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Impact of green supply chain on management practices: case of manufacturing industries in pakistan

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Abstract: A conceptual framework was created and the result of the investigation shows that the pressures manufacturing sector in Pakistan are facing are not exceptionally high. The results also indicate that they are facing more barriers in the adoption of GSCM than the pressures they are facing.

INTRODUCTION

Green Supply Chain Management is an emerging concept these days all over the world. Climate and ecological changes happening around the world have led to inception of a few environmental guidelines and rules, there are many pressures requiring the introduction and execution of environmentally favourable practices in industry. The present progressively mindful and concerned society grasped the idea of being green in pretty much every part of day by day life. Numerous countries are directing new principles and enactments to look for economically and environmental friendly answers for natural corruption, for example, bringing down the carbon releases and the greenhouse gases impact. In Pakistan, its practices can rarely be seen.

GSCM is concepts that have been applied to many countries around the world. This research will provide the answers for the barriers that firms in Pakistan's manufacturing sector are facing, is there any main barrier that's hindering firms to adopt this idea or are there numerous reasons behind it. In Pakistan GSCM practices can rarely be seen. Therefor it is imperative to find whether the firms here are experiencing any pressure to adopt the GSCM practices. If that is correct, then what are the main barriers that they are facing in adopting GSCM practice.

BACKGROUND

The manufacturing sector of every country is very important. Globalization, especially improved exports, can be a big help for developing countries. Pakistan's exports are mainly composed of convenience foods and textiles, so this sector needs to be strengthened. It consists of two components: large production division and small production.Air pollution is rapidly developing Pakistan's environmental problems. Inefficient use of energy, the rapid increase in the number of vehicles covered by kilometers of vehicles and plant populations, the expansion of modern traffic without adequate air production processing or control, the open consumption of strong waste, the inclusion of plastics and of ozone depleting substances (ODS) Use is part of the real cause of deterioration of air. According to Mahmood A. Khwaja in 2005, air quality was assessed by monitoring the flow size and air quality of air toxins. In recent years, the normal increase in sulfur dioxide content in the main production sectors (industrial, transportation and energy) was partly coincident. In addition, in the electricity sector, nitrogen oxides have increased to 25, carbon dioxide has quadrupled.

Now it is time to introduce green measures to the Pakistani industry. Therefore, this study will focus on the current position of Pakistan's green supply chain management, direction of movement, barriers to this path, and pressures faced by the company. In Pakistan, the concept of green supply chains is rarely used. There are many barriers behind this. This study will help you identify these barriers and identify the biggest barriers your company faces. In addition, when implementing this method, it determines the pressures that companies are currently facing and how much they are already being applied. This makes it clear where GSCM (Green Chain Management) is located in the manufacturing sector in Pakistan.

PROBLEM STATEMENT

The rate of increment in the manufacturing organizations environmental assurance laws and awareness is ascending on a tough pattern from year to year. It is evident from the accessible information and data, the spending pattern of Pakistani government towards environment assurance observed to mount throughout the years and it very well may be seen that improvement does not appear to be so evident in Pakistan towards selection of green production practices in manufacturing sector. In spite of the Pakistan's government's acknowledgment of environmental issues & the presentation of Green Technology strategy, there is, actually very few research, theoretically & exactly on organizations greening found inside Pakistan's setting yet none of this exploration unmistakably depicts the countermeasures or improvement in the environmental awareness nor conduct among manufacturing organizations in Pakistan. Indeed, Pakistan is one of the nations where issues identified with environment contamination are winding up increasingly basic. From the patterns in Global CO_2 emissions report (2016), Pakistan is among the biggest CO_2 emitting nations. According to (Atlas, 2017) in 2016, CO_2 emissions per capita for Pakistan was 0.92 metric tons. In spite of the fact that Pakistan CO_2 emissions per capita varied generously lately, it would in general increment through 1997 to 2016 period finishing around 0.92 metric tons in 2016.

Global energy related CO2 emissions became 1.7% in 2018 to achieve a memorable high of 33.1 Gt CO2. It was the most noteworthy rate of development since 2013, and 70% higher than the normal increment since 2010. The expansion in emissions was driven by higher energy

utilization coming about because of a strong global economy, just as from climate conditions in certain pieces of the world that prompted expanded energy interest for warming and cooling.

In Pakistan, the manufacturing organizations are viewed as the foundation of industrial improvement and assume an essential job to the economy development of Pakistan. Because of increment in the number of manufacturing firms the pollution level is additionally expanding. These pollutions will highly affect biology, operational execution, environmental execution, monetary execution & social execution (Global CO_2 emissions report 2016). So as to accomplish higher benefit & market share, organizations should venture up in bringing down the effects and dangers towards the environment (van Hock & Erasmus, 2000).

AIM OF THE RESEARCH

(a) To arbitrate direct relationship b/w the barriers/restrictions & pressures GSCM in manufacturing sector of Pakistan.

(b) To assess the biggest and most influential barriers faced by the companies in adopting GSM practices in Pakistan's manufacturing sector.

(c) To examine the different sources of pressures for the adoption of green supply chain management (GSCM) in firms and most impactful pressures.

(d) To determine extent practices of green supply chain management are being adopted by firms in Pakistan & what is the perception of the firms upon its adoption.

(e) To assess the direct relationship of pressures of GSM & the adoption of its practices.

RESEARCH QUESTIONS

The research aims to the answer the following questions:

(a) Is manufacturing sector experiencing high pressure to adopt GSCM practices and standards and rehearses and these pressures emerge from a variety of factors?

(b) Is manufacturing sector in Pakistan facing more barriers in adopting the (GSCM) practices than the pressures they are facing?

(c) Is adoption of GSCM practices in manufacturing companies is falling behind pressures that they are encountering?

IMPORTANCE OF RESEARCH

This study is required to accomplish & add to a couple of parties after it has been finished as pursued.

RESEARCHERS / PRACTITIONERS

This present research will presumably provide guidance & reference to future researchers to lead their examinations. Various examinations have separated the choice of GSCM in any case there are confined examinations concerning about the restrictions of implementing GSCM in Pakistan. In Pakistan studies need to begin in light of the fact that various institutions around the globe have been tackling the pressures, restrictions and practices of GSCM, for instance, China & India. Thusly, this examination hopes to decrease the composition gap, give set up more research in the comparable augmentation in upcoming time.

MANUFACTURING FIRMS

This study will help the manufacturing companies in Pakistan to assess the hindrances which prevents in actualizing GSCM. It positively give better comprehension on subtleties of barriers & how conquer these boundaries. It will also assist the organizations with selecting proper GSCM practices. It will help manufacturing firms moderate the hindrance and furthermore hazards which thusly would help them to settle on better educated choices later on when there are tenable researches and data accessible.

POLICYMAKERS

This research means to add to the policymakers of Pakistan to give experiences and insights to the currently adopted GSCM and flow advancement of green practices among large and Small Medium Enterprises. It might likewise assist arrangement policymakers to comprehend the barriers that the organizations are looking with respect to the usage of GSCM & the endeavours can be implemented by policymakers to additionally improve the present circumstance.

SCOPE OF STUDY

The research study centres (GSCM) & the research would feature pressures, barriers and practices for manufacturing firms in embracing the said idea. Market examination has been done in the Karachi city, Pakistan among large, small & medium enterprises. Furthermore, this study will tell us about the pressures that manufacturing firms are facing in Pakistan to adopt green policies and procedures in their operations.

LIMITATION OF STUDY

The research centres on the supply chain of the manufacturing sector & doesn't endeavour to analyse the other SCM in different business sectors in light of the fact that the research field is excessively vast. This examination additionally centres around a couple of large and for the most

part small, medium enterprises & doesn't look at all the manufacturing organizations since it is work & time serious in information accumulation for all the manufacturing organizations within Pakistan. Accordingly, this stuy just takes into account the manufacturing firms inside Karachi, Pakistan region. What's more, this investigation concerns the availability of the information.

LITERATURE REVIEW

INTRODUCTION

This survey on pressures, barriers and practices of GSCM for manufacturing firms within Pakistan to adopt GSCM which had been studied in researches throughout the years.

SUPPLY CHAIN MANAGEMENT

Before we can analyze green supply chain management, we should exhibit an unmistakable depiction of the supply chain management. Research by (Douglas M. Lambert, 2000) characterizes supply chain management as the dynamic chain that looks to expand consumer loyalty and to make a viable upper hand. Its principle objective is to expand viability and effectiveness of the entire association. Supply chain exercises spread the entire procedure from the item development stage, sourcing, coordination and the progression of data. It additionally incorporates the change, development and capacity of materials. (Barbara B. Flynn, 2010) characterizes supply chain as how much a maker intentionally teams up with its supply chain

accomplices & cooperatively oversees intra & b/w association forms. They likewise expresses that the primary objective for supply chain is to accomplish the ideal dimension of adequacy and proficiency in the conveyance of items and administrations and to accomplish client's an incentive by conveyance items and administrations with the least cost conceivable and the most brief timeframe. What's more, (Aref A. Hervani, 2005) characterizes it as the customary supply chain depends on a straight creation worldview which depends on consistent contribution of natural resources & boundless environmental limit with regards to absorption of waste.

(V.A. & Venkataramanan, 1998) characterize the supply chain as the system of offices & exercises which play out the elements of item improvement, acquirement of materials, development of materials between offices, manufacturing of products, conveyance of completed merchandise to clients, and reseller's exchange support. A supply chain is a coordinated manufacturing process wherein crude materials are changed over into definite items, at that point conveyed to clients. At its most literal meanings, a supply chain is contained two essential, coordinated procedures: (a) creation arranging and stock control procedure, and (b) circulation and coordinations process (Beamon, 1998). The generation arranging furthermore, stock control forms incorporate the manufacturing and capacity sub-forms and their interface(s). All the more explicitly, generation arranging involves the plan and management of the whole manufacturing procedure (counting raw material booking and acquisition, manufacturing process structure and planning, and material taking care of plan and control).

The idea of Supply chain management has been getting tremendous accentuation in the previous a few decades. Today, the items that are being made are continually changing and the services that are being offered are consistently advancing. According to (Gajendrum, 2017) the present clients are more progressively engaged, instructed, and mindful and have a plenty of alternatives

to look over. In this unique circumstance, firms need to pay attention on deliberately utilizing their supply chains so as to support in the business sectors and addition an upper hand. This unmistakably clarifies the developing prominence of supply chain management as a field of study & research in the previous three decades.

GREEN SUPPLY CHAIN MANAGEMENT (GSCM)

A supply chain is a lot of business elements that straightforwardly includes in the upstream or downstream flows of items, administrations, & data from a source to a client. This definition sets the purchaser toward the finish of the supply chain & reflects a direct generation worldview that accepts consistent contributions of characteristic assets & a boundless ability to absorb squander (Geyer and Jackson, 2004). In contrast to customary models, a green supply chain considers the environmental effects of the generation procedure as products flow through the supply chain. As a rule, greening normally eludes to the forward supply chain capacities. A wide range of definitions for GSCM have been proposed in the writing. (Ahi & Payman, 2013) led an orderly research writing audit to distinguish the distributed meanings of GSCM. The consequences of their study demonstrated that 22 unmistakable definitions have been distributed to depict GSCM. Zhu et al. (2005) presented GSCM as a significant new model for ventures to accomplish advantage & piece of the overall industry objectives by bringing down their environmental dangers & effects while raising their biological proficiency. Similarly, (Aref A. Hervani, 2005) added green sourcing standards to SCM building squares, for example, green obtaining, manufacturing, management, appropriation and showcasing, and turn around coordination.

(Sheu, Yen, R., & Chae, 2006) distinguished GSCM as the blend of both the item manufacturing supply chain & reverse supply chain logistics.

Adoption GSCM practices have been linked to many changes in the organization's performance brought about it. As indicated by the partner hypothesis, partners are gatherings and people who can straightforwardly or in a roundabout way influence an organization execution as well as can be influenced by organization activities. This hypothesis advances that organizations produce externalities, which can make partners construct weight on organizations to diminish unsafe impacts (Sarkis, Zhu, & Lai, 2011). Then again, environmental practices have been seen as a channel on organization benefit in light of the fact that executing green practices requires substantial interests in innovation (Walley & Whitehead, 1994)Organizations' manufacturing exercises are essentially associated with both environmental execution and monetary execution (Ciang-Wu, 2015); (Lenox & King, 2004). In territory China, a study directed on green supply chain management (GSCM) practices on big business execution. The proof demonstrates no critical upgrade in financial execution of firms and minor improvement estimated in operational and environmental performance (Sarkis, Zhu, & Lai, 2011). Along these lines, (Hillman & Keim, 2001); (Folger & Nutt, 1975); Gilley et al. 2000 likewise referenced that actualizing green practices caused extra expense and a few researchers contend that green practices are not in every case very much coordinated with the firm performance (Zaabi, Diabat, & Dhaheri, 2013) which implies that organizations must bear substantial speculation and cost with no money related advantages (Walley & Whitehead, 1994).

PRESSURES

These pressures arise from different sources The pattern toward contributing sustainability in to the supply chain starts in an aftereffect of some key pressures. (Eltayeb & Zailani, 2009) hunt down the key helpers and they discovered that there is a relation b/w the pattern of greening & supply chain. This appropriation may prompt four results, which are outlined in to environmental, cost decrease, efficient & immaterial results. Pressure described as inspirations prompting the commitment of manageability in to the supply chain practices, start from some outer and interior pressures. Clients, government, media, speculators & providers are the ones making this weight to associations & in a roundabout way upholding them to include green supply chain forms in to their frameworks. Plainly making an economic environment is not the main driving variable for association to pursue the new pattern of supportable supply chain.

GOVERNMENTAL PRESSURES

These formal components are guidelines, laws, methodologies and incentives defined by government organizations to motivate organizations to be environmentally friendly and environmentally friendly. Bibliographic studies highlight the potential for government and legislative needs to motivate organizations to implement GSC (Bansal and Roth, 2000). Through administrative and motivational measures, forced copper criminal charges, created by arbitrary and official pressure from outside the enterprise, can adopt environmentally friendly procurement practices. For example, government agencies constitute an amazing organization that can affect the activities of the association through sanctions and exchange barriers (Riverta et al, 2006).

Kiloburn et al. (2002) pointed out that coercive pressure is important to encourage organizations to adopt environmental mental management practices such as green procurement, environmental structures and reverse logistics. We discuss how, for example, forced pressures through laws and guidelines in countries made in the United States improve environmental awareness and, in this sense, lead to environmental management practices. (B & T, 2006) also shows that the standards of the created country are creating institutional pressures for companies to create economies to improve their environmental performance. In many cases, this pressure has forced emerging country organizations to take environmental protection measures that exceed Zhu's expectations (Sarkis, Zhu and Lai, 2011), for example, showing that China has introduced strict environmental guidelines as a creative country. I gave it. How to make manufacturers renew their chain ecological practices beyond the premise of neighbors and peace. Consumables that affect business performance. Therefore, our administrative action design incorporates environmental principles and compulsory motivation into the association through administrative agencies.

SUPPLIER PRESSURES

Suppliers have the most minimal pressuring force for the incorporation of green supply chain initiatives into the supply chain management operations. They scored just 9 percent among different components that inexorably drive the pattern towards greening the chain. An examination via (Dong, Carter, & Dresner, 2001) recommends that it has been proposed that suppliers can give important thoughts utilized in the execution of ecological and environmental ventures; however they for the most part don't go about as an immediate main driving force. Suppliers pressure & ability is that driver of GSCM which expresses that suppliers can give

significant thoughts utilized in the usage of environmental activities, however they for the most part don't go about as an immediate main pressure. In any case, while suppliers may not be the driver, combination & participation in supply chain can bolster progressively successful management of environmental issues.

Therefore, suppliers are not considered as a key pressure; nonetheless, they have a significant job with regards to the joining of the ecological practices into the inventory network frameworks and supply chain. Suppliers likewise can help in making this combination progressively valuable and effective.

COMPETITORS PRESSURES

Large & effective companies in a specific industry generally face extreme examination from their competitors & outside environmental activists (Sarkis, Zhu, & Lai, 2011). Henceforth numerous organizations work in a domain that incorporates pressures from their competitors that instigate organizations to receive green activities to battle rivalry & addition competitive advantages (Louis Canning, 2001); (Carter & Ellram, 1998).

(Sarkis, Zhu, & Lai, 2011) proposes that firms should concentrate on agreeable activities all together for green activities to increase continued competitive advantages. Hart's examination accentuates that an agreeable direction in contamination anticipation, item stewardship, and supportable advancement methodologies is required to accomplish continued competitive advantage.

Numerous looks into concur on the idea that competition can be an immediate driver for the reconciliation of supportability of green initiatives into the supply chain forms. To turn out to be increasingly aware of the client's needs, organizations must acccomplish competitive advantage for themselves. The incorporation of supportability in supply chain exercises was framed predominantly to improve competitiveness among opponents. (Benito & Benito, 2005) guarantee in their exploration that an approach of environmental obtaining may not be attempted due to a craving of saving the world, but since it mirrors an approach to increase competitive advantage, improving the money related execution of the firm. The reconciliation of manageability into the supply chain management is thinking about as making an incentive for the association itself. This esteem can produce a manageable competitive advantage for the firm by offering a joint effort of both social and environmental mindfulness.

CUSTOMER PRESSURES

In fact, customers are the most important aspect of any organization. Organizations often take care to meet customer requirements in order to respect customer loyalty. The client also gives a presence to the company. Customers are the foundation of all associations, so they can easily populate external weights for management testing. According to one study (Carter and Jennings, 2002), customer weight is about 43% of external variables that affect the integration of green movements and affect social obligations. The choice of green supply chain practices shows how this partnership is of interest to the general public. This association is an indication that the company is distinguished by the fairness of fairness, health care and safety. Customers begin to analyze the environmental impact of purchased products and expect the company to look for

"green basic standards" in product planning and procedures (Tate et al, 2010). Survival summaries also show that the weight of individuals and buyers in downstream supply chains is driving companies to adopt. In terms of hypotheses Public opinion has shown that regulatory pressures help organizations identify and recognize that they are more legitimate and trustworthy (Aref A. Hervani, 2005). This weight is used by external partners, for example, customers with a private stake in the company (Krause, Vachon & Klassen, 2009).

SOCIAL PRESSURE

Companies can see the community intentionally trying to comply with accepted social needs, standards and rules that encourage satisfactory business practices (Jones, 1999). Research shows that multinational companies are responsible for the communities in which they operate (Paul R. Murphy, 2003). Therefore, these companies can use environmentally friendly methods to create a socially satisfactory image and predict it with the promises and ratings of the society in which they operate. Experts also pointed out that organizations are striving to achieve environmentally attractive elements to achieve corporate social goals. Our written study of business ethics confirms that socio-cultural obligations suggest the belief that good citizenship should help social welfare without harming it (Florida and Davison, 2001). After that, our socio-cultural responsibility construction embodies the organization's ethical commitment to society.

BARRIERS

Companies should distinguish which barriers are important for using GSCM. The size of the various barriers is important to better understand the suggestions for successfully implementing GSCM. A clear understanding of the barriers allows the association to recognize the most vulnerable areas and develop ways to improve these areas, ultimately improving the usefulness of the GSCM program. Barriers are classified according to the premise of necessity, so the industry must try to overcome these barriers, thus improving the rational, social and operational performance.

LACK OF COMMITMENT

The support and commitment of senior management is critical to the implementation of all important plans (Hamel and Prahalad, 1989) (Aref A. Hervani, 2005). Supporting senior management is particularly important for environmental practice, for example senior management. Organization and Use of Green Activities in the Association (Sarkis, 2009) Senior management provides GSCM with ongoing support for key plans and business plans for actual implementation (Ravi and hence the lack of commitment of senior management in Pakistan One of the obstacles to the implementation of GSCM in the manufacturing sector.

LACK OF GOVERNMENTAL PRESSURES

Government decisions and overhauls are notable pressures, as discussed above, and in any case can sometimes be considered one of the obstacles to the execution of the supply chain. Environmental guidelines can set up some essential systems that are considered increasingly sensitive, limiting your progress and uniqueness. In addition, several other analyzes show that management guidelines can be an obstacle, so we do not encourage the Earth to adopt a green supply chain approach. (Dashore & Sohani, 2013) also reinforces this by mentioning the lack of government structure for green supply chain professionals. Government laws and regulations can strengthen or weaken the acceptance of green performance and initiatives (Scupola, 2003). Boring administrative demands, costs or fees can lower the morale of small businesses. A weakening evaluation system could weaken the industry starting GSCM. While institutional

procedures for upgrading GSCM are in place, government facilities are seen as a barrier to better environmental management

TECHNOLOGICAL BARRIERS

Technology is a sort of learning. An organization with rich encounters in the application & appropriation of related advancements will have higher capacity in technological innovation. An organization will have higher creative capacity when information can be shared all the more effectively inside the firm (W. & S, 1998). Technological progressions can be accomplished with higher transferability. It is anything but difficult to share technological exchange or offer technological learning with higher expressness. Innovation & technology join the innovation in to corporate culture, empowering new thoughts & procedures & arrangements by everyone of the workers of the organization (Digalwar & Sangwan, 2011). Obstruction of associations to technology progression reception is the protection from change. A hierarchical obstruction implies trouble of actualizing essential change in the association.

A few creators incorporates the absence of new technology forms, applications, assets and skill, dread of disappointment, unpredictability of plan of GSCM & more as a component of the technological obstruction in actualizing GSCM (Deepak et al, 2014, Parmar, 2014, (Govindan, Haq, Kannan, & Mathiyazhagan, 2013). (Aref A. Hervani, 2005) featured that for each green practices executed require differing advances & for organizations to consistently improve their condition execution in their supply chain, they have to incorporate technological qualities. A precedent is to have data frameworks, for example, electronic information exchange that is fit and created from a greening point of view.

HIGH COST

In general, value was used as the basic measure of performance. In general, high costs put a significant burden on GSCM compared to traditional SCM. Many introductory assumptions are required for IT empowerment, technological advances, hiring numerous representatives, and the drive and commitment of GSCM employees.

LACK OF CONSCIOUSNESS

A notable barrier to GSCM found in Pakistan is lack of knowledge. Customer inquiry has become the most important external weight type. The full attention to customers and society suggests whether customers demand green products. Organizations need to turn technology and partnerships into creative green elements. In any case, car manufacturers in India are supplying green products because buyers do not know the benefits of green products. In the United States, 75% of American shoppers are expected to maintain their reputation, and 80% pay more for green and green products (Lamming and Hampson, 1996).

CUSTOMER'S DESIRE FOR LOW PRICES

Customers are continually requesting lower prices. Numbers of examinations have revealed that incorporating manageability into the supply chain procedures is costly. Giving to (Aref A.

Hervani, 2005) and Sarkis, they examine in their examination that costs are viewed as high for SME's by saying: Incurring costs are considerably progressively noteworthy for SMEs which have commonly less assets accessible and accordingly are increasingly defenceless.

POOR COMMITMENT OF SUPPLIERS

As reviewed in the pressures' part, suppliers have a low main driving force for the green supply chain management. Be that as it may, with regards to the impediments part, supplier's inclusion is very significant. Suppliers' dedication is vital so as to have an effective execution. Suppliers should demonstrate some mind concerning the green supply chain management. Reinforce associations with suppliers result in lower stock levels, costs & higher exactness. Suppliers' hesitance to change towards GSCM is b/c of customary outlook & suppliers' interests being unique in relation of those of the all out system ((Mudgal, Madaan, & Mudgal, 2010). Suppliers and manufactures' connections are viewed as most significant for creating competitive advantage for the producer. Large vehicle enterprises have ordinarily 2000 – 3000 suppliers. Suppliers need to meet the prerequisite of purchasers to keep up business relationship.

POOR ORGANIZATIONAL CULTURE

Management may urge workers to learn green data. Associations may give prizes to green workers. Representatives might be helped when they face green issues and might be offered help to learn green data (Hsu and Hu, 2008). This can be underscored from the poor top management duty. A few associations management has poor responsibility rehearses. Individuals in such

association are viewed as enthusiastic in regards to the issues of the outer condition. This likewise incorporates poor hierarchical vision with the association. Top dimension management center around transient objectives and disregard the basic long haul ones.

LACK OF TRAINING IN GSCM PRACTICES

First of all, the organization should raise environmental awareness so that all employees know how this idea will improve the organization's image. With reference to the current report (Dashore & Sohani, 2013), we express the following lack of thoughtful training to the association's representatives, improving environmentally-friendly practices: Lack of training is a serious disorder. Workers should be well prepared before introducing completely different ideas to get. Failure to contribute to the green supply chain of untrained and untrained employees. A survey conducted by Sharma (2012) found that the lack of representative training is a clear boundary for a green supply chain approach.

GSC MANAGEMENT PRACTICES

Society is increasingly worried about environmental degradation. The company pays more attention to environmental initiatives. There are many ways for companies to participate in green games. First of all, there are various practices such as reducing energy consumption, reverse logistics, green packaging and waste management. This is part of the green supply chain method. Our goal in this study is to focus on the scope of activity as well as the activities or practices

currently being implemented in Pakistan's manufacturing sector. It is also a goal to find a direction for companies to apply these methods.

GREEN DESIGN

This means an effective understanding of design issues such as waste management, asset protection & decontamination. Lin (2013) understood by expressing that environmental design is clearly identified as product safety, environmental risk management, asset conservation, waste management and pollution control. With regard to the current green economy, decommissioning projects will be a solid foundation for recovery and reuse projects. This presentation is supported by (Tibben, Lembke and Rogers, 2002), and environmental design evaluation includes tracking all material and backflow flows. Therefore, the green design should be able to track and restore the soil raw material to move the product back to the environment.

REVERSE LOGISTICS

Reverse logistics is the ultimate goal of organizing, executing, and controlling the productive and profitable flow of raw materials, inventory, entire products, and related data, from purpose of use to starting point. Restore proper quality or level. The value of reverse logistics can also include restoration and upgrade exercises.

Reverse logistics is the task of extracting discarded items (cores), which may include grouping and shipping of materials and returning them to the main storage for reuse or recovery (Jayaraman, Luo, &

Findlay, 2007); (Paul R. Murphy, 2003). Taking care of reverse logistics dynamics requires considerable attention from logistics specialists. Organizations that want to work together in other European countries should take feedback action to collect waste at distribution centers and identify customer loyalty issues for renewable products.

ENVIRONMENTAL PACKAGING

Analyzing current packages may reveal potential changes and opportunities for additional social packages, or use fewer packages (Benito and Benito, 2005).

After the thorough review three hypothesis are proposed

H_1: There is a significant relationship b/w barrier of GSCM & adoption of GSCM

H_2: There is significant relationship between pressures of GSCM and adoption of GSCM

H_3: Manufacturing Sector is experiencing high pressure to adopt GSCM practices and standards.

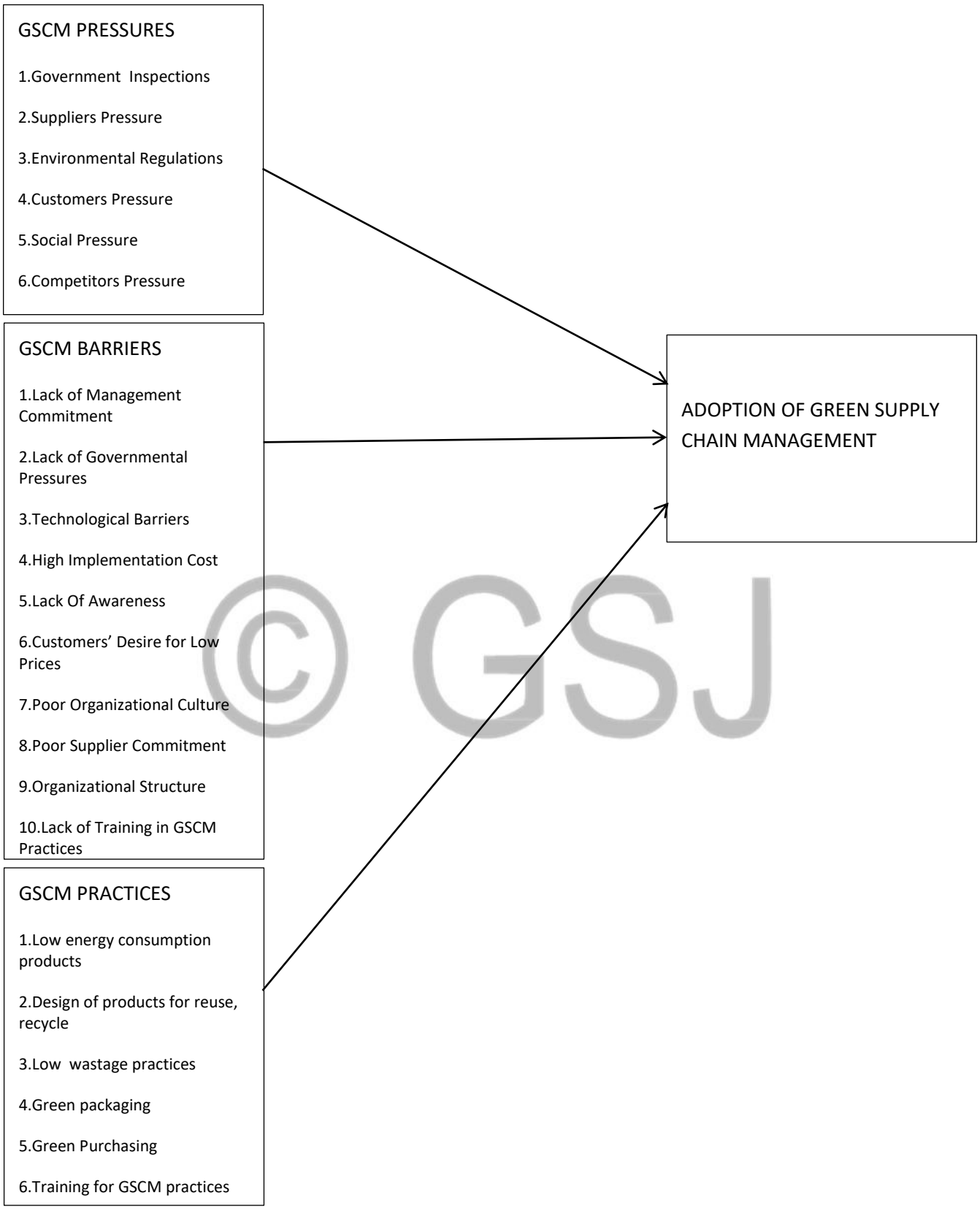
H_4: Manufacturing Sector is facing more barriers in adopting the GSCM practices than the pressures they are facing.

H_5: Adoption of GSCM practices in manufacturing firms is falling behind the pressures that they are encountering.

CONCEPTUAL FRAMEWORK

The research is carried out using four dimensions which are pressures of GSCM, barriers of GSCM, perception of its adoption and the extent to which its practices are being adopted in manufacturing sector. A conceptual framework has been developed & presented in Figure

THEORETICAL CONCEPTUAL FRAMEWORK


GSCM PRESSURES
1.Government Inspections
2.Suppliers Pressure
3.Environmental Regulations
4.Customers Pressure
5.Social Pressure
6.Competitors Pressure
GSCM BARRIERS
1.Lack of Management Commitment
2.Lack of Governmental Pressures
3.Technological Barriers
4.High Implementation Cost
5.Lack Of Awareness
6.Customers' Desire for Low Prices
7.Poor Organizational Culture
8.Poor Supplier Commitment
9.Organizational Structure
10.Lack of Training in GSCM Practices
GSCM PRACTICES
1.Low energy consumption products
2.Design of products for reuse, recycle
3.Low wastage practices
4.Green packaging
5.Green Purchasing
6.Training for GSCM practices
ADOPTION OF GREEN SUPPLY CHAIN MANAGEMENT

METHODOLOGY

INTRODUCTION

The research technique is a systematically directs research by utilizing collection of data & investigation. Research is finished with the assistance of study, perception, examination & correlation. This section portrays how the exploration is done as far as research theories, design, examining systems, survey advancement & operationalization of the variables, data accumulation, validity, data investigation techniques & ethical contemplations.

RESEARCH PHILOSOPHIES

Numerous researchers in this field utilize quantitative methodology that incorporates examination of (Parmar, 2016). He examines both the various barriers and their effect on the immaterial and substantial execution of the organizations. Another exploration likewise utilizes quantitative way to deal with inspect the immediate and backhanded factors b/w GSCM execution & business execution (Lee et al, 2012). Different researchers, for example, (Q, J, & H, 2007) analyzed the connections b/w operational practices & execution between prior adopters of GSCM rehearses in Chinese manufacturing undertakings. Following examination embraced a quantitative methodology & the essential point of the investigation was to decide the barriers and weights that manufacturing firms in Pakistan have in receiving GSCM.

RESEARCH DESIGN

This examination is being directed to research the connection b/w four variables to be specific the adoption of GSCM, the pressures of embracing GSCM, the barriers of GSCM and the practices of GSCM. This investigation intends to comprehend the quality of both the variable's relationship, to see whether the organizations are having high pressures to embrace GSCM rehearses and from which sources do they touch base, to comprehend what are the fundamental barriers and how immensely these barriers will keep firms from receiving GSCM, if the pressures are there. The examination is likewise founded on checking on the past looks into and hypothetical models to build up the three hypothesis. Moreover, the examination gathers essential data by the conveyance of polls to examine the current hypothesis & the created theory from the hypothetical models. The ideas in this investigation are operationalized to guarantee clearness of definitions & their accentuation to clarify casual connection b/w the barriers & GSCM appropriation.

SAMPLING PROCEDURES

SELECTION OF STUDY AREA

In this investigation, the recognized targeted audiences are the organizations in manufacturing area situated inside Karachi, Pakistan. It includes industries such as textiles, petroleum, chemicals, food production, electronics and transport and wood, leather and paper.

SELECTION OF RESPONDENTS

The samples were acquired from the manufacturing firms that are situated inside Karachi. The testing components of this examination are primarily centered around the organizations that are still in activity & are makers that produce tangible products. Karachi city is chosen since this state has the most manufacturing organizations in Pakistan. Likewise, the sub segments picked are; the respondents are the top management, the middle management & after that rest were from the supervisory & non-administrative dimension positions. This delineates the data collected was from individuals who has learning & adequate involvement and knowledge in their associations which gave quality data to this exploration.

SELECTION OF SAMPLE SIZE

Sample size is critical in all research contemplates. Adequate example size will build validity & dependability of the investigations. Lacking appropriate sample size may result in issues, for example, under-inclusion, choice predisposition, poor data collection quality & misspecification of targeted audience. A sum of 45 manufacturing organizations from various industries in Karachi are chosen, comprising both global just as nationally operating firms.

SAMPLING METHOD SELECTION

Sampling In this research, judgment sampling strategy was utilized in choosing the suitable sample. This is the most ideal method for gathering data rapidly and increasingly precise as researcher can get an enormous number of finished questionnaires that can create information for analysis reason. By the by, the target audience was carefully chosen to decrease the event of sampling error.

DEVELOPMENT OF QUESTIONNAIRE & VARIABLES OPERAIONALIZATION

An online survey instrument been utilized b/c of the convenience & cost efficiency & the answers can be effectively sent out into SPSS for detailed analysis. The questionnaire is segregated in 2 areas & comprises of thirty inquiries. Segment A is demographic profile which incorporates the respondent's statistic data. Area B comprised of 25 inquires which are separated in four sections – six inert variables (GSCM pressures, GSCM barriers, GSCM practices & selection of green supply chain management). This segment is identified with the barriers that avoid the organizations of receiving GSCM in their firm just as its pressures & practices.

MEASUREMENT SCALE

There are 04 basic types in nominal, ordinal, interval, and relations (Sekaran and Bougie, 2010). Nominal and ordinal scales are classified as nonmetrics, and interval scales and ratio scales are classified as metrics. The nominal scale is a measure of classifying variables into mutually

exclusive groups (Sekaran and Bougie, 2010). The ordinal scale is a measure of classifying subjective contrast into variables in a significant way (Sekaran and Bougie, 200). The range scale is a multipoint scale that examines the fairness of the magnitude of the differences in differences, requests, and responses (Sekaran and Bougie, 2010). This questionnaire has two sections registered as sections A and B. Nominal and ordinal scales are used for consultation in section A. In area B, only the Likert scale is used. The five-point Likert scale in District B allows respondents to show how strongly they agree or disagree with presenting questions. "Very low", "low",

"Medium", "High", "Very High", "Do not consider anything", "Plan Considerations", "Current Considerations", "Start Implementation", and "Full Implementation".

DEMOGRAPHIC VARIABLES

The demographic variables are utilized to quantify & demonstrate the profile of the respondents. It has five inquiries in this segment which is sexual orientation, age, educational degree level, administration duration, and industry type. Demographic data of respondents is significant for this examination as means, frequencies, variances and standard deviations are to be determined by utilizing these data.

INDEPENDENT VARIABLES

This study consists of three independent variables in the construct of its questionnaire & these variables along with their measurement are as follows:

Pressures of GSCM are the pressures that manufacturing firms are facing nowadays in adoption of GSCM. It also includes the sources of the pressures and will also help to identify the major pressures from the minor ones.

Barriers of GSCM will be used to measure the main barriers that firms face currently in manufacturing sector. It is to find out which is the biggest barrier faced by companies these days. The barriers included are lack of governmental support, poor organizational culture, supplier relations, low prices etc.

Practices of green supply chain will be used to measure the perception of the companies towards the adoption of green supply chain management practices, what is their status in currently in Pakistan's manufacturing sector and to which extent they are already being implemented in the companies as well as what are most common practices of GSCM.

DEPENDENT VARIABLES

Green supply chain management adoption The components that are in this segment are to comprehend the estimation of GSCM inside the organizations. The components incorporated into the survey of this area are whether GSCM adoption can add to a greener and healthier

environment, improve organization's competitive position in local market & worldwide market, upgrade their image & reputation & improve plant & security of employees.

ORIGIN OF CONSTRUCT

Table 3.0: Construct Table

Construts	**Source**
Pressures of GSCM	Chin-Chun et al., (2011)
Barriers of GSCM	Elizabeth et al., (2014) Sunil et al., (2011)
Practices of GSCM	Chin-Chun et al., (2011)
Adoption of GSCM	Subrata et al., (2013)

Source: Developed for the study

DATA COLLECTION

The data collection is an important component in any study; it is procedure to estimate the variables & provide response to the exploration question. A data gathered must be exact to keep away from negative effect on consequence of study & will prompt invalid outcome & basic to keep up the research integrity. This examination led a survey to get quantitative data to test the proposed hypothesis. This survey is led utilizing the mail questionnaire to the different manufacturing firms in Karachi, Pakistan.

VALIDITY

Validity identifies with whether discoveries of the topic examined are related with current business practices. Since the majority of the questions were adjusted from past investigations, aberrations of business environments are a piece of the reason that some dimension of lack with respect to confront validity exists. As indicated by Zikmund (1991), face validity or substance validity involves subjected judgment on the precision of reactions towards foreordained inquiries by methods for consistent valuation. Introductory assessments were made on the items of measurement to limit the disparities b/w the questionnaire & estimated idea.

DATA ANALYSIS METHODS

Data pre-screening was led over the span of essential data collection. After getting response for every questionnaire, it was checked to guarantee that no inquiries were left deficient. The statistical software, Statistical Package for the Social Sciences (SPSS) form 22 was used in this investigation by coding all inquiries with numeric values and entering the essential data for

analysis. As indicated by Sekaran (2003), data analyses includes three targets; (1) figuring out gathered data, (2) testing the goodness of data, and (3) testing hypothesis for the investigation. So as to meet these three targets just as the goals of this examination, the following segments clarify all analysis strategies used to evaluate the exploration destinations and hypothesis.

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NORMALITY TEST

The normality test is carried out to decide whether the data set is distributed normally. Hair (2014) clarify that the example is viewed as distributed normally when both skewness &kurtosis are zero, however that this circumstance is probably not going to happen. They further clarify that a standard guideline in regards to skewness is noteworthy when it is +1 or under - 1 (Hair, 2014). For Kurtosis, the distribution is considered important as from - 2 to 2 (Hair, 2014).

DESCRIPTIVE ANALYSIS

In this investigation, demographic data are examined utilizing descriptive analysis strategies, for example, recurrence distribution, rate and total percentage to all the more likely comprehend the sample data. Besides, a percentage distribution of variables was led to acquire a review of respondent's recognition towards the variables of interest and along these lines, the distribution of data is assessed.

RELIABILITY ANALYSIS

Reliability is ability of research instrument in terms of measuring reliably. Through Cronbach's Alpha capacities internal consistencies of a test or scale is determined. Alpha registered is alluding to reliability of a test related with different tests having indistinguishable amount things and indistinguishable develops that are estimated.

ETHICAL CONSIDERATIONS

Ethics alludes to the right standards and conduct essential when doing research. It is an ethical duty to shield participant of the research from damage. This examination was done in agreement to the ethical rules as determined by the University of Karachi. This quality data incorporates the present status of the green organization. Participants was likewise educated that the outcomes regarding the examination could be sent to them as an alternative as a token of thankfulness for their participation.

CHAPTER SUMMARY

This chapter examined the methodologies used to carry out a business research. The examination design, data collection technique, sampling design, measurement of construct, processing of data, data preparing and strategies for data analysis that connected in this investigation were delineated clearly in this section.

DATA ANALYSIS

INTRODUCTION

This part demonstrates the results derived from the survey gathered from 45 manufacturing firms in Karachi, Pakistan. The outcomes include normality test, demographic profiles of respondents, central tendency, reliability analysis, and the outlined hypothesis testing.

RESPONSE RATE

Altogether, 350 questionnaires were distributed to the manufacturing firms of various industry types in Karachi, Pakistan. Out of 350 questionnaires that being distributed, via online only 207 questionnaires were returned. As per Dillman (2011), the respondent rate by means of email will in general be lower and nearly hard to different strategies for survey. Furthermore, an aggregate of seven questionnaires were expelled from further analysis because of its fragmented nature. In this manner, just 200 questionnaires investigated utilizing the SPSS software.

EXAMINATION OF DATA

The data was presented in another procedure, such as a questionnaire.

Verification, data editing, coding, refinement and transcription for data verification. The essence of the survey is to assess the suitability of reliability test experiments using IBM SPSS software (version 22.0). The next step in editing the data is to improve the accuracy and accuracy of the questionnaire measurement. Managers, consultants, and respondents are responsible for verifying receipts. Questionnaires with fragmented or double answers are accepted as missing values and excluded. Data encoding included sending the code for each response separately in the request. The specific code is basic and simple. For example, the respondent's gender is specified as "1" for males and "2" for females. Coding transforms data more simply than sequential extended representations. The encoded data is decrypted in the SPSS software database structure. Data transcription is the fourth step in the data management process. In this review, survey data was legally sent to SPSS statistical software after encoding. The final step in the procedure is to erase the data. This procedure is to distinguish highly valuable data that are artificially conflicting and inaccessible (Malhotra and Peterson, 2006). This step included not only handling missing responses in the completed questionnaire, but also checking the texture. We have carefully reviewed your profile. In addition, not only data is missing or fragmented, but it also requires constant checks to find out-of-range data. Missing values occurred during data cleanup, including hidden values due to ambiguous responses.

TEST OF NORMALITY

Normality test is carried out to analyze that if the information collected is distributed normally. For checking the normality of the said data skewness and kurtosis were used. -1 to 1 is the acceptable value of skewness, and as for kurtosis, its acceptable values ranges from -2 to 2. The

results derived for this data demonstrate that the values of skewness & kurtosis lay in the range of acceptable range there the data is distributed normally.

Normality test

Variables	**skewness**	**kurtosis**	**SD**
GSCM Pressures	-.144	-1.513	0.66783
GSCM Barriers	.025	-1.335	0.47643
GSCM Pressures	-.049	-1.253	0.35763
Adoption of GSCM	-.266	-.932	0.49517

Source: Output derived from SPSS

DEMOGRAPHIC PROFILE OF RESPONDENTS

Demographic profile of the participants are shown in this section which includes the gender, age, educational level, duration of the service and industry type they belong too.

GENDER

Table below shows data regarding gender of respondents. It is visible that males are the majority respondents. The actual percentages are as follows: 58% of the respondents are male whereas 42% respondents are females.

Table : Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	116	57.4	58.0	58.0
Female	84	41.6	42.0	100.0
Total	200	100.0	100.0	

Source: Output derived from SPSS

AGE GROUP

Table below demonstrates the age of the respondents. 6.5% respondents have age of 20-24, 21% respondents age is from 25-28, 32.5% respondents have ages from 29-32, 29.5% is of the respondents whose ages are from 33-36 making up the majority of the respondents, whereas, 10.5% are those with ages above 36.

Table: Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 20-24	13	6.5	6.5	6.5

25-28	42	21.0	21.0	27.5
29-32	65	32.5	32.5	60.0
33-36	59	29.5	29.5	89.5
Above 36	21	10.5	10.5	100.0
Total	200	100.0	100.0	

Source: Output derived from SPSS

EDUCATIONAL LEVEL

As shown in Table 4.3, 5.5% respondents have done intermediate, 48% respondents are graduate, 38% have master's degree and 8.5% hold a doctorate degree.

Table 4.3: Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	intermediate	11	5.5	5.5	5.5
	bachelor	96	48	48	53.5
	masters	76	38.0	38.0	91.5
	doctorate	17	.8.5	8.5	100.0
	Total	200	100	100	

Source: Output derived from SPSS

WORK EXPERIENCE

Table shows the distribution of the service duration of the respondents, there are 19% have experience of less than a year, 28% have worked from 1 year to 4 years, 36.5% are those who have worked from 5-8 years, 12% are those who have an experience of 9-12 years, and 4.5% are those who have experience of more than 12 years.

Table: Work Experience In Manufacturing Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	38	19	19	19
	1-4 years	56	28	28	47
	5-8 years	73	36.5	36.5	83.5
	9-12 years	24	12.0	12.0	95.5
	above 12 years	9	4.5	4.5	100.0
	Total	200	100	100	

Source: Output derived from SPSS

INDUSTRY TYPE

This table shows the industry type the repondents belong to in manufacturing sector. 25% belongs to clothing and textiles manufacturing. 30% belongs to petroleum, chemicals and plastic manufacturing, 22.5% belongs to food production, 14.5% belongs to electronics, computers and transportation and only 8% belongs to wood, leather and paper industry.

Table: Industry Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	clothing and textiles	50	25	25	25
	petroleum, chemicals and plastics	60	30.0	30.0	55.0
	food production	45	22.5	22.5	77.5
	electronics, computers and transportation	29	14.5	14.5	92.0
	wood, leather and paper	16	8.0	8.0	100.0
	Total	200	100.0	100.0	

Source: Output derived from SPSS

DISTRIBUTION OF PERCENTAGE OF VARIABLES

MEASUREMENT OF CENTRAL TENDENCY OF CONSTRUCTS

The utilization of frequency analysis would almost certainly create frequency tables & charts, in which data relating to the frequencies & variability of the set is given. Moreover, the mean of sample distribution can be acquired from the frequency analysis performed Table 4.9 demonstrates the rundown of the central tendency for the variable of pressures of GSCM.

Table: Central Tendency for Pressures of GSCM

No	Questions	N	Mean	Mode	Standard Deviation
1	Government Inspections and Audits	200	2.86	3.00	.826
2	Suppliers Pressure	200	1.40	1.50	.762
3	Environmental Regulations	200	3.17	3.00	.854
4	Customers Pressure	200	2.31	2.50	.860
5	Social Pressures	200	2.23	2.50	.904
6	Competitors Pressure	200	3.24	3.00	.907

Source: Output derived from SPSS

Competitors pressure has the highest mean of 3.24, means that the respondents identified it as the biggest pressure for adopting GSCM, followed by environmental regulations and government inspections and audits. Suppliers pressure has the lowest mean score, which means respondents considered it as the least influencing pressure. The mode score for most of the question is close to 3, indicating that most of the respondents have chosen "somewhat important" to all the questions.

Table: Central tendency for Barriers of GSCM

No	Questions	N	Mode	Mean	Std. Deviation
1	Lack of Management Commitment	200	2.90	3.82	.916
2	Lack of Governmental Pressures	200	3.80	4.41	.831
3	Technological Barriers	200	2.50	3.63	.790
4	High Implementation Cost	200	4.00	4.71	.831
5	Lack Of Awareness	200	4.00	4.65	.864
6	Customers' Desire for Low Prices	200	3.90	4.82	.787
7	Poor Organizational Culture	200	2.00	3.74	.863

8	Poor Supplier Commitment	200	3.70	3.64	. 887
9	Organizational Structure	200	2.90	3.55	.726
10	Lack of Training in GSCM Practices	200	2.50	3.67	.857

Source:Output derived from SPSS

Table summarizes the central tendency for the variable of GSCM barriers. Customer's desire for low prices is the question with the highest mean score of 4.82, followed by high implementation cost with 4.71 and lack of awareness with mean score of 4.65. This indicates that most of the barriers have high impact on the adoption of green supply chain management.

Table : Central tendency for Practices of GSCM

No	Questions	N	Mode	Mean	Std. Deviation
	Design of products for reduced consumption of material/energy	200	2.50	2.57	.854
	Design of products for reuse, recycle, recovery of material, component part	200	2.50	2.60	.937
3	Implementing low wastage practices	200	2.60	2.71	.940

Uses green packaging/eco-friendly packaging for products	200	2.90	2.91	.859
5 Green Purchasing	200	1.60	1.83	.743
6 Invests in training for GSCM practices	200	2.00	2.20	.849

Source:Output derived from SPSS

Table shows the central tendency of the variable of practices of GSCM. Using green packaging/eco-friendly packaging for products has the highest mean of 2.91, followed by implementing low wastage practices. Green purchasing has the lowest mean score of 1.60. The mode for the majority of question is close to 2 which indicates that most of the respondents have chosen the option of "planning to consider it". The mean scores overall suggest that not many practices of GSCM are being carried out in Pakistan, but most of the companies now are planning to consider them and implement them some time in the future.

Table demonstrates the summary of the central tendency for the variable of GSCM adoption. GSCM adoption can add to a greener situation in Pakistan has the most elevated mean score of 4.36 & GSCM adoption can upgrade plant & worker's safety has the least mean score of 3.10. From the mean value, we could reason that the greater part of the firms knows what executing GSCM can prompt a greener environment however they are somewhat wary on whether GSCM adoption can bring down their operational expense or will actually add up to that. The mode score for most of the inquiries identified with GSCM adoption in this examination is 4. The

results of this investigation show that most of the objective respondents in this examination have picked “agree” to all of the questions identified with GSCM adoption.

Table: Central tendency for GSCM adoption

No	Questions	N	Mean	Mode	Standard Deviation
1	Adopting GSCM will help in providing green environment	200	4.36	4	.592
2	Adopting GSCM will provide company with a competitive edge in the market	200	3.35	5	.619
3	Adopting GSCM will enhance the company image globally	200	4.32	4	.587
4	Employees and plant safety can also be increased by implementing GSCM	200	3.10	2	.625

Source: Output derived from GSCM

RELIABILITY ANALYSIS

To check the internal consistency of the data Cronbach's Alpha is used. If the Cronbach's Alpha's value is close to one, its internal consistency is said to high the values were found using SPSS & a combined table was developed. Table shows the Cronbach's Alpha for each variable. The values range from the highest 0.930 to the lowest 0.745. The highest Cronbach's Alpha was 0.930 for the adoption for the adoption of green supply chain management, followed by practices of GSCM with .868 and pressures of GSCM with .782 and lastly with the lowest value are barriers of GSCM with the value of .745.

Table: Reliability Results

No	Name	No of Items	Cronbach's Alpha
1	Pressures of GSCM	6	0.782
2	Barriers of GSCM	7	0.745
3	Practices of GSCM	5	0.868
6	Adoption of GSCM	4	0.930

Source: Results combined for the research

CORRELATION ANALYSIS

A correlation coefficient would be significant if the p-value is greater than the correlated significance level. At the point when negative coefficients are acquired, this demonstrates the two factors broke down are having a negative relationship. This implies when a variable increases, the other variables declines. Conversely, if 2 variables are having positive relationship whereby when the previous variable builds, the last additionally expands, this will be shown by a positive Pearson correlation coefficient.

Table shows the result of the Pearson Correlation Coefficient of this study. The Pearson Correlation Coefficient for most of the variables is b/w 0.01 to 0.8. All the independent variables which are pressures of GSCM (.186), barriers of GSCM (-.925) and practices of GSCM (.121) have relationship with the dependent variable of adoption of green supply chain management.

Table: Results of Pearson Correlation Analysis

Variables	**Pressures of GSCM**	**Barriers of GSCM**	**Practices of GSCM**	**Adoption of GSCM**
Pressures of GSCM	1	.835**	.015	.186**

Barriers of GSCM	.835**	1	-.089	-.925**
Practices of GSCM	.015	-.089	1	.121*
Adoption of GSCM	.186**	-.925**	.121*	1

**. Significance of correlation is at at the 0.01 level (1-tailed).

*. Significance of correlation is at the 0.05 level (1-tailed).

Source: Output derived from SPSS

MULTIPLE REGRESSION ANALYSIS

The relation b/w adoption of GSCM & its pressures, barriers & practices was tested by the these hypothesis.

H1: There is a significant relationship b/w barriers of GSCM & adoption of GSCM

H2: There is a significant relationship b/w pressures of GSCM & adoption of GSCM

H3: Manufacturing Sector is experiencing high pressure to adopt GSCM practices and standards.

H4: Manufacturing Sector is facing more barriers in adopting the GSCM practices than the pressures they are facing.

H5: Adoption of GSCM practices in manufacturing companies is falling behind the pressures that they are encountering.

Given that the presumptions held, a multiple regression was conducted b/w adoption of green supply chain management as the dependent variable & GSCM pressures, barriers & practices as the independent variables.

Table: Analysis b/w Adoption & Pressures, Barriers & Practice of GSCM

Independent Variables	β	**Sig**
Pressures of GSCM	.682	.000***
Barriers of GSCM	-.983	.000***
Practices of GSCM	.074	.223
R2	.3 12	
Adj R^2	.2 95	
R^2 change	.4 25	
F	21. 514	

Significant levels: ***p <0.001; **p <0.01; *p<0.05

Source: Output derived from SPSS

With reference to Table, analysis was carried out to find out the impact & predictive strength of the barriers, pressures and practices of GSCM towards the adoption of green supply chain management. The total variance after three of the independent variable regressed against one dependent variable was found to be 31.2 %.

Among the 4 variables, barriers of GSCM are found to strongly influence dependent variable (β = -983, p < 0.001) & makes the strongest unique contribution in explaining adoption of green

supply chain management compared to the pressures of GSCM and practices of GSCM as they are having a negative relationship. Therefore, H_1 is supported. Whereas, pressures of GSCM with (β =.682, $p < 0.001$) also have a relationship with the dependent variable but a positive one. Hence, H_2 is also supported . However, practices of GSCM with (β =.074, $p >$ 0.10) p-value is not found to be significant.

DESCRIPTIVE ANALYSIS

Table below shows mean & standard deviation of 4 main variables. The likert scale is used for the variables from 01-05 (with 03 being the center point), the table shows that the barriers towards adoption of GSCM with the mean score of 4.064 with the std. deviation of .85768. It indicates that barriers faced in the adoption of GSCM are very highly impactful. It is followed by the pressures with the mean score of 2.635 which indicates that firms in Pakistan are not actually facing high pressures to adopt GSCM but the pressures are moderate. And the practices are with the lowest men score of 1.482 which indicates that firms in majority are not implementing many GSCM practices in their operations currently.

Table: Descriptive Stats

	N	Minimum	Maximum	Mean	Std. Deviation
Pressures of GSCM					

	200	1.43	3.81	2.635	.74131
Barriers of GSCM	200	1.00	4.80	4.064	.85768
Practices of GSCM	200	1.00	3.50	1.482	.64217
Valid N (listwise)	200				

Source: Output derived from SPSS

HYPOTHESIS TESTING

Table summarizes the hypothesis testing, the end results demonstrate that only 4 hypothesis are accepted out of 5 & there is a significant relationship b/w the two independent variables which are barriers of GSCM and pressures of GSCM with the adoption of GSCM, the dependent variable.

HYPOTHESIS	RESULT
H1: There is a significant relationship b/w barriers of GSCM & adoption of GSCM.	Accepted
H2: There is a significant relationship b/w pressures of GSCM & adoption of GSCM.	Accepted

H3: Manufacturing Sector is experiencing high pressure to adopt GSCM practices and standards.	Rejected
H_4: Manufacturing Sector is facing more barriers in adopting the GSCM practices than the pressures they are facing.	Accepted
H_5: Adoption of GSCM practices in manufacturing companies is falling behind the pressures that they are encountering.	Accepted

CHAPTER SUMMARY

This chapter shows the proposed hypothesis & the results obtained are to accept the hypothesis & reject null hypothesis. This represents just two independent factors have significant relationship with the adoption of GSCM. The following section will further portray the results had been acquired & examine the implications of this study and the recommendations significant to this examination.

DISCUSSION, CONCLUSION ANDIMPLICATIONS

INTRODUCTION

In this chapter, discussion of major findings & implications of the study will be performed. the general conclusion of the entire research undertaking is created to extend a reasonable picture & thought of this research.

RESULT INTERPRETATION

The major findings of this examination are discussed about in subtleties whereby the exploration questions are outlined & clarified inside the context of current academic information. Pressures, barriers and practices of GSCM will be thoroughly reviwd in the light of the research findings.

PRESSURES OF GSCM

The pressures of adopting green supply chain management, faced by manufacturing sector in Karachi , Pakistan are not as high or impactful as in the other parts of the world. Despite of deteriorating condition of the country's environment the pressures to adopt GSCM are very insignificant. Pressures of GSCM achieved the mean score of 2.63 which indicate that these pressures are somewhere between being low and moderate. According to the results, competitors pressure is considered to be the biggest pressure with the mean score of 3.24. If the rival firm

adopts GSCM. It creates a lot of pressure on the other firms to adopt it as well to enhance their image and competitive position in the market. It is followed by the environmental regulations with the mean score of 3.17. Apart from these, other variables mean score ranges from 2.84 to 1.40. The least considered or faced pressure is the supplier pressure according to the findings. Moreover, based on the results of correlation analysis findings, there is a significant relationship between them.

BARRIERS OF GSCM

Barriers of GSCM have the strongest relationship with the dependent variable of adoption of GSCM with the beta score of -.925. This indicates that there is a significant negative relationship between the 2 variables. Apart from this, the barriers overall mean in the descriptive statistic is of 4.064 which indicates that the barriers faced by manufacturing sector are high. Thees barriers are higher and more impactful in the adoption of GSCM than the pressures that motivates the adoption of GSCM.All of the ifferent barriers have individual mean score of 4. The bifggest barrier identified in this research is customers demand for low prices with the total mean score of 4.82, followed by high implementation cost with mean of 4.71 and lack of awareness with mean score of 4.65. The weakest barrier identified by this research is the organizational structure with the mean of 3.55.

PRACTICES OF GSCM

There are a very few companies that are fully implementing some of the green practices. Most of them are not implementing any at the present but are planning to consider them sometime in the future. Although the result of adoption of GSCM questions showed that companies are very well aware of the benefits of the green supply chain but they are skeptical about how much it will increase their operational expenses that is why they are reluctant to adopt its practices.The overall mean for the practices of green supply chain management is 1.482 which indicates only a very few companies have GSCM practices going on in their companies, the mostly implemented practice currently in manufacturing firms is using green packaging with the mean score of 2.91 followed by implementing low wastage practices with the mean of 2.71. Green purchasing has the lowest mean score indicating it is the most neglected practice currently in manufacturing firms in Pakistan.

IMPLICATIONS OF THE RESEARCH

In this section, managerial, conceptual and policy implications are discussed, as well as limitations and recommendations for carrying out future researches are also stated.

CONCEPTUAL IMPLICATIONS

This investigation presents experts with a 26 thing estimating scale for assessing the various pressures, barriers, practices in adopting GSCM practices. The findings from this research improve the current literature on GSCM by discussing on the barriers specifically among the companies in manufacturing sector in Pakistan. This study provides better understanding on the potential of the implementation of GSCM among the manufacturing sector. By understanding the level of pressures currently government and other bodies can increase the pressure to adopt GSCM as well as by studying the specific type of barriers, it will aid the firms to improve and motivate their environmental performance.

POLICY IMPLICATIONS

Firstly, this study gives the idea of the pressures which are lacking in making the companies adopt the GSCM, further it points out the specific barriers that they face. The government bodies need to take corrective actions in lowering down the barriers and increasing the right pressures to allow the firms to easily adopt GSCM in their operations.

MANAGERIAL IMPLICATIONS

The result of this study also suggests some barriers that are internal in the organizations, such as top management commitment, organizational culture and structure, awareness etc. Managers

need to take these barriers into account and try to eradicate them to allow efficient implementation of GSCM practices.

LIMITATIONS & RECOMMENDATIONS

For instance, the research was restricted to firms in the manufacturing sector in Karachi, Pakistan. The impediment is time constraint to finish this project confines the timespan for information accumulation. Along these lines, this investigation is just conducted dependent on 200 useable responses received during the information accumulation period. Moreover, the sample size was additionally lower than anticipated because of a low response rate by means of email conveyed strategy. As indicated by Dillman (2011), the respondent rate through email will in generally be lower and similarly hard to different techniques for overview. In spite of having these limitations in the examination, they don't diminish the significance of findings however just give stages to future research.

For future research, so as to acquire better results, researchers may permit to stretch out this examination to different sectors in Pakistan to see any extra pressures, barriers and practices that will affect the selection rate of green supply chain management inside the organizations. This will give better generalizability to the population on the loose. Specialists ought to likewise take a more extended time period for information accumulation so as to have a larger measure of responses for investigation reason. Other than that, other overview strategies for information accumulation could be embraced to acquire higher response rate.

CONCLUSION

This study is aimed to identify the main pressures, the sources of these pressures, what pressures are lacking as well as the main barriers and which are the most impactful barriers. The result of this study suggested that the barriers that the companies are facing are more high and impactful than the pressures they are facing to adopt GSCM. The biggest barriers being customers demand for low prices, high implementation cost and lack of awareness. Whereas the pressures that they are facing are quite moderate in nature and don't really prove to be a big motivator in adopting GSCM. The GSCM practices currently being implemented are negligible as the GSCM is still in its initial state in the country. However majority of the companies are now planning to consider these practices in near future and their implementation could take up to several years.

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Questionnaire Research Title: GREEN SUPPLY CHAIN MANAGEMENT PRACTICES IN MANUFACTURING SECTOR IN PAKISTAN: barriers, pressures and practices

Dear Respondent,

I, Student of Karachi University Business School, under the supervision of Dr. Muhammad Asim, Chairman of Karachi University Business School, am conducting a research in regards to the pressures, barriers and practices in implementing green supply chain management in manufacturing sector in Pakistan.

Kindly give couple of minutes of your valuable time to fill the questionnaire. I guarantee you that your responses may only be used for academic purposes. Thanking you.

Regards,

Atiqa khan

SECTION-A

Q1. Gender:

- Male
- Female Q2. Your age:
- 20-24
- 25-28 □29-32
- 33-36
- Above 36

Q3. The highest degree you possess:

- Intermediate
- Bachelors
- Masters
- Doctorate

Q4. You have been working in Manufacturing Sector for:

- Less than 1 year
- 1-4 years
- 5-8 years
- 9-12 years
- Above 12 years

Q5. Your company's industry type is:

- Clothing and Textiles
- Petroleum, Chemicals and Plastics
- Food Production
- Electronics, Computers and Transportation
- Wood, Leather and Paper

Q6. Is your company already implementing GSCM or has adopted any other green practices?

- Yes
- No

SECTION – B (Barriers)

Q. How do you rate the impact of following barriers on implementing supply chain management practices?

S.No	Factors	Very low	low	Moderate	high	Very high
01.	Lack of Top Management Commitment					
02.	Lack of Governmental Pressures					
03.	Technological Barriers					
04.	High Implementation Cost					
05.	Lack Of Awareness					
06.	Customers' Desire for Low Prices					
07.	Poor Supplier Commitment					
08.	Poor Organizational Culture					
09.	Lack of Training in GSCM Practices					
10.	Organizational Structure					

(Pressures)

Q. How do you rate the impact of the following pressures?

S.No	Factors	Very Low	Low	Moderate	High	Very High

01.	There are frequent government inspections or audits on my firm to ensure that the firm is in compliance with environmental laws and regulations					
02.	Suppliers pressure us to adopt green practices					
03.	There are a large number of environmental regulations or restrictions imposed by the government on my firm's industry					
04.	Our major customers frequently require us to adopt green supply chain initiatives					
05.	My firm believes that green supply chain initiatives are the right thing to do to promote societal welfare					
06.	A large number of firms in my firm's industry adopted green supply chain initiatives					

S.No	Factors	Not considering at all	Planning to consider it	Considering it currently	Initiating implementation	Implementing fully

(Practices)

01.	Design of products for reduced consumption of material/energy					
02.	Design of products for reuse, recycle, recovery of material, component part					
03.	Implementing low wastage practices					
04.	Uses green packaging/ecofriendly packaging for products					
05.	Green Purchasing					
06.	Invests in training for GSCM practices					

Q. Rate the following.

Adoption of GSCM

Q. Rate the following.

No	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Adopting GSCM will help in providing green environment					
2	Adopting GSCM will provide company with a competitive edge in the market					
3	Adopting GSCM will enhance the company image globally					

4	Employees and plant safety can also be increased by implementing GSCM					