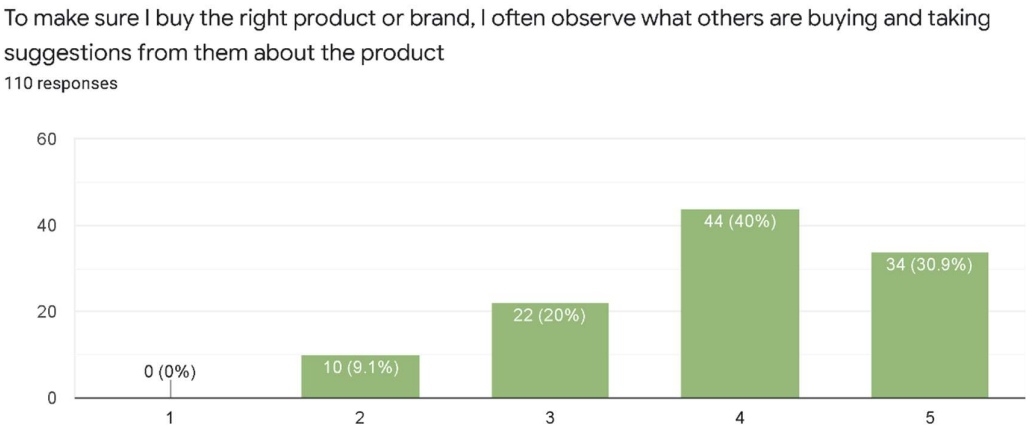
Moving ahead to the psychographic questions to get to know about the behavior of consumers towards the environmental sustainability and green practices of a brand or a company.

Figure 4.4: Psychographic question 1



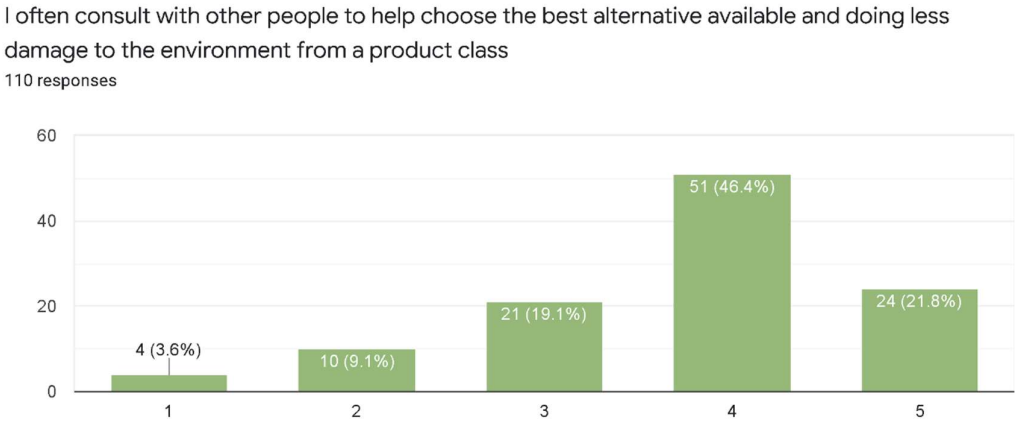
- From the above-collected data, it can be comprehended that the majority of the respondents (46.4%) do research about a particular brand and its values and practices before investing in it.

Figure 4.5: Psychographic question 2



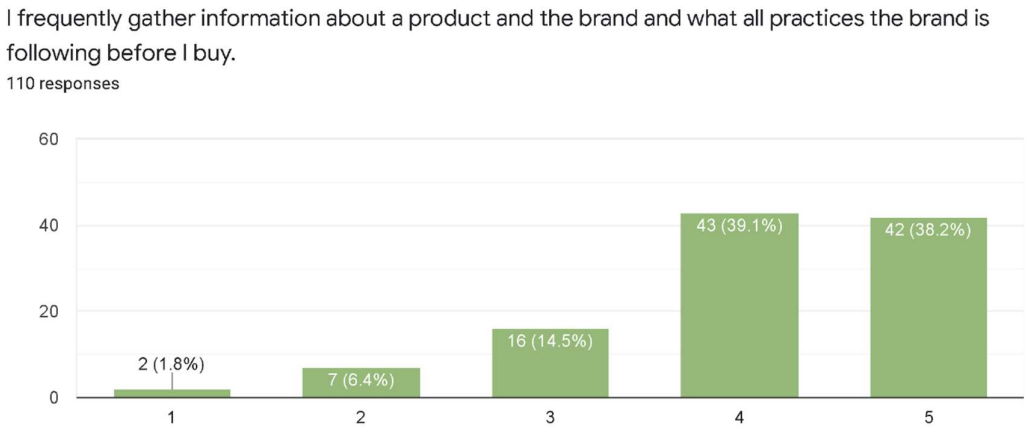
- This question was asked to know whether the respondents do their survey by asking other consumers about a particular product and take their suggestions before making the purchase. As it can be depicted from the graph that 40% of respondents agree that they take others' suggestions and look at what they are buying, making them curious to know about the product.

Figure 4.6: Psychographic question 3



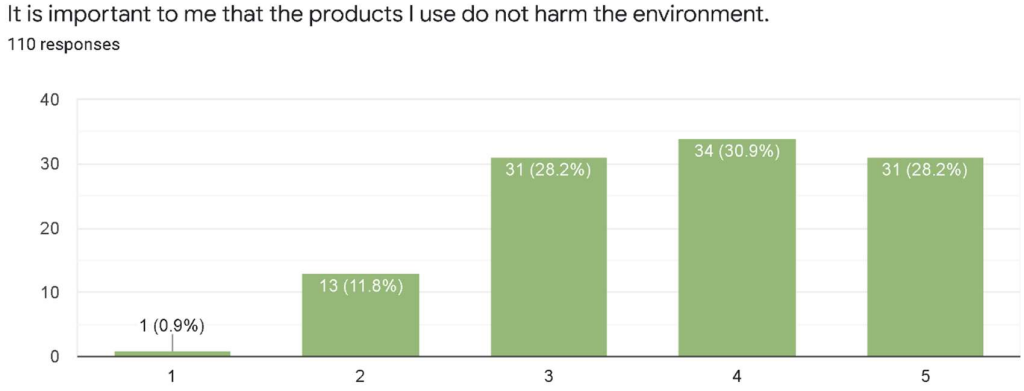
- From the above-depicted graph, it can be comprehended that around 46% of the respondents do care about environmental sustainability. After consulting with other consumers, they would be willing to go for an alternative product that is causing less damage to the environment.

Figure 4.7: Psychographic question 4



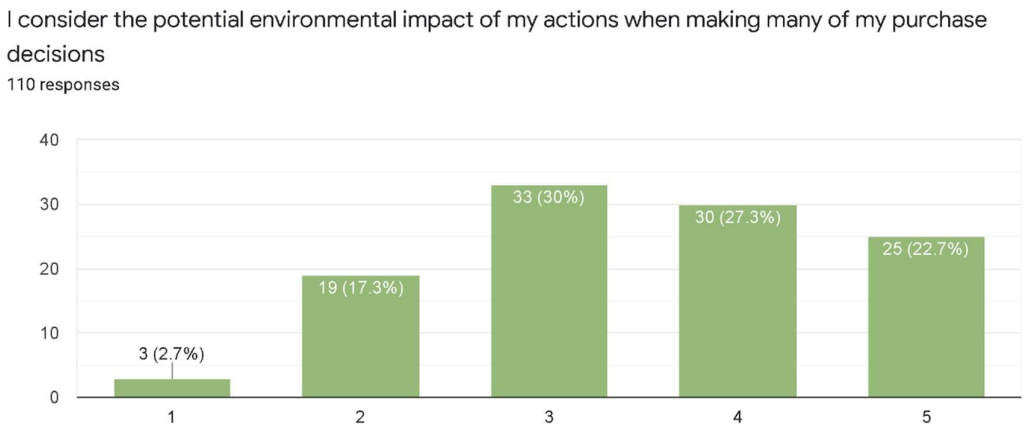
- From the above-asked question, it can be said by looking at the graph that the majority of the respondents (Both who 'agree' and 'strongly agree', totaling around 78%) frequently gather information about a brand and whether they are following fair practices or not, before making a purchase.

Figure 4.8: Psychographic question 5



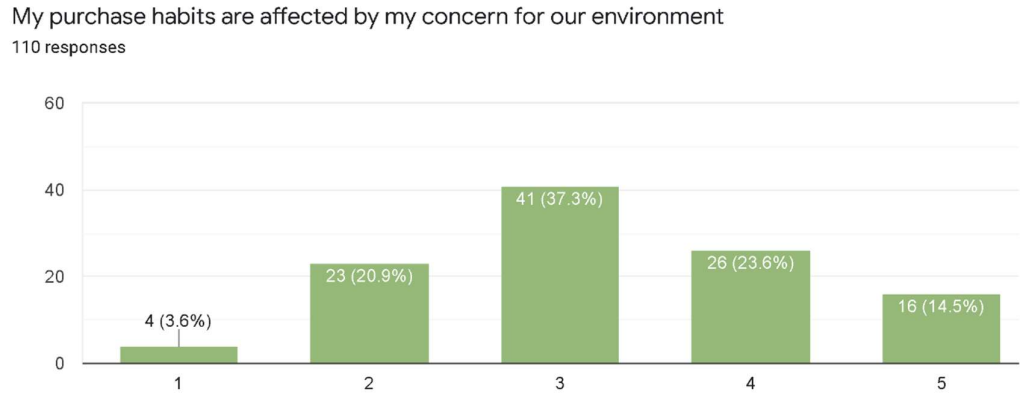
- From this graph, it can be easily grasped that most respondents (including both 'agree' and 'strongly agree' respondents totaling around 60%) care about the environment and want to use the environment's less harmful products.

Figure 4.9: Psychographic question 6



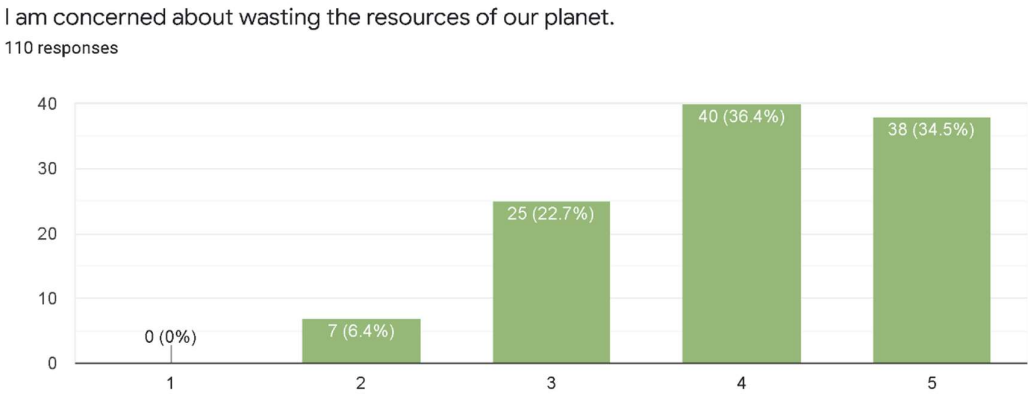
- Same as above, it can be repeated that most respondents do consider their purchases, whether or not that purchase would impact the environment somehow. In the graph above, value 3 depicts the number of 'neutral' respondents, that number needs to be decreased, and others need to be informed about the greener practices and how they can impact the environment.

Figure 4.10: Psychographic question 7



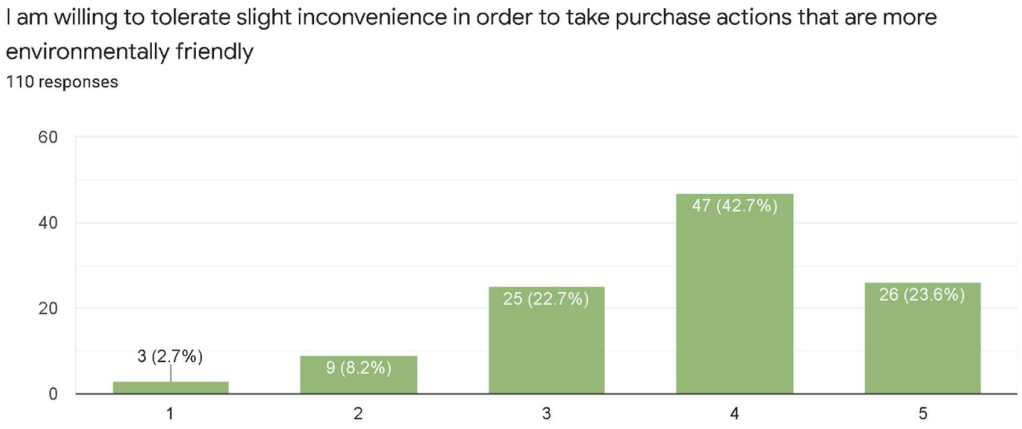
- It can be deciphered from the above graph that there is a neutral opinion on purchase habits and concerns about the environment. Although, few say that their purchase habits get affected according to their concern about the environment.

Figure 4.11: Psychographic question 8



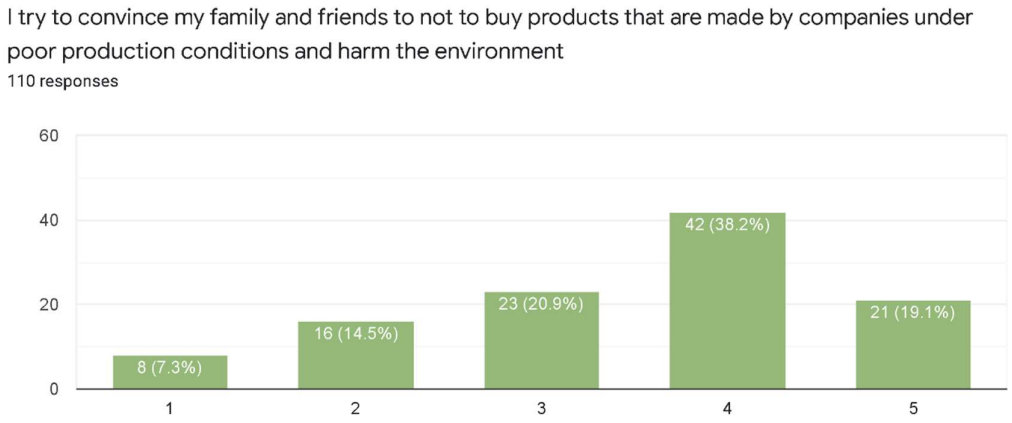
- From the above graph, everyone seems to be concerned about wasting our planet's resources, which is an excellent indication for future generations to come.

Figure 4.12: Psychographic question 9



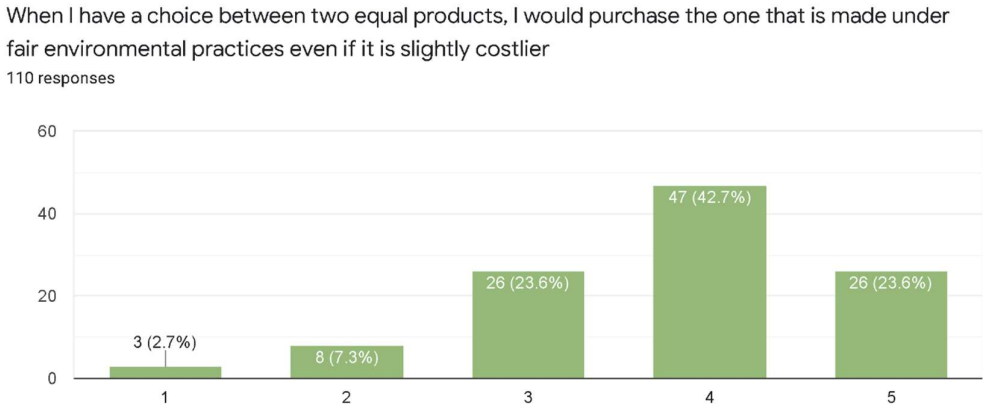
- It can be interpreted from the graph that the majority of respondents (around 43%) are willing to change their purchase behavior towards an environment-friendly purchase or product even if that would be slightly inconvenient for them.

Figure 4.13: Psychographic question 10



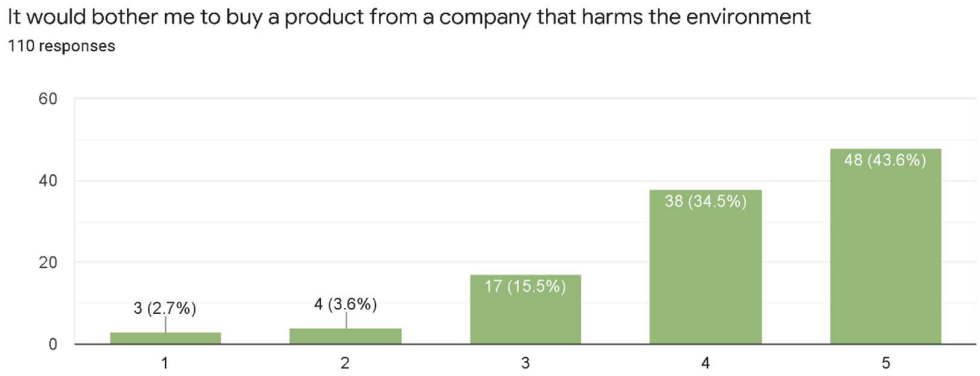
- Almost the same as above, it can be said from the graph that most respondents (38.2%) try to convince their family and friends not to buy a product made by companies that are not following environmental norms and harming the environment.

Figure 4.14: Psychographic question 11



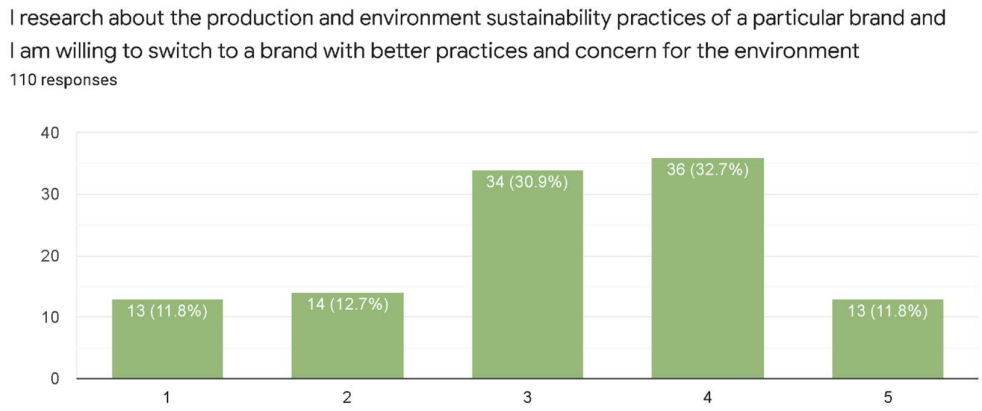
- Most respondents (around 43%) are willing to buy a product made under environmental sustainability practices and are happy to pay a slightly higher price for the same.

Figure 4.15: Psychographic question 12



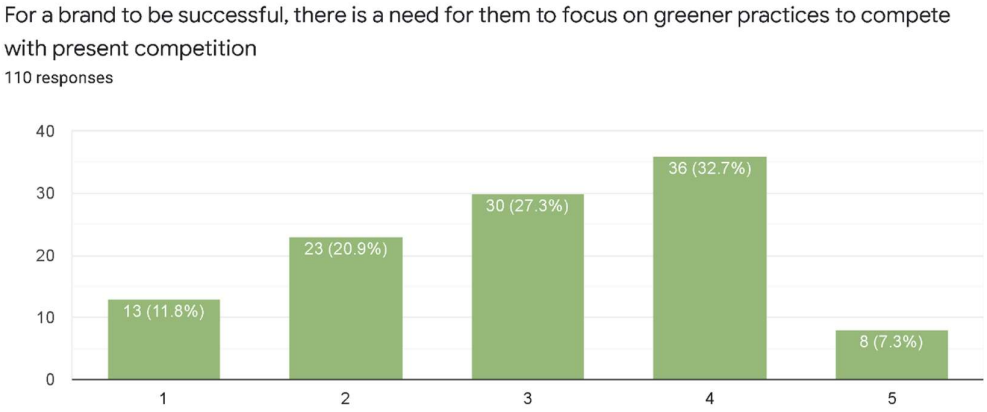
- The majority of respondents (taking both 'agree' and 'strongly agree' factors and totaling around 78%) said that they would be bothered if they buy a product from a company that is harming the environment at large and does not follow environmental sustainability practices in delivering the product to the consumers.

Figure 4.16: Psychographic question 13



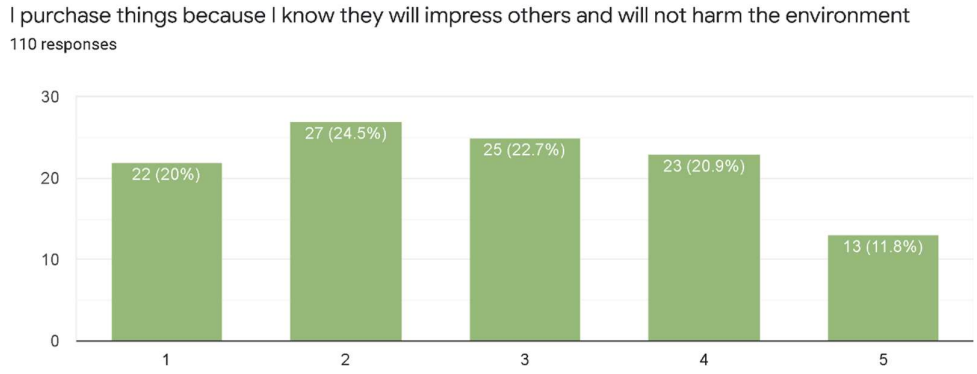
- From the above graph, it can be perceived that a fair number of respondents (32.7%) are willing to research a brand and its practices, and they would switch to a brand that follows better norms towards the environment.

Figure 4.17: Psychographic question 14



- As there is a rise in competition among brands to be the best and follow the rules and regulations of environmental sustainability without declining the product quality and providing the customers with safe and environmentally friendly means, the majority of the respondents believe that the brands need to focus on greener practices according to the product they are serving to the consumers.

Figure 4.18: Psychographic question 15



- One buys a product either they need it or maybe impress others, and this question asks that. From the above graph, it can be explained that most respondents (taking both factors 'strongly disagree' and 'disagree' around 45%) are not buying to impress others. Instead, they need it or willing to buy it. Also, they are buying a product that is doing minor damage to the environment because they are willing to make a change.

4.2.2 Hypothesis Analysis

Now, further analysing the primary data, using SPSS, to generate an idea about the customer perception towards environmental sustainability and whether these environmental perceptions affect their buying behaviour or not. An alternative to the idealized null hypothesis, which points no association between the two data sets, is proposed for the statistical relationship between the two datasets. If the association between the datasets is unlikely to realize the null hypothesis according to a threshold probability – the significance level – the comparison is statistically significant. Hypothesis tests are used to determine which study outcomes will result in the null hypothesis being rejected at a predetermined level of significance.

For this, following functions of SPSS are used –

- **Chi-Squared Test –** To check if age, income bracket and employment status affect the environment and customer perception
- **Regression –** To check a significance relation between environment perception and customer perception
- **Correlations –** To check significance between different psychometric questions on the basis of customer perception and environment perception

Moving ahead with the tests in SPSS on different hypothesis:

Using the chi-squared test in SPSS

a) H0: There is no significant association with the age about environment perception and customer perception

H1: There is a significant association with the age about environment perception and customer perception

Table 4.4: Chi-squared test 1 (Taking age and customer and environment perception)

Age Group * ENVIRONMENTAL PERCEPTION(q6q7q8q13q14)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	62.072[a]	68	.679
Likelihood Ratio	46.781	68	.977
Linear-by-Linear Association	.901	1	.342
N of Valid Cases	110		

a. 82 cells (91.1%) have expected count less than 5. The minimum expected count is .01.

Age Group * CUSTOMER PERCEPTION(q1q2q3q4q5q9q10q11q12q15)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	99.719[a]	96	.377
Likelihood Ratio	59.431	96	.999
Linear-by-Linear Association	.001	1	.977
N of Valid Cases	110		

a. 118 cells (94.4%) have expected count less than 5. The minimum expected count is .01.

Analysis: *Own analysis*

Since the p-value is greater than the Since the p-value is greater than the significance level, the result accepts the null hypothesis and rejects the alternative hypothesis. We can say, there is no significant association with the age about the environment perception and customer perception and accordingly, it is safe to say that, consumers of all age group have the same environment perception and customer perception (buying behaviour).

b) H0: There is no significant association with the employment status about environment perception and customer perception

H1: There is a significant association with the employment status about environment perception and customer perception

Table 4.5: Chi-squared test 2 (Taking employment status and customer and environment perception)

Employment status * ENVIRONMENTAL PERCEPTION(q6q7q8q13q14)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.450[a]	51	.952
Likelihood Ratio	35.919	51	.946
Linear-by-Linear Association	.068	1	.795
N of Valid Cases	110		

a. 66 cells (91.7%) have expected count less than 5. The minimum expected count is .04.

Employment status * CUSTOMER PERCEPTION(q1q2q3q4q5q9q10q11q12q15)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	87.810[a]	72	.099
Likelihood Ratio	66.773	72	.652
Linear-by-Linear Association	2.305	1	.129
N of Valid Cases	110		

a. 98 cells (98.0%) have expected count less than 5. The minimum expected count is .04.

Analysis: *Own analysis*

Since the p-value is greater than the Since the p-value is greater than the significance level, the result accepts the null hypothesis and rejects the alternative hypothesis. We can say, there is no significant association with the employment status about the environment perception and customer perception and accordingly, it is safe to say that, consumers of different employment background have positive environment perception and same customer perception (buying behaviour).

c) H0: There is no significant association with the annual income of consumers about environment perception and customer perception

H1: There is a significant association with the annual income of consumers about environment perception and customer perception

Table 4.6: Chi-squared test 3 (Taking annual income and customer and environment perception)

Annual Income * ENVIRONMENTAL PERCEPTION(q6q7q8q13q14)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	57.768[a]	51	.239
Likelihood Ratio	61.841	51	.142
Linear-by-Linear Association	1.317	1	.251
N of Valid Cases	110		

a. 72 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

Annual Income * CUSTOMER PERCEPTION(q1q2q3q4q5q9q10q11q12q15)

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	72.596[a]	72	.458
Likelihood Ratio	81.211	72	.214
Linear-by-Linear Association	1.268	1	.260
N of Valid Cases	110		

a. 100 cells (100.0%) have expected count less than 5. The minimum expected count is .08.

Analysis: *Own analysis*

Since the p-value is greater than the Since the p-value is greater than the significance level, the result accepts the null hypothesis and rejects the alternative hypothesis. We can say, there is no significant association with the employment status about the environment perception and customer perception and accordingly, it is safe to say that, consumers with different income brackets have positive environment perception and same customer perception (buying behaviour).

Using Regression in SPSS

H0: There is no impact on customer perception (buying behavior) due to the environment perception

H1: There is an impact on customer perception (buying behavior) due to the environment perception

Table 4.7: Regression (Customer perception and Environment perception)

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
CUSTOMER PERCEPTION (q1q2q3q4q5q9q10q11q12q15)	3.735	.5797	110
ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)	3.393	.7527	110

Correlations

		CUSTOMER PERCEPTION (q1q2q3q4q5q9q10q11q12q15)	ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)
Pearson Correlation	CUSTOMER PERCEPTION (q1q2q3q4q5q9q10q11q12q15)	1.000	.818
	ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)	.818	1.000
Sig. (1-tailed)	CUSTOMER PERCEPTION (q1q2q3q4q5q9q10q11q12q15)	.	<.001
	ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)	.000	.
N	CUSTOMER PERCEPTION (q1q2q3q4q5q9q10q11q12q15)	110	110
	ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)	110	110

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.514	1	24.514	218.491	<.001[b]
	Residual	12.117	108	.112		
	Total	36.632	109			

a. Dependent Variable: CUSTOMER PERCEPTION(q1q2q3q4q5q9q10q11q12q15)

b. Predictors: (Constant), ENVIRONMENTAL PERCEPTION(q6q7q8q13q14)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.598	.148		10.789	<.001
	ENVIRONMENTAL PERCEPTION (q6q7q8q13q14)	.630	.043	.818	14.781	<.001

a. Dependent Variable: CUSTOMER PERCEPTION(q1q2q3q4q5q9q10q11q12q15)

Analysis: *Own analysis*

Since the p-value is lesser than the significance level, the result rejects the null hypothesis and accepts the alternative hypothesis. We can say there is an impact on customer perception (buying behavior) due to the environment perception and accordingly, it can be said that, consumers are accepting environment sustainable

brands or companies and are willing to spend slightly more on the product made under greener practices.

Using correlation in SPSS

H0: There is no significance association between the psychometric questions that are grouped together, are correlated, under customer perception and environment perception

H1: There is a significance association between the psychometric questions that are grouped together, are correlated, under customer perception and environment perception

Table 4.8: Correlation (Customer perception and Environment perception)

CUSTOMER PERCEPTION

Correlations

		Q1. I research about the brand values before investing in a particular product.	Q2. To make sure I buy the right product or brand, I often observe what others are buying and taking suggestionsn from them about the product	Q3. I often consult with other people to help choose the best alternative available and doing less damage to the environment from a product class	Q4. I frequently gather information about a product and the brand and what all practices the brand is following, before I buy.	Q5. It is important to me that the products I use do not harm the environment.	Q9. I am willing to tolerate slight inconvenience in order to take purchase actions that are more environmentally friendly	Q10. I try to convince my family and friends to not to buy products that are made by companies under poor production conditions and harm the environment	Q11. When I have a choice between two equal products, I would purchase the one that is made under fair environmental practices even if it is slightly costlier	Q12. It would bother me to buy a product from a company that harms the environment	Q15. I purchase things because I know they will impress others and will not harm the environment
Q1. I research about the brand values before investing in a particular product.	Pearson Correlation	1	.316**	.142	.228*	.307**	.263**	.222*	.472**	.251**	.190*
	Sig. (2-tailed)			.138							
	N	110	110	110	110	110	110	110	110	110	110
Q2. To make sure I buy the right product or brand, I often observe what others are buying and taking suggestionsn from them about the product	Pearson Correlation	.316**	1	.345**	.125	.085	.001	.241*	.291**	.278**	.272**
	Sig. (2-tailed)				.193	.379	.991				
	N	110	110	110	110	110	110	110	110	110	110
Q3. I often consult with other people to help choose the best alternative available and doing less damage to the environment from a product class	Pearson Correlation	.142	.345**	1	.264**	.248**	.065	.082	.315**	.061	.154
	Sig. (2-tailed)	.138					.502	.393		.527	.108
	N	110	110	110	110	110	110	110	110	110	110
Q4. I frequently gather information about a product and the brand and what all practices the brand is following, before I buy.	Pearson Correlation	.228*	.125	.264**	1	.261**	.051	.154	.157	.317**	-.027
	Sig. (2-tailed)		.193				.595	.108	.102		.783
	N	110	110	110	110	110	110	110	110	110	110
Q5. It is important to me that the products I use do not harm the environment.	Pearson Correlation	.307**	.085	.248**	.261**	1	.593**	.592**	.557**	.322**	.106
	Sig. (2-tailed)		.379								.272
	N	110	110	110	110	110	110	110	110	110	110
Q9. I am willing to tolerate slight inconvenience in order to take purchase actions that are more environmentally friendly	Pearson Correlation	.263**	.001	.065	.051	.593**	1	.617**	.526**	.358**	-.106
	Sig. (2-tailed)		.991	.502	.595						.271
	N	110	110	110	110	110	110	110	110	110	110
Q10. I try to convince my family and friends to not to buy products that are made by companies under poor production conditions and harm the environment	Pearson Correlation	.222*	.241*	.082	.154	.592**	.617**	1	.509**	.384**	-.010
	Sig. (2-tailed)			.393	.108						.920
	N	110	110	110	110	110	110	110	110	110	110
Q11. When I have a choice between two equal products, I would purchase the one that is made under fair environmental practices even if it is slightly costlier	Pearson Correlation	.472**	.291**	.315**	.157	.557**	.526**	.509**	1	.437**	.112
	Sig. (2-tailed)				.102						.244
	N	110	110	110	110	110	110	110	110	110	110
Q12. It would bother me to buy a product from a company that harms the environment	Pearson Correlation	.251**	.278**	.061	.317**	.322**	.358**	.384**	.437**	1	-.052
	Sig. (2-tailed)			.527							.591
	N	110	110	110	110	110	110	110	110	110	110
Q15. I purchase things because I know they will impress others and will not harm the environment	Pearson Correlation	.190*	.272**	.154	-.027	.106	-.106	-.010	.112	-.052	1
	Sig. (2-tailed)			.108	.783	.272	.271	.920	.244	.591	
	N	110	110	110	110	110	110	110	110	110	110

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

*. Correlation is significant at the 0.05 level (2-tailed).

ENVIRONMENT PERCEPTION

Correlations

		Q6. I consider the potential environmental impact of my actions when making many of my purchase decisions	Q7. My purchase habits are affected by my concern for our environment	Q8. I am concerned about wasting the resources of our planet.	Q13. I research about the production and environment sustainability practices of a particular brand and I am willing to switch to a brand with better practices and concern for its people	Q14. For a brand to be successful, there is a need for them to focus on greener practices to compete with present competition.
Q6. I consider the potential environmental impact of my actions when making many of my purchase decisions	Pearson Correlation	1	.739**	.458**	.460**	.163
	Sig. (2-tailed)					.089
	N	110	110	110	110	110
Q7. My purchase habits are affected by my concern for our environment	Pearson Correlation	.739**	1	.381**	.640**	.229*
	Sig. (2-tailed)					
	N	110	110	110	110	110
Q8. I am concerned about wasting the resources of our planet.	Pearson Correlation	.458**	.381**	1	.216*	-.035
	Sig. (2-tailed)					.718
	N	110	110	110	110	110
Q13. I research about the production and environment sustainability practices of a particular brand and I am willing to switch to a brand with better practices and concern for its people	Pearson Correlation	.460**	.640**	.216*	1	.283**
	Sig. (2-tailed)					
	N	110	110	110	110	110
Q14. For a brand to be successful, there is a need for them to focus on greener practices to compete with present competition.	Pearson Correlation	.163	.229*	-.035	.283**	1
	Sig. (2-tailed)	.089		.718		
	N	110	110	110	110	110

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

*. Correlation is significant at the 0.05 level (2-tailed).

Analysis: *Own analysis*

The values marked in green represent the p-values lesser that the significance level (0.05), the result rejects the null hypothesis and accepts the alternative hypothesis, that is, there is a significance association between the psychometric questions that are grouped together, are correlated, under customer perception and environment perception.

4.2.3 Exploratory Analysis

Exploratory research is being conducted for the remainder of the study to obtain a real and clear image of the supply chain procedures implemented in Amazon and determine whether any other approaches can be employed in conjunction with the current techniques.

Amazon and its Supply Chain Practices

When Amazon decided to join the Indian e-commerce market in 2013, it had to follow a successful business strategy in the United States. It was a span of its billion-plus people and essentially new e-commerce business; it was the traditional good news, bad news scenario. The good news is that there is a sizable market of young people with growing income levels and greater cell phone ownership. The bad news is that rural regions are home to most of the population. Most people use cash rather than credit or debit cards to make transactions. Furthermore, India had a strict FDI regulation that prohibited foreign multi-brand merchants from mercantilism onto clients online; an enterprise would be a third-party seller for Indian-made items.

To resort to these challenges, Amazon reinforced a program for the suppliers and assured them it had been a reliable platform for businesses worldwide and in countries like the USA. In turn, it would help them increase their market presence in India. By 2015, it had over 10,000 merchants on its website with its products.

Amazon used the ‘neighbourhood’ technique to capture the Indian e-commerce business, in which merchants provide Amazon access to a section of their warehouse for items that must be sold on Amazon. Amazon harmonizes the delivery supply by having partnerships with several of the country's leading delivery firms and India Post and cargo airlines BlueDart and DTC. Later, in 2015, Amazon established its own Amazon Transportation Services Private Limited to expand delivery by utilizing bike couriers for last-minute rapid delivery in rural and urban locations. Once Amazon entered the market, it engaged minor and relatively significant merchants and store owners, convincing them of the company's identity and demonstrating how they might benefit by joining them. Amazon's supply chain enabled the e-commerce sector by allowing anybody to sell their items online, making competing with Amazon

challenging at best. As a result of Amazon's supply chain development, more firms are attempting to enter the e-commerce market without providing Amazon stock.

Amazon has increased its operational supply chain's efficiency to provide customers with a more valuable online shopping experience. Customers expect to get their online orders promptly; hence, the supply chain function substantially impacts the company's operational capabilities. The company's expansion as a global e-commerce organisation, delivering a diverse variety of products and services to customers, is based on an effective supply chain network. By reducing lead times and providing personalized level services, the business has provided its worldwide clientele with a value-added experience.

Through this exploratory research, I came upon these **'TEN'** factors and concepts that govern the supply chain practices followed by Amazon in India:

Table 4.9: Concepts and factors governing Amazon's supply chain

Concepts and Factors	Explanation
Logistics and Transportation	Because they directly impact customer happiness, strategy and transit are critical components of Amazon's logistics network function. The organisation has a very effective distribution system, allowing it to cut delivery lead times. Customers may also benefit from Amazon's 3PL services, which are established upon the company's substantial knowledge and experience. Secondary party logistics is termed 3PL services. A third-party logistics company can store items at a warehouse or another location for sellers who want to offer products on a general e-commerce website. It will be in charge of picking, packing, and shipping the merchandise. 3PL is a vital link between Amazon's operations and its customers. Customers are satisfied when order fulfilment methods work correctly and Amazon's business growth strategy is followed. It is not an exaggeration to say that excellent delivery is critical to the success of eCommerce enterprises in India, such as Amazon. The company is also investing in new delivery

	drone systems known as Amazon Prime Air, which would allow items to be delivered to customers in as little as 30 minutes.
Delivery options to Customers	The company has several storehouses for diverse sorts of merchandise and consumer delivery options. The consumers have access to a variety of delivery alternatives, including Prime customers shipping, one-day delivery, first-class delivery, and free super saver delivery. Amazon's constant efforts to deliver things in the lowest time have made it a logistical monster and the retail industry's leader.
Outsourcing Inventory and Insourcing Logistics	During its early days, the company's logistics network was mainly dependent on third-party directory management. Products which are not purchased or ordered regularly, in particular, are not stored in traditional Amazon warehouses. It may come as a surprise to us those third-party sellers are accountable for around 85% of Amazon's revenues. Amazon can deliver one-hour or same-day shipping because it depends on its own infrastructure. It does not use third-party logistics to deliver Amazon orders because it sells third-party items. Amazon has known that depending on third-party logistics will only delay product delivery. So, Amazon prefers to use its own delivery vehicles for same-day or one-hour delivery options. In India, Amazon also employs a 4PL, or fourth-party logistics system, primarily in hilly regions such as Himachal Pradesh, Uttarakhand, Jammu & Kashmir, and the North-Eastern provinces. This offers businesses an advantage in delivering desired items to people in that location without difficulty.

Push/Pull Strategy	With time, the company's development prompted Amazon to keep some inventory on hand to meet customer needs, resulting in the establishment of multiple distribution facilities. Subsequently, the strategy has moved to a push-pull approach. A push strategy is used to keep stocks in place, while a pull strategy is used to transport orders. Distribution centres are Amazon's decoupling point. However, certain slow items continue to employ a pure pull strategy because of the lack of inventory. Amazon's holding expenses climb due to the company's large number of distribution hubs. Amazon's own warehouses are strategically placed not far from major metropolitan areas and city centres. As a result, it adopts a pure push strategy for the products held in its warehouses. Although, when it sells items from third-party retailers, it uses a pure pull mechanism.
Inventory Segmentation	The inventory network at Amazon is a multi-tier inventory management system. This will help the company plan and provide real-time optimization services, allowing Amazon to have the least inventory needed to fulfil its service level (One network N.D.). Because of this network, Amazon can provide an unending selection. Nonetheless, the issue is that each layer treats its own inventory while being careless with the following tier's inventory. Then there's the bullwhip effect, which leads inventory to hold higher in every layer since there's no information transfer between them. Amazon's multi-tier inventory is classified into three categories. The first tier is the Amazon distribution facility. The inventory will be centralized in distribution facilities, allowing the company to carry fewer goods. The second tier is made up of wholesalers and partner DCs. Suppose the products are not accessible from Amazon's

	DC. In that case, the company will use IT systems to locate partner inventories for the product to identify which party will be in charge of the current order. Customer service would be fantastic since there would be no stock-outs. Publishers, manufacturers, suppliers, and third-party merchants are all examples of third-tier vendors. These partners help the company fulfill the company's ever-expanding selection of products available on Amazon.
Warehouse Automation	Amazon Robotics' robots can now pick and pack without the human assistance, enabling Amazon to complete warehouse chores in record speed. Amazon's warehouse robot army has developed significantly over the years. Amazon Robotics' robots can pick and pack without the assistance of humans, enabling Amazon to complete warehouse chores in record speed. Amazon's warehouse robot army has developed significantly over the years.
Customer Service Management	Customer happiness, retention, and service are essential components of Amazon's business operations. The organisation achieves high levels of customer service by establishing a robust online and in-person customer help network. Customers are assisted by customer service representatives coached to provide high levels of technical assistance. The customer service department is vital to an online retailer's capacity to create strong relationships with its customers. Amazon has become the consumer's favorite go-to e-commerce website around India through this. Consumers can easily convey their message to the company, where they face difficulties and what can be improved so that no other customer faces the same issue and Amazon listens to its customers.

Knowledge Management	Amazon's knowledge management department is concerned with acquiring as much information about its clients as possible to adapt products/services to the customers. An online platform is a one-of-a-kind tool that may provide the company with a plethora of information on its customers. Amazon management uses this platform to analyze each customer's demand and, as a consequence, provides customers with the unique value-added consuming experience. Another critical aspect of this process is knowledge management, enabling the organisation to maximize its use of knowledge resources. The effective use of knowledge resources allows the company to provide clients with unique and creative products/services. In this manner, Amazon is aware of which items consumers are consuming and how effectively they can load their warehouses to deliver with more competence.
Centralization & Decentralization	The Amazon supply chain's inventory management role necessitates centralization in order for the company to manage large-scale stockpiles properly. Amazon sells various things and requires a vast inventory to provide efficient and value-added services to customers. This service's centralization would enhance operating efficiency and decreased storage costs. The company must acquire a high level of decentralization in the logistics/transportation system to get a high level of decentralization in the logistics/transportation system. Amazon's primary success factor may be identified by its capacity to provide reliable and efficient product delivery to clients. As a result, the organisation must employ innovative and decentralized methods to reduce delivery lead time and enhance this supply chain. The use of drone technology to improve the efficiency of logistics and

	distribution is an extension of the decentralization concept.
Packaging	Amazon first employed the standard packaging approach, plastic wraps and polybags, which generated much garbage. It gradually embraced the green packaging technique, which offered them a competitive advantage, and the green packaging is also enjoyed by its consumers. Instead of polybags, consider recycled paper packaging, biodegradable bags, fiber mesh paper bags, and jute-based bags. They substituted honeycomb paper bubbles and paper fillers for bubble wraps and eco and paper coverings for plastic wraps. These strategies and alternatives have been used in key Indian cities, and the company is progressively attempting to adopt them in all of its warehouses across the nation.

Source: *Own Analysis*

It is clear from the prior explanation that a firm such as Amazon cannot construct a fixed supply chain model. Ecommerce companies that employ various supply chain methods for each product may gain a competitive advantage over those that do not. Amazon has changed the face of retail by using risky supply chain practises and cutting-edge technologies. It works hard to limit the amount of human involvement in its supply chain process. Keeping up with changing business models, consumer base changes, new technologies, and supply chain changes necessitate the implementation of strategic moves, consumer-centric supply chains, new technologies, and supply chain changes inside the organisation.

Amazon is productive and efficient for customers since it can optimise customer options and fulfill different client categories depending on technical advances: One of Amazon's most notable achievements is its own logistics network, which strives to eliminate dependency on other parties. Because Amazon is known for considerable R&D spending, the company has much potentials to create and provide service a wide range of markets, becoming distinct and relevant to a great extent.

4.3 Findings

- Consumers are conscious about their purchases and want to move towards environmentally sustainable products.
- Consumers are willing to pay a bit higher price if they know about a particular brand or company using environment-friendly practices to deliver the final product to them.
- If a company promotes its green practices, consumers are likely to buy that product.
- Amazon is the leading e-commerce site in India, followed by Flipkart and Alibaba.
- The fourth party and third-party logistics have boosted Amazon to deliver its products across different regions of India.
- Providing various delivery options with outsourced inventory and insourced logistics has become customer go-to application or website, even if the customer only wants to compare items.
- By adequately segmenting its inventory, Amazon can plan out its warehouse strategically without overloading its inventory.
- Warehouse automation has taken Amazon to new levels as it has decreased the excessive inventory and limited the usage of unwanted space and wastage.
- Through continuous touch with its customer in different country regions, Amazon can plan accordingly what all product is needed or required in those regions. This way, they can efficiently plan their inventory, transportation, centralization, and decentralization of the inventory.
- Automated strategic planning is done so that, when a product is out for delivery, the delivery person can pick up any return orders or pick up any material from any store owner that is needed to be in the warehouse and needs to get delivered in some other location.
- Packaging is one of the aspects where Amazon has made a change by moving towards greener practices. Usage of plastic or polybags has reduced significantly
- Amazon is continuously working towards improving its supply chain and adopting greener practices without declining its service quality.

4.4 Recommendations

- Amazon has focused on green packaging and practices in Delhi, Mumbai, Kolkata, Hyderabad, Bengaluru, Chennai. To name a few, it still needs to implement these practices in other regions. It needs to inform the store owners or brands listing their products on the website of the importance and benefits of green practices.
- Amazon has to make rigid rules and regulations for store-owners and brand owners who list its product on their website to follow some guidelines regarding environmental sustainability if they want to list their product on their website or application. Since Amazon is the most used e-commerce website in India, eventually, the store owners and brand owners have to follow these guidelines to stay in the competition.
- Amazon should list more products from companies that follow green practices. Although these companies might have their website or application, or stores, they can still form some deal that benefits them.
- Even if it is about a tiny packaging, Amazon should advertise its green practices and inform its customer how even a slight change makes a big difference to the environment. This will attract customers to use the platform over other e-commerce websites. Other brands, which are following green practices, will also join Amazon is moving towards greener practices.
- Newer management systems, such as a complete transportation management system (TMS) that merges warehouse and transportation management, are beginning to provide greater accessibility and customising possibilities.

4.5 Limitations

The research is primarily concerned with applying green supply chain techniques in the e-commerce business and hence does not represent the whole Indian e-commerce sector.

- The study is based on an analysis of some case studies associated with the implementation of green supply chain practices in the Indian e-commerce sector, and it is primarily focused on Amazon, so it may not reflect the present situation of other e-commerce giants in India, such as Flipkart, Myntra, and a few others.
- The survey respondents used for this study were majorly comprised of students or employees who have just joined an occupation.
- Initially tried to contact any of the employees of the logistics or operations department of Amazon, but that could not happen.

Chapter 5
CONCLUSION

GSCM can minimize the environmental effect of industrial operations while maintaining quality, cost, reliability, performance, and energy use efficiency. It entails a paradigm change, from absolute control to fulfilling environmental requirements to reducing ecological harm and resulting in total economic profit. Practitioners, academics, and researchers face various obstacles in this field.

In the digital economy, supply chain management is critical. E-commerce retailers must manage their supply chains both strategically and operationally. However, it is a continuous metamorphosis, and significant obstacles persist and might be predicted in the future.

The present state of GSCM practices research is positive; it is being carried out in clusters. Interactions between various research activities must thus be investigated in order to create interrelationships and evaluate the worldwide impact of this topic. In the context of GSCM, the integrated business strategy (including product and process design, manufacturing, marketing, RL, and regulatory compliance) is limited to thinking papers and frameworks. More study is required to determine how corporations could best choose items for each location to maximize returns while maintaining brand value, goals and integrity. Furthermore, GSCM merits exceptional consideration regarding resource commitment within a company/supply chain.

GSCM appears to be a viable area for experimenting with new operations research approaches and utilizing old methodologies for an all-inclusive GSCM Design. The problem is complicated and challenging because it involves many parameters, decision factors, and restrictions. A significant number of estimations need such as predicted demands and returns and cost criteria linked with each option. Perhaps a mix of many tools and approaches (both old and innovative) might be used to formulate, approximate, analyze, and solve such complicated issues.

GSCM research has been segmented into topic categories taken from operations strategy. The critical areas of focus have been quality, operations strategy, supply-

chain management, and product and process technologies, contributing to a more structured knowledge base. In the medium term, it is realistic to predict that these study fields will continue to have the most promise for advancement.

To develop sustainable supply chain management, every e-retailing organisation must maintain a high-quality information system controlled by people who are well-skilled and trained. In the Indian online retail market, excellent supply chain management proves to be a game-changer, and Amazon has done just that. Supply networks may develop in time with respect to product life cycles or market experience. Amazon employs a consumer-centred flywheel business model, distinguished by a strong importance on variety, convenience, and pricing. Developing a drone-based delivery system is a significant signal that Amazon is well ahead of other retail sector players. It is doing all necessary to use all of the newest supply chain technology to preserve its supply chain as the apparent market leader. The business has opened a number of new warehouses near major metropolitan areas to keep up with ever-increasingly rapid delivery claims.

Amazon’s success is heavily dependent on supply chain management. The company's principal objective is to provide a one-stop service where buyers can track down everything on Amazon's website and deliver it to the buyer’s location within a specific time frame. The organization must have collaborated with a partner to create multi-tier inventory systems that can deliver nearly limitless commodities. Furthermore, excellent distribution networks must deliver items to customers on time. These represent Amazon’s foundational aim of providing high responsiveness to consumers.

Amazon’s rate of supply chain management upgradation has been stunning. The velocity of change has been astonishing, finding it challenging for lesser volume competitors to stay up. Amazon is pressuring its big competitors to spend more on supply chain automation, reduce total product delivery time, boost storage capacity, and even engage in product production. Most online e-commerce competitors are already out of reach of Amazon.

Most notably, Amazon’s unique supply chain strategy and ongoing technical advancements have already altered the way on how supply chain management is

controlled. With developments in robots, drones, and other autonomous vehicles on the horizon, one can only wonder on what the future will hold for Amazon.

Amazon has changed the way a consumer looks at online shopping. Starting from selling books to selling as small as a sewing pin, it has come a long way, and that too, just focusing on its supply chain practices and listening to its customers. Amazon continuously works towards adopting new technologies to improve its supply chain and how they, as a company, can deliver better along with following the environmental norms that a company needs to follow.

Although they have implemented greener practices and fulfilled the consumers' demand, these practices are majorly focused in major cities in India. It has to make a breakthrough in other cities and urban and rural areas. Also, some companies are marketing their products by showing the customers that they are using greener practices. By buying their product, one is contributing to the environment; Amazon is lacking in this factor. As a reputed company in the whole country, it would be groundbreaking if it started to market its greener practices.

The new world of the consumer-centric supply chain will need supply chain managers to embrace change, drive it inside their businesses, and learn to manage with their consumers in mind rather than only on costs. The best way to make consumers know about these practices is that Amazon should start advertising it, as many brands are already doing. However, further integrative contributions, such as intra- and inter-firm dissemination of best practices, green technology transfer, and environmental performance monitoring, are required in the long run.

Without adopting these latest innovations, supply networks will not compete with Amazon's supply chain. Innovations are exciting, but the odds are that Amazon has already put them to use. Instead of despairing, other e-commerce websites and applications may use these patterns to re-evaluate procedures and policies in their business, allowing them to remain competitive with Amazon and overcome any hurdles posed by the incoming government. The global supply chain's complexity relies on their desire to capitalize on new technological advancements now and future, so do not pass up this chance.

Most Indian firms are still in the outsets of developing, integrating, and implementing green supply chain management (GSCM) techniques. Organizations that embrace green activities such as learning and benchmarking and communicate these concepts to their employees will undoubtedly successfully implement green business practices. The company's long-term viability will be based on the environment's viability. As a result, for the sake of Mother Nature, environmental considerations must be appropriately incorporated into business operations, and green supply chain management (GSCM) activities must be vigorously encouraged and applied by firms. However, organizations are now involved in most green supply chain practices due to mounting pressure from the government and its litigations and mounting pressure from customers regarding the need and demand for green products to save the environment, earth, and non-renewable natural resources.

REFERENCES

- Allen, Gary (2017). Transportation Network Optimiaztion in Amazon Effect Era, Material Handling & Logistics
- Amazon Supply Chain Management-Case Study. (2022). From https://sourceessay.com/amazon-supply-chain-management-case-study/
- Aronow, Stan; Hofman, Debra,; Burkett, Mike; Romano, Jim ; Nilles, Kimberly,2014 ,The 2014 Supply Chain Top 25:Leading the Decade
- Bhateja, A., Babbar, R., Singh, S., & Sachdeva, A. (2011). Study of Green Supply Chain Management in the Indian Manufacturing Industries: A Literature Review cum an Analytical Approach for the measurement of performance. *International Journal Of Computational Engineering & Management*, *13*.
- Bradley, S., Kim, C., Kim, J., & Lee, I. (2012). Toward an evolution strategy for the digital goods business. *Management Decision*, *50*(2), 234-252. doi: 10.1108/00251741211203542
- Caniato, F., & Lehmacher, W. (2019). The global supply chain: How technology and circular thinking transform our future. *Production Planning &Amp; Control*, *31*(7), 610-610. doi: 10.1080/09537287.2019.1655053
- Ceil, C. (2018). Sustainable Global Supply Chains at Amazon. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3520424
- Chavez, R., Yu, W., Feng, M., & Wiengarten, F. (2014). The Effect of Customer-Centric Green Supply Chain Management on Operational Performance and Customer Satisfaction. *Business Strategy And The Environment*, *25*(3), 205-220. doi: 10.1002/bse.1868
- Che Razak, R., & Ibrahim, N. (2020). GREEN SUPPLY CHAIN MANAGEMENT PRACTICES: A LITERATURE REVIEW. *International Journal Of Entrepreneurship And Management Practices*, *3*(9), 14-30. doi: 10.35631/ijemp.39002
- Cherian, J. and Jacob, J. (2012). Green Marketing: A Study of Consumers' Attitude towards Environment Friendly Products. Journal of Asian Social Science,Vol. 8, No. 12

- Chin, T., Tat, H., & Sulaiman, Z. (2015). Green Supply Chain Management, Environmental Collaboration and Sustainability Performance. *Procedia CIRP*, *26*, 695-699. doi: 10.1016/j.procir.2014.07.035
- Chopra, S., & Sodhi, M. (2014). Reducing the Risk of Supply Chain Disruption. *MIT Sloan Management Review*, *55*(3).
- Dai, J., Cantor, D., & Montabon, F. (2015). How Environmental Management Competitive Pressure Affects a Focal Firm's Environmental Innovation Activities: A Green Supply Chain Perspective. *Journal Of Business Logistics*, *36*(3), 242-259. doi: 10.1111/jbl.12094
- Diabat, A., & Govindan, K. (2011). An analysis of the drivers affecting the implementation of green supply chain management. *Resources, Conservation And Recycling*, *55*(6), 659-667. doi: 10.1016/j.resconrec.2010.12.002
- Dhull, S., & Narwal, M. (2016). Drivers and barriers in green supply chain management adaptation: A state-of-art review. *Uncertain Supply Chain Management*, 61-76. doi: 10.5267/j.uscm.2015.7.003
- Dube, A., & R, G. (2011). Green supply chain management – A literature review. *International Journal Of Computer Applications*, *0975*(8887).
- Ellen McArthur Foundation/Circular Fibres Initiative (2017), A new textiles economy: redesigning fashion's future, November 2017; https://www.ellenmacarthurfoundation.org/ publications/a-new-textiles-economy-redesigning-fashionsfuture
- Gao, J., Xiao, Z., Wei, H., & Zhou, G. (2020). Dual-channel green supply chain management with eco-label policy: A perspective of two types of green products. *Computers &Amp; Industrial Engineering*, *146*, 106613. doi: 10.1016/j.cie.2020.106613
- Gyaneshar, K., Reddy, E., & N, B. (2019). ACHIEVING SUSTAINABLE DEVELOPMENT THROUGH STRATEGICGREEN SUPPLY CHAIN MANAGEMENT. *GLOBAL JOURNAL FOR RESEARCH ANALYSIS*, 1-3. doi: 10.36106/gjra/5907084
- Holweg, M., & Helo, P. (2014). Defining value chain architectures: Linking strategic value creation to operational supply chain design. *International Journal Of Production Economics*, *147*, 230-238. doi: 10.1016/j.ijpe.2013.06.015

- Hook, L. & Wright, R. (2015). Amazon aims to go it alone with delieveries. *Financial Times; London (UK)*(2-Dec-2015):12
- Johnson, T. (2018). How the Amazon Supply Chain Strategy Works. from https://www.cpctrategy.com/blog/2018/07/amazon-supply-chain/
- Kumar, S., Eidem, J., & Noriega Perdomo, D. (2012). Clash of the e-commerce titans. *International Journal Of Productivity And Performance Management*, *61*(7), 805-830. doi: 10.1108/17410401211263872
- Laudon, J.P (2011). Supply chain startegies in the context of an ecommerce chain (e-chain). *Independent Journal of Management & Production (IJM&P)*
- Lun, Y.H.V., Lai, K.H., Wong, C.W.Y., Ng, C.T., Cheng, T.C.E., 2011. Research in shipping and transport logistics. International Journal of Shipping and Transport Logistics
- Lutz, P. (2001). In Dirty Chains? Purchasing and Greener Manufacturing. *Journal Of Business Ethics*, *34*(3), 345-359.
- Matos, S., & Hall, J. (2007). Integrating sustainable development in the supply chain: The case of life cycle assessment in oil and gas and agricultural biotechnology. *Journal Of Operations Management*, *25*(6), 1083-1102. doi: 10.1016/j.jom.2007.01.013
- Melnyk, Steven; Stanton, Daniel,2017, The customer centric supply chain leader (The strategic supply chain series)
- Preuss, L. (2002). Green light for greener supply. *Business Ethics: A European Review*, *11*(4), 308-317. doi: 10.1111/1467-8608.00290
- Raman, P. (2014). Green Supply Chain Management in India – An Overview. *Journal Of Supply Chain Management Systems*, *3*(1).
- Rao, P., & Holt, D. (2005). Do green supply chains lead to competitiveness and economic performance?. *International Journal Of Operations &Amp; Production Management*, *25*(9), 898-916. doi: 10.1108/01443570510613956
- Sangvikar, B., Kolte, A., Pawar, A., & Khadke, K. (2021). Realignment of supply chain for profitability: overcoming the financial challenges of e-retailing in India. *International Journal Of Enterprise Network Management*, *12*(3), 239. doi: 10.1504/ijenm.2021.118057

- Sarkis, J., Zhu, Q., & Lai, K. (2011). An organizational theoretic review of green supply chain management literature. *International Journal Of Production Economics*, *130*(1), 1-15. doi: 10.1016/j.ijpe.2010.11.010
- Srivastava, S., & Srivastava, R. (2006). Managing product returns for reverse logistics. *International Journal Of Physical Distribution &Amp; Logistics Management*, *36*(7), 524-546. doi: 10.1108/09600030610684962
- Srivastava, S. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal Of Management Reviews*, *9*(1), 53-80. doi: 10.1111/j.1468-2370.2007.00202.x
- Swanson, D., Atwood, A., & Calais, D. (2017). Mark Millar. Global Supply Chain Ecosystems: Strategies for Competitive Advantage in a Complex, Connected World. London, England: Kogan Page Limited (2015) pp. 288. *Journal Of Marketing Channels*, *24*(1-2), 100-103. doi: 10.1080/1046669x.2017.1347007
- The hidden value in Reverse Logistics – Point of view, Deloitte white paper
- What is Green Supply Chain and its Benefits? | Trademo Blog
- https://www.craftdrivenresearch.com/reverse-logistics-future-potential/
- https://www.frontierlabel.com/blog/ultimate-guide-to-sustainable-packaging-examples
- http://www.leansupplysolutions.com/blog/top-benefits-of-a-green-supply-chain/
- https://www.bearingpoint.com/en-in/insights-events/insights/green-supply-chain-from-awareness-to-action/

ANNEXURE

Customer Perception towards Greener Practices

This survey is being conducted as a part of major research project by the student of Delhi School of Management, DTU. This survey aims to understand customer perception towards greener practices in supply chain. The information gathered during this survey shall remain highly confidential. Thank you for your time!

* Required

Age Group *

- 18 - 25
- 25 - 30
- 30 - 40
- 40 - 50
- above 50

2. Employment status *

Mark only one oval.

- Employed
- Part time employed
- Student
- Unemployed

Annual Income *

- Below 2,50,000
- 2,50,000 - 5,00,000
- 5,00,000 - 10,00,000
- Above 10,00,000

4. I research about the brand values before investing in a particular product. *

Mark only one oval.

	1	2	3	4	5	
Highly disagree						Highly agree

5. To make sure I buy the right product or brand, I often observe what others are buying and taking suggestions from them about the product *

Mark only one oval.

	1	2	3	4	5	
Highly disagree						Highly agree

6. I often consult with other people to help choose the best alternative available and doing less damage to the environment from a product class *

Mark only one oval.

	1	2	3	4	5	
Highly disagree						Highly agree

7. I frequently gather information about a product and the brand and what all practices the brand is following before I buy. *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

8. It is important to me that the products I use do not harm the environment. *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

9. consider the potential environmental impact of my actions when making many of my purchase decisions *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

10. My purchase habits are affected by my concern for our environment *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

11. I am concerned about wasting the resources of our planet. *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

12. am willing to tolerate slight inconvenience in order to take purchase actions that are more environmentally friendly *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

13. I try to convince my family and friends to not to buy products that are made by companies under poor work conditions and harm the environment *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

14. When I have a choice between two equal products, I would purchase the one that is made under fair environmental practices even if it is slightly costlier *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

15. It would bother me to buy a product from a company that harms the environment *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

16. I research about the production and environment sustainability practices of a particular brand and I am willing to switch to a brand with better practices and concern for the environment *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

17. For a brand to be successful, there is a need for them to focus on greener practices to compete with present competition *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

18. purchase things because I know they will impress others and will not harm the environment *

Mark only one oval.

	1	2	3	4	5	
Highly disagree	◯	◯	◯	◯	◯	Highly agree

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