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The Role of Green Supply Chain Management and Environmental Management Practices in Enhancing Enviropreneurship Performance of Pakistani FMCG SMEs

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Abstract
Small and Medium Enterprises (SMEs) that make up most of the Fast-Moving Consumer Goods (FMCG) sector in Pakistan are at the intersection between major environmental problem and economic demands. The research paper examines ways in which such companies can move beyond this supposed trade-off between the playing fields of ecological responsibility and business performance by exploring synergistic functions of Green Supply Chain Management (GSCM) and Environmental Management Practices (EMP) in the achievement of Enviropreneurship Performance (EP), which is a cross-dimensional construct used to describe environmental stewardship and business performance. The research suggests a contingent mediation model; it is based on a combined theoretical framework that includes the Dynamic Capabilities View, the Institutional Theory, and the Stakeholder Theory. The research used a structured questionnaire to collect data on 146 FMCG SME in Pakistan and the questionnaire was to be analyzed with the help of Partial Least Squares Stheoreticaltructural Equation Modeling (PLS-SEM).
The research finds that the best solution to ensuring high-quality enviropreneurship performance of Pakistani FMCG SMEs is a two-pronged integrated approach: to gain operational and market benefits in the context of GSCM, and at the same time, to establish formal EMP as the driving force of sustainable innovation and competitiveness.

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Keywords: Green Supply Chain Management (GSCM); Environmental Management Practices (EMP); Enviropreneurship Performance; SMEs; FMCG Sector; Pakistan; Dynamic Capabilities; Sustainability; Emerging Economy; Partial Least Squares SEM (PLS-SEM).

Introduction

1.1. Global Compact against Environmental Unfriendliness in Business

The modern international business environment is reshaping itself radically as per the ideals of environmentally sustainability. This change, premised by an unparalleled confluence of climatic catastrophes, resource depletion, regulatory transformation, and stakeholder activism, has now resulted in traditional, solely profit-driven models of business becoming more unsustainable and unstable. The Intergovernmental Panel on Climate Change (IPCC) has been urging the world to undergo systematic change in all sectors of industry to reduce the harmful degradation of the environment (IPCC, 2022). In turn, the mainstreaming of such concepts as the circular economy, decarbonization, and ESG (Environmental, Social, and Governance) investing are increasingly viewed as mainstream issues of the corporate world, as part of its valuation mechanisms to a strategic level, risk management and long-term sustainability are taken into account (Eccles, Ioannou, and Serafeim, 2014; Kirchherr, Reike Ecological stewardship and economic prosperity are not antithetical to one another but rather are inseparable in this paradigm shift, with sustainable practice emerging to be a key quality of innovation, efficiency, and competitiveness.

1.2. The Pakistani environment: FMCG SMEs at a crossroad.

The economic environment of Pakistan is characterized in a distinct way by superiority of Small and Medium-sized Enterprises (SMEs), as they take almost 90 percent of all business enterprises, provide almost 40 percent of GDP, and serve as major providers of employment (SMEDA, 2023). It is in this that the FMCG sector will form an important pillar given that the sector will have a population numbering more than 240 million people in need of the essential goods on a daily basis. The industry has demonstrated an outstanding resilience and expansion, but does so in an environment of intense environmental obstacles. Pakistan always makes it to the list of the top ten most susceptible countries to climate change where its biggest problems are glacial melting, lack of water, heatwave, and air pollution (Global Climate Risk Index, 2021). These macro-environmental stressors pose a direct, material threat to business continuity, which relates to the supply of agricultural inputs, cost of operations and stability of the market.

1.3. Theoretical Anchors: Competing with Compliance Competitive Enviropreneurship.

This research is based on the change in the theory of strategic management in moving towards an external, compliance-based perception of the environment to internal and capability-based perspective. The equation of early practice adoption such as EMP is illuminated by the ideas of the Early Institutional Theory (DiMaggio and Powell, 1983)

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Coercive (laws), mimetic (following competitors), and normative (professional standards) forces driven the initiation of the practice. The institutional forces are genuine and increasing in Pakistani SMEs, which offers a point of departure of action (Rasheed & Naseem, 2022).

1.4. Chief Constructs and the Relationships with Each Other: GSCM, EMP, and EP.

Green Supply Chain Management (GSCM): It is an external-oriented, integrative approach. It entails working with upstream and downstream suppliers to lessen the environmental impacts of the whole value chain. The main ones are green purchasing (choosing suppliers, based on environmental requirements), eco-design (reduced product material and recyclability, and reduced energy consumption), reverse logistics (managing the returns, recycling products, and remanufacturing), and green logistics (cutting down on transportation and warehousing emissions) (Zhu, Sarkis, and Lai, 2012; Khan, Qianli, and Ahmad The equivalent with a FMCG SME could be to get suppliers in the local sustainable farms or factories, use less packaging or collaborate with garbage collectors.

Environmental Management Practices (EMP): It is an organizational, internal capability. EMP is defined as the formal and informal structures, processes and cultures that a firm creates to control its interaction with the environment. These involve creation of environmental policies, auditing and impact assessment, defining and tracking performance goals, worker training, and a culture that embraces accountability to the environment (Darnall, Henriques, and Sadorsky, 2022; Jabbour, Jabbour and Sarkis, 2021). EMP is the foundational discipline and knowledge-base that facilitates successful implementation of larger GSCM programs.

1.5. Problem Statement

Although there are evident trends globally and pressures locally, the integration of green innovation practices by FMCG SMEs in Pakistan is slow, fragmented and poorly comprehended. The gap between strategic importance of environmental sustainability and the operational application in this strong sector is very wide. This loophole will lead to further environmental damage, lost market potential, heightened regulatory and reputational risks, and deterioration of the competitiveness of Pakistani FMCG SMEs in the long term. What exists in the literature has been limited to major business organizations within the developed global economies or to studied GSCM and EMP separately. The existing body of empirical research that examines the timing effect, GSCM and EMP as both synergies on a global performance measure, such as Enviropreneurship Performance is severely deficient in the context of Pakistani FMCG SMEs that are constrained by resource factors. In addition, little is known about the linkage (mediation) and moderation (boundary conditions by firm size) of these associations, which is a constraint to the capacity of stakeholders to implement a successful intervention.

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1.6. Research Objectives

The proposed study will address the above knowledge and practice gaps because it shall seek to achieve the following specific objectives:

To test the direct effect of the Green Supply Chain Management (GSCM) practices on the Enviropreneurship Performance (EP) of the FMCG SMEs in Pakistan.

To test the direct relationship between Environmental Management Practices (EMP) and the Performance of Enviropreneurship (EP) of FMCG SMEs in Pakistan.

To explore how Environmental Management Practices (EMP) mediate between the relationship between Green Supply Chain Management (GSCM) and Enviropreneurship Performance (EP).

To examine how the size of the firm moderates the relationship between (a) GSCM and EP, and (b) EMP and EP.

1.7. Research Questions

The study will attempt to answer the following research questions in order to meet the above objectives:

What is the character and the scale of the association between GSCM implementation and Enviropreneurship Performance among pakistani FMCG SMEs?

What is the character and scale of the association amidst the implementation of EMP and Enviropreneurship Performance in Pakistani FMCG SMEs?

Is there a mediation between Green Supply Chain Management and Enviropreneurship Performance by Environmental Management Practices?

Does the firm size also modulate the effect of GSCM and EMP on the Enviropreneurship Performance?

1.8. Study Significance.

This study has a great significance to various stakeholders:

- To SME Owners/Managers: It offers a framework based evidence in showing how integrated green practices (GSCM and EMP) may be utilized not as a cost center but rather as a generative force of enviropreneurial performance and provides hands-on knowledge in decision-making.
- To Policymakers (e.g., SMEDA, Pak-EPA): Results will indicate the barriers (and in particular firm-size factors) to green adoption and enablers, and their design of specific support schemes, incentives, and capacity-building efforts will be specific to the FMCG SME segment.
- In the case of Academic Literature: It adds to the theoretical discussions of sustainability in emerging economies by applying and developing the NRBV theory and Enviropreneurship theory in a significantly important but under studied environment. The integrated model of mediation and moderation is used to fill a definite gap in literature.
- To Benefit the Broader Society: The study will support the sustainable development priorities of Pakistan to maintain the environmental safety of sustainable industrial development and facilitate the promotion of environmental safety in future-

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proof industrial development, which will contribute to maintaining a stronger, more resilient economy.

1.9. Thesis Structure.

Based on this extended introduction, the thesis will be organized in the following way: Chapter 2 will describe in more detail the available literature on the topic of GSCM, EMP, EP and theoretical background. The 3 rd chapter will describe the research design such as the research philosophy, research design, population and sampling, data collection tools and their analysis (e.g. Structural Equation Modelling). The data analysis and results will be presented in Chapter 4. Chapter 5 will explain the implications of the findings on the context of the existing literature, theoretical and practical implications, limitations and future research recommendations.

2. Theoretical Framework and Literature Review.

2.1 Underlying Theoretical Foundations

The research on the active interaction between Green Supply Chain Management (GSCM), Environmental Management Practices (EMP), and Enviropreneurship Performance (EP) among Fast-Moving Consumer Goods (FMCG) Small and Medium Enterprise (SMEs) of Pakistan requires a powerful, multi-theoretical prism. The conventional business paradigms including the neoclassical approach of profit maximisation cannot be relied upon to give an explanation of the complex transformation of sustainability amongst emerging economies which is characterized by institutional vacuity, scarce resources and unstable markets. This paper is hence based on a synthesised, multi-layered theoretical framework. This framework combines the Dynamic Capabilities View (DCV), the Institutional Theory, the Stakeholder Theory as well as the Theory of Enviropreneurship to offer a mechanism. This synthesis clarifies not only the antecedent drivers of the adoption of green practices, but also explains the organizational processes that recontextualize these practices into a competitive and entrepreneurial reality in Pakistan with its unique socio-economic, cultural, and institutional context.

2.1.1 Dynamic Capabilities View (DCV): Green Strategic Agility in Navigating Market Volatility.

The Dynamic Capabilities View, as developed by Teece (2018), assumes that a firm can remain competitive and survive not only because of its access to valuable resources (as the Resource-Based View tells us), but its superior-order capacity to combine, construct, and restructure internal and external skills to respond, and, in fact, influence, fast-evolving business conditions. This theory focuses on strategic flexibility, learning and renewal as the fundamental aspects of creation of value in turbulent situations.

In the case of the Pakistani FMCG SME sector: a highly competitive sector with the pressures of inflation on raw materials exerted and where governmental regulation is intermittent and poorly executed and consumer awareness regarding environmental issues among urban residents are still in its infancy but rising, the DCV has become highly applicable. It is quite different; in this environment, both GSCM and EMP are

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not merely checklists of operations, they are the archetypal expressions of dynamic capabilities.

2.1.2 Institutional Theory: Conformity, Legitimacy, and the Changing Pakistani Business Field.

Institutional Theory is a macro-sociological approach, which insists that the aspect of organizational structures and practices is heavily influenced by the necessity to acquire legitimacy, i.e. social approval and perceived rightness in a certain organizational area (DiMaggio and Powell, 1983). This industry includes regulators, competitors, customers, industry associations and professional bodies. The Pakistani FMCG SMEs have an institutional field whose evolution in terms of environmental norms is in the active, although, uneven development. T

2.1.3 Stakeholder Theory: The Strategic fit in the Web of Multifaceted Expectations.

Key Stakeholders who have a direct impact:

Consumers: There is a segment of consumers, especially in cities such as Karachi, Lahore, and Islamabad, that is increasingly environmentally conscious due to media discussion of environmental consequences (e.g., floods, smog) and discussion among the world (Khan and Siddiqui, 2023).

Suppliers & Distributors: This is a two way relationship. Larger buyers (downstream) may put pressure on SMEs to green their processes.

Employees: The talent war particularly the competition of skilled managers is becoming tougher. The younger generation is becoming more demanding in terms of having employers that are involved with similar values.

Financial Institutions & Investors: Gradual, but noticeable, is a change. The incorporation of Environmental, Social, and Governance (ESG) criteria in the credit risk analysis and investment judgment of the Development finance institutions,

Secondary Stakeholders who have Influencing power:

Local Communities and NGOs: When a factory does not consider its effect on the environment, it is at risk of community action, protests and loss of its social license to operate.

Media & Academia: They are the key to creating the public discourse, and it could either strengthen or bolster the sustainability claims of a firm or its complications.

2.1.4 Theory of Enviropreneurship: Proactive Synthesis of Ecology and Enterprise.

The general performance characteristic and motivation rationale of this study are enviropreneurship (or Ecopreneurship) Theory. It is a paradigm shift, a shift beyond compliance, to the more proactive, opportunity seeking orientation of the environment (Schaltegger and Wagner, 2017). According to enviropreneurship, ecological business innovation has the greatest business opportunities of the 21 st century. It goes a step further beyond what is known as greenwashing or considering environmental responsibility an outdated and expensive burden by the authorities.

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2.2 Enviropreneurship Performance in Pakistani FMCG SMEs: An even more in-depth look at the Drivers, Manifestations, and Barriers.

The final dependent variable in this study is called Enviropreneurship Performance (EP), which summarizes the two-fold success of both ecological integrity as well as economic life in a developing economy scenario. In the FMCG SME sector in Pakistan, the phenomenon of EP is not a homogenous phenomenon, but a continuum, influenced by the complex interaction of drivers, with a limitation determined by major barriers.

2.2.1 Versatile drivers of Enviropreneurship.

The rationale behind the urge of Pakistani SMEs to engage in EP is a result of a combination of external drivers or forces and internal pullers:

External Drivers:

Regulatory Push: The changing, although unequally applied, environmental regulatory framework establishes a bottom-line requirement.

Market Pull: This is an increasing force. Studies show that there is a quantifiable but geographically and demographically clustered shift in consumer preferences.

Competitive Pressure: With first-mover competitors becoming green, receiving positive media attention, consumer goodwill, or competing on cost, laggard companies feel threatened with the prospect of being viewed as outdated or irresponsible.

Supplies Chain Requirements: As part of global or advanced domestic supply chains, compliance with certain environmental and social standards (e.g., ISO 14001, particular codes of conduct) may be a pre-condition to gain access to the markets with higher values, so GSCM plays the role of a ticket.

Internal Drivers:

Entrepreneurial Motivation & Values: It is the most critical of internal driving force that is the personal ethics, environmental awareness and long-term vision of the SME owner-manager. A sustainability-driven owner will be eager to become an advocate of green initiatives, invest in them, and go through the first obstacles (Ali et al., 2024).

Cost Efficiency & Risk Mitigation: Operational efficiency is a potent force that has an immediate financial pull.

Innovation Orientation: There are those firms which have a very strong desire to innovate and differentiate.

2.2.2 Deep-seated and Intractable Barriers.

The drivers do not ensure that Pakistani FMCG SMEs do not have deep-rooted, intertwined barriers obstructing their path to high EP:

Financial Constraints: this is most quoted constraint. The initial investment needed to adopt green technologies (e.g., effluent treatment plant, solar systems, cleaner production equipment) is usually not affordable to SMEs that make thin margins.

Knowledge & Capability Gaps: There is a range of knowledge gaps among many SME owner-managers, in the form of technical knowledge regarding the technologies, environmental management systems, or life-cycle assessment available.

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Informational & Market failures: SMEs are often not aware of government incentives, subsidies or technical assistance programs in regard to sustainability.
Short-Term Management Mindset: Due to the need to stay afloat on a daily basis, cash flow issues, and high competition; most SME managers believe in the short-term horizon.
Institutional/Infrastructural Weaknesses: There is uncertainty due to inconsistent enforcement of regulations. Municipal waste management and recycling infrastructure may compromise reverse logistics by a firm. T

2.3 Synergistic and Sequential Relationship:
GSCM as the Accelerator, EMP as the Facilitator.
GSCM and EMP are necessarily connected, which signifies the externally-oriented, strategic aspect of environmental strategy and the internally-oriented, organizational capability aspect of environmental strategy of a firm, respectively. Their interdependence is very synergistic and usually has a sequence of logical, developmental process in the sustainability process of an SME.

2.3.1 operationalization of GSCM in Pakistan FMCG SME Environment.
Green Supply Chain Management is the strategic approach to incorporating environmental considerations into every aspect of the supply chain, such as product design and sourcing of raw materials, or end-of-life management. Considering the Pakistani SME with limited resources is a reality, some of the key practices are usually taken pragmatically:

2.3.2 The Synergy and Sequential Linkage.
Relationship between GSCM and EMP is dynamic. GSCM initiatives may serve as a catalyst of change. An example is when a decision is made to source certified organic raw materials (GSCM), an immediate demand arises on internal practices (EMP) so as to check certificates, amend inventory processing, and educate quality control personnel. The internal capability is developed due to the external commitment.
H1: Level of Green Supply Chain Management (GSCM) adoption and formalized Environmental Management Practices (EMP) development are significantly related in Pakistani FMCG SMEs.

2.4 Moderating Relocation of Firm Size Critically.
The effects and interactions of GSCM and EMP are not consistent to all SMEs. A key contingent element that introduces a heterogeneity of capability and performance is firm size, even with an official definition of the SME (e.g., 10-250 employees in Pakistan). The divide between a small business (10-50 employees) and a larger one (51-250) may be tremendous in terms of its resources, organization, and impact.

2.4.1 Conclusion(s) on the GSCM-EMP Relationship.
Owing to these benefits, the positive relationship hypothesized in H1 is theorized to be much stronger among medium-sized SMEs. The managerial bandwidth, financial

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resources, and formalized processes of a medium-sized firm that implements a GSCM practice (e.g., a green packaging standard) as a complementary EMP (e.g., a packaging audit procedure, supplier scorecards), can provide the company with sufficient resources to implement and monitor it effectively. In the case of a small firm, the owner-manager, sometimes caught up with firefighting his/her operational business, might not go beyond a surface adoption. The GSCM practice can continue as ad hoc, under-resourced, activity without EMP framework to provide some form of teeth, quantify its effects or sustainability. Thus, the size of firms is a multiplier of the GSCM-EMP relationship.

H2: The relationship between GSCM and EMP is positively moderated by firm size whereby the two are more related in medium-sized FMCG SMEs as compared to small-sized ones.

2.5 Direct Pathway: The influence of GSCM on the performance of Enviropreneurship.

Enviropreneurship Performance can be stimulated against through direct, outward-oriented measures by Green Supply Chain Management that will add value to the marketplace and the supply chain.

Cost Leadership & Operational Efficiency: GSCM has been a direct tool to cut down operational costs. Green logistics ensures optimised fuel use, eco-design use of minimal material, and reverse logistics may transform the costs of waste disposal into revenue stream or cost avoidance through recycling (Zhu and Sarkis, 2020). These are the efficiency gains and they boost the financial performance aspect of EP.

According to it, the research hypothesizes that there is a direct effect:

H3: There is a strong and positive direct impact of Green Supply Chain Management (GSCM) on Enviropreneurship Performance (EP) among Pakistani FMCG SMEs.

2.6 The Internal Foundation: The Influence of EMP on the Enviropreneurship Performance.

Whereas GSCM views the world as the outer environment (value chain), Environmental Management Practices creates the foundation to the inmost high performance.

Creating a Culture of Continuous Improvement and Learning: EMP create a systematic feedback loop (monitoring, measurement) transforming environmental management into a process of learning. Employees spot some inefficiencies, test new ideas, and monitor the outcomes. It is an ongoing culture of efficiency gains, and the innovation that is required of true enviropreneurship, which is grounded in this problem-solving culture (Daily, Huang, and Smith, 2022).

Therefore, it is postulated that strong EMP prominently contributes to the ability of the firm to perform at an optimal level in the continuum of EP measures.

H4: Enviropreneurship Performance (EP) is positively strongly directly affected by Environmental Management Practices (EMP).

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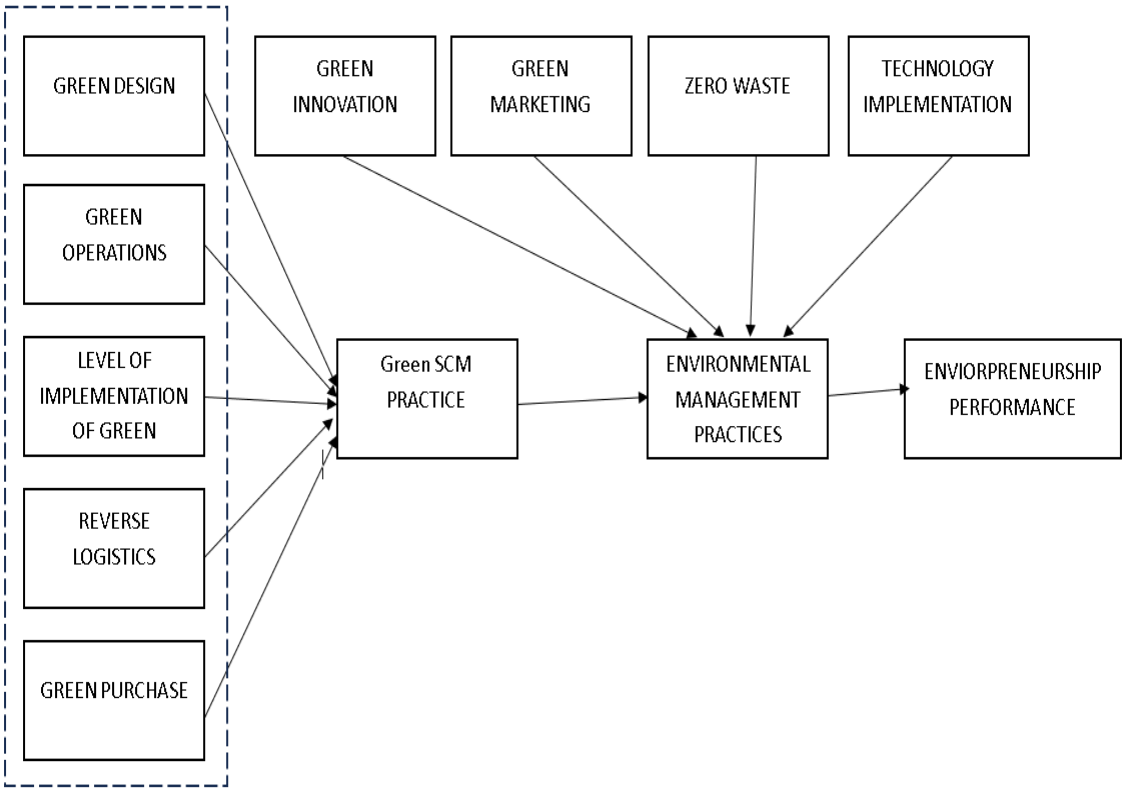
2.7 The Intermediary Process: EMP being the Important Channel through which GSCM bears influence.

The most delicate and theoretically important theoretical link in the suggested model is the mediating role of EMP. Although H3 assumes a positive influence of GSCM on EP, it is stated that an important, possibly dominant, part of this influence is acting indirectly through the formation and enhancement of strong EMP.

2.8 Proposed combined conceptual framework.



3. Research Methodology

3.1 Research Design

The current research aims at conducting a rigorous study on how Green Supply Chain Management Green Supply Chain Management (GSCM) and Environmental Management Practices (EMP) can improve the performance of Enviropreneurship (EP) in the Fast-Moving Consumer Goods (FMCG) industry in Pakistan. The choice of the FMCG sphere is also an intentional and critical decision since this sector involves the significant presence in the environment due to its large-scale and ongoing operations. The activities include mass production, heavy packaging demands, complicated systems of logistics and intensive distribution systems. As a result, the FMCG industry

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offers a challenging and highly significant sphere of realization of sustainability-based entrepreneurial activities in which advancements (enhancement) may result in the significant environmental advantages.

This study targets small and medium-sized enterprises (SMEs) which can be found in the Pakistani FMCG sector. This target market will consist of manufacturers, producers in key sub-sectors like food and beverages, personal care and hygiene products, household cleaning products, and other packaged consumer goods. In the context of this paper, the definition of an SME is provided as either an owner-traded business or a formally-registered business that follows the formal classification parameters put by the Small and Medium Enterprises Development Authority (SMEDA) of Pakistan, which usually comprises of threshold-based parameters such as number of employees, annual sales, and paid-up capital.

3.2 Data Collection and Sampling Strategy.

The survey strategy was employed in the collection of the data of this study, with the help of a structured questionnaire, which was carried out online. The fact that an online survey platform has been selected presents a number of major strengths in terms of this study. It makes it possible to access respondents who are located in different geographical locations in Pakistan, minimises the time and cost of using traditional paper-based surveys, and is convenient to the respondents, which may provide a higher response rate.

Sampling frame was developed in such a way that it captured FMCG SMEs in major industrial and commercial centers in Pakistan. The major urban areas where manufacturing and business were concentrated like Karachi, Lahore, Faisalabad, Islamabad and Multan were attacked. To come up with a broad and representative list of potential respondent firms, several sources were used to get the list. These were published industry directories, membership directories with the local chambers of commerce and industry, governmental SME databases and online and offline professional business network.

3.3 Measuring Instrument

A self-administered structured questionnaire was the major tool, which could be used to collect data. The questionnaire was composed of all the close-ended statements, and the respondents answered how much they agreed with the statements or to what degree they used the statements. All such items were measured on a five-point Likert scale with anchors of 1 (Strongly Disagree" or "Not at All"), to 5 (Strongly Agree" or "To a Great Extent). This format is a standard of response, and is easy to enter, and it is suitable to the statistical analysis intended.

The questionnaire was designed in English. The language selected is suitable to the Pakistani business environment particularly the management and other professional employees of SMEs where English is the most common language of formal business communication, documentation and post secondary education. Minor changes in words were done to some of the items that were adapted so that they could be easily interpreted

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and applicable to a particular situation in the FMCG industry in Pakistan but the essence of the constructs remained the same.

3.4 Results (Methodological Overview)

Variance-based Partial Least Squares Structural Equation Modeling (PLS-SEM) method, which was performed using the SmartPLS 4.0 software, was used to analyze the data that had been acquired via the survey. PLS-SEM was chosen as the main analytical method since it suits especially well research models that are predictive in nature, have complex relationships with more than one construct and contain moderating effects. It is also stable in smaller populations, and does not assume that the data are normally distributed.

To test the structural hypothesis, the analysis was carried out in two systematic steps, the first one validating the measurement instrument and the second verifying the structural-hypothesis.

Stage 1: Evaluation of the Measurement Model.

The aim of this step was to assess the measurement scale (questionnaire items) quality and validity of each construct. Among the crucial criteria were investigated.

Stage 2: Evaluation of Structural Model.

After determining that the measurement model was satisfactory, the analysis was done to test the proposed relationship in the research framework.

Path Coefficients: Approximation of the strength and direction of the hypothesized relationships (e.g., GSCM → EP, GSCM → EMP, EMP → EP).

Hypothesis Testing: To determine the statistical significance (t-values and p-values) of each path coefficient, estimate the statistical significance (using a bootstrapping procedure (Producing thousand subsamples of the original data)) and consequently test the hypotheses of the study.

4. Results

4.1 Introduction: Justification of methodological choice.

Modern studies, including those in the social sciences, business administration and information systems are often characterized by applications to test multifaceted conceptual frameworks in which several latent variables (constructs) are interdependent. Traditional Covariance-Based Structural Equation Modeling (CB-SEM) is not necessarily appropriate to analyze such frameworks because it may have overly strict conditions (e.g. normally distributed data, large sample size). Partial Least Squares Structural Equation Modeling (PLS-SEM) has been chosen as an analytical method of the study. This choice is based on the following main theoretical and practical arguments

Based on this extensive justification, PLS-SEM was considered to be the most suitable method in the analysis in this work. These analytical steps followed a logical order, encompassing two major steps (1), Assessment of the Measurement Model, and (2), Assessment of the Structural Model. All the procedures were performed with the help of SmartPLS 4.0.

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4.2 Phase One: Measurement Model.

Before any form of hypothesis can be tested, it is first necessary to determine that the measurement tools are valid and reliable. The function of this preliminary step is to assure that every latent construct is precisely and reliably reflected by its respective indicators, a necessary condition to any important analysis of structural relationships. Its evaluation was done through the PLS algorithm in SmartPLS 4.0 and entailed a multi-faceted measure of reliability and validity.

4.2.1 reliability of Indicators (Factor Loadings):

The first analysis checked the impact of the connection that each individual item of measurement (indicator) has with its latent concept. Standard factor loadings were examined. In line with conservative thresholds suggested in the modern literature, the items with lower loadings were taken into account to be eliminated because 0.708 is a value that has 50 or higher of the indicators variance accounted by the construct (Hair et al., 2019). Nevertheless, when there is still scale development or when an established scale has loadings that fall within 0.60 and 0.70, they might be retained provided their removal does not lead to any significant increase in composite reliability. Bootstrapping was also used to check the statistical significance of each item (t-values, more than 1.96, in order to determine p less than 0.05).

4.2.2 Internal Consistency Reliability:

In addition to such individual items, the general consistency of the scale of each construct was determined. Although the Crongh's Alpha was analyzed, the main focus was on Composite Reliability (CR). CR is a more appropriate test of PLS-SEM because it does not rely on tau-equivalent (equal factor loadings) or is less item-sensitive. The Figure of CR over 0.70 (preferably over 0.80 with more established scales) was also desired to ensure that the combination of indicators is always used to measure the same underlying construct.

4.2.3 Discriminant Validity:

This is one of the tests that are critical to check that each construct in the model is empirically different in relation to the rest-it measures a phenomenon not measured by other constructs. Two current standards were used:

Fornell-Larcker Criterion: This demands that the square root of the AVE of each construct (the label in the diagonal of a correlationmatrix) must be larger than the highest correlation coefficient the construct has with each other (the nondiagonal values on its row and column). This shows that the construct has more variance with its indicators as compared to another construct.

4.3 Phase Two: Detailed testing of the Structural Model and Testing of the Hypothesis.

When the measurements instruments had been validated, the emphasis was made on testing the theory constructs proposed (hypotheses) and testing the explanatory and

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predictive power of the model. This step applied the bootstrapping method with a large amount of subsamples (they used 5,000 resamples) to produce consistent estimates, standard errors, and determine the statistical significance of the path coefficients without being dependent on any distributional assumptions.

4.3.3 Mediation (Indirect Effects) Analysis:
In seeking answers to how the variables affect each other, particular indirect or mediating effects were put to test. This was the question of whether an independent variable (X) has an effect on a dependent variable (Y) employing a mediator variable (M). Bootstrapped bias corrected confidence intervals were used to test the significance of the indirect effect (a b path). When the confidence interval (such as at the 95 percent level) fails to cover zero, then it is considered that the mediation effect is statistically significant. There were supplementary analyses (complementary versus competitive mediation) that were done where the relevant theoretical analyses could apply.

4.3.3 Assessment of Explanatory power (Coefficient of Determination - R 2):
The R 2 was used to examine the model to explain the variation in the endogenous (dependent) constructs. R 2 is a measure of the percentage of a construct variance that is accounted by other constructs that are correlated with the construct in the model. Although no universal definition exists, in behavioral sciences 0.25, 0.5, and 0.75 might be descriptively understood as weak, moderate, and substantial, respectively (Hair et al., 2019). The R2 of all the most important endogenous constructs was reported and explained in the context of the research.

4.4 Data Integrity and Software Implementation Preliminary.
4.4.1 Data Screening and Descriptive Statistics:
The raw data have been well-screened before the actual PLS-SEM analysis. This involved checks of missing data, non-response (straight-lining), outliers (entailed Mahalanobis distance) and multivariate analysis assumption. All the variables in the sample generated descriptive statistics (means, standard deviations, skew, kurtosis) to comprehend the sample distribution and profile the respondents.

4.4.2 Software Execution:
The analyses outlined in all the above were carefully done in SmartPLS 4.0. It is a highly used and proven software tool specifically crafted to perform variance-based SEM and provides a full suite of algorithms (PLS, bootstrapping, blindfolding) and reporting functions on which the complex analytical processes vital in this methodology section can be performed in compliance with the prevailing best practices.
Demographic

The strength of the

Table 1: Demographic Profile of Respondents (N = 120)		
Gender	Frequency	Percentage
Male	79	65.83

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Female	41	34.17
Age Group		
18–29 Years	43	35.83
30–39 Years	45	37.5
40–49 Years	20	16.67
50–59 Years	10	8.33
60 Years & above	2	1.67
Academic Degree		
High School	18	15
Undergraduate / Bachelor (14 years)	29	24.17
Graduate / Bachelor (16 years)	45	37.5
Postgraduate / Masters (18 years)	28	23.33
Job Position		
Top Management	15	12.5
Middle Management	48	40
Operational Level	57	47.5
Industry		
Manufacturing	46	38.33
Logistics / Supply Chain	31	25.83
Services	28	23.33
Others	15	12.5
Company Size		
Less than 50	22	18.33
50–100	30	25
101–250	34	28.33
More than 250	34	28.33
Department		
Supply Chain / Logistics	44	36.67
Operations	29	24.17
Procurement	26	21.67
Others	21	17.5
Total Experience		
Less than 5 years	36	30
5–10 years	44	36.67
11–15 years	26	21.67
More than 15 years	14	11.67

structural model results will depend on the validity of the measurement model that is developed in this report. Thus, the research is now set to proceed with the confidence of testing their fundamental research hypotheses and drawing to useful theoretical and practical conclusions.

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		Outerloading	Cronchback Alpha	A	CR	AVG
Green Design	GD1	0.713	0.724	0.735	0.829	0.549
	GD2	0.835				
	GD3	0.735				
	GD4	0.706				
Green Operations	GO1	0.708	0.789	0.793	0.864	0.614
	GO2	0.8				
	GO3	0.811				
	GO4	0.809				
Level of Implementation of Green	LIGL1	0.732	0.739	0.755	0.826	0.723
	LIGL2	0.794				
	LIGL3	0.718				
	LIGL4	0.718				
	LIGL5	0.819				
Reverse Logistics	RI1	0.813	0.719	0.739	0.841	0.639
	RI2	0.849				
	RI3	0.732				
Green Purchase	GP1	0.746	0.762	0.766	0.848	0.583
	GP2	0.733				
	GP3	0.808				
	GP4	0.765				
Green Supply Chain Management Practices	GSCMP1	0.782	0.814	0.836	0.857	0.645
	GSCMP2	0.779				
	GSCMP3	0.754				
	GSCMP4	0.785				
	GSCMP5	0.732				
	GSCMP6	0.876				

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	GSCM P7	0.867				
	GSCM P8	0.704				
	GSCM P9	0.719				
	GSCM P10	0.736				
Environemental Management Practices	EMP1	0.745	0.901	0.903	0.919	0.559
	EMP2	0.816				
	EMP3	0.754				
	EMP4	0.871				
	EMP5	0.725				
	EMP6	0.76				
	EMP7	0.775				
	EMP8	0.791				
	EMP9	0.742				
Green Innovation	GI1	0.711	0.879	0.884	0.905	0.543
	GI2	0.724				
	GI3	0.812				
	GI4	0.704				
	GI5	0.713				
	GI6	0.8				
	GI7	0.754				
	GI8	0.736				
Green Marketing	GM1	0.745	0.838	0.839	0.881	0.553
	GM2	0.766				
	GM3	0.749				
	GM4	0.726				
	GM5	0.739				
	GM6	0.736				
Zero Waste	ZWM1	0.797	0.841	0.853	0.88	0.516
	ZWM2	0.812				
	ZWM3	0.705				

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	ZWM4	0.726				
	ZWM5	0.712				
	ZWM6	0.816				
	ZWM7	0.736				
Technology Implementation	TI1	0.721	0.726	0.772	0.807	0.871
	TI2	0.703				
	TI3	0.728				
	TI4	0,828				
	TI5	0.768				
	TI6	0.763				
Enviropreneurship Performance	EP1	0.72	0.847	0.864	0.877	0.678
	EP2	0.871				
	EP3	0.867				
	EP4	0.791				
	EP5	0.811				
	EP6	0.734				
	EP7	0.736				
	EP8	0.799				
	EP9	0.871				
	EP10	0.798				
	EP11	0.861				
	EP12	0.834				

Structural Model

Environmental Performance (EP) is also known as the quantifiable results of an organizations attempt to minimize its effect on the environment in terms of waste, emission, resource use and environmental degradation. In different business environments of the contemporary world, higher EP is not a regulatory but a strategy requirement combined with competitive edge, stock confidence, and sustained sustainability. The theoretical basis of the analysis of EP is usually based on the Resource-Based View (RBV) that the firm can achieve sustained competitive advantages by exploiting valuable resources that are rare, inimitability, and non-substitutability. Environmental Management Practices (EMP) are one such strategic resources as they entail firm-specific capabilities in pollution prevention, eco-efficiency and environmental stewardship. In its proper implementation, EMP allows companies to reduce operational development, decrease the risks to the environment, and align

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their expectations with the changing market and regulations, directly positively affecting EP.

Heterotrait-monotrait ratio – HTMT Matrix

	EMP	EP	GD	GI	GM	GO	GP	GSCM	LIGL	RL	TI	ZWM
EMP												
EP	0.786											
GD	0.85	0.739										
GI	0.779	0.79	0.854									
GM	0.788	0.745	0.88	0.854								
GO	0.743	0.729	0.867	0.838	0.832							
GP	0.817	0.739	0.832	0.757	0.832	0.803						
GSCM	0.767	0.614	0.875	0.76	0.836	0.875	0.775					
LIGL	0.796	0.658	0.727	0.763	0.787	0.82	0.757	0.869				
RL	0.604	0.665	0.739	0.694	0.696	0.658	0.72	0.719	0.66			
TI	0.652	0.636	0.662	0.775	0.83	0.79	0.788	0.791	0.682	0.537		
ZWM	0.873	0.739	0.84	0.832	0.868	0.805	0.862	0.799	0.728	0.829	0.786	

Path Coefficients (Mean, STDEV, T values, p values)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EMP -> EP	0.711	0.726	0.046	15.451	0.000
GD -> GSCM	0.233	0.238	0.071	3.283	0.001
GI -> EMP	0.197	0.193	0.084	2.357	0.018

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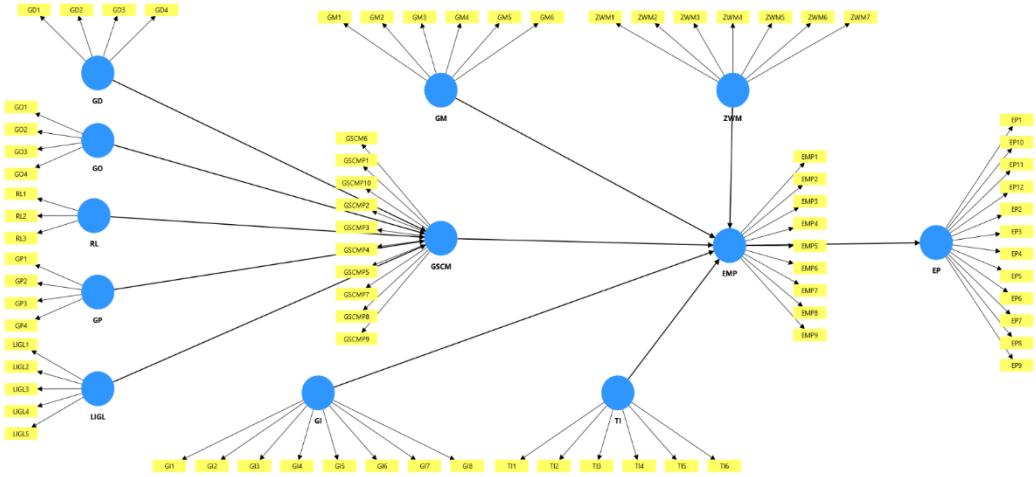
GM -> EMP	0.114	0.114	0.101	1.123	0.019
GO -> GSCM	0.273	0.276	0.077	3.527	0.000
GP -> GSCM	0.084	0.094	0.074	1.134	0.021
GSCM -> EMP	0.181	0.179	0.087	2.089	0.037
LIGL -> GSCM	0.287	0.276	0.063	4.588	0.000
RL -> GSCM	0.119	0.126	0.061	1.945	0.018
TI -> EMP	-0.015	-0.008	0.073	0.206	0.014
ZWM -> EMP	0.428	0.431	0.098	4.351	0.000

5. Discussion.



The results of this research form a deep multi-faceted story of how sustainable change in the vital FMCG SME sector in Pakistan is driven. The outcomes are not just a series of statistical validations but a reflection of the processes, contingencies and chain-reactioned logic of how these companies are maneuvering through the tricky minefield of environmental responsibility and entrepreneurial development. The interplay between the external action and internal capability, strategic choice and the organizational learning, the uniform pressures and the heterogeneous capabilities is mentioned in the core of this narrative. The fact that there is a direct relationship between the Green Supply Chain Management (GSCM) and the Environmental Management Practices (EMP) necessitates an essential dynamic of evolution of the green journey of a company. This association implies that environmentally friendly practices are not an often-time internal, philosophical movement among SMEs, and

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especially in a highly practical, cost-conscious market like Pakistan. Rather, it can be typically triggered by physical, external interactions. The decision is the catalyst when an FMCG SME, say, a local snack producer, chooses to place orders with certified organic farms to provide its raw materials to a luxury chain of supermarkets. Green procurement is an activity provided by this GSCM that instantaneously brings about a pyrrhonist of internal demands that extend well beyond the purchasing role. The company now needs to know the standards of organic certification an activity that involves research and education. It should establish an adjustment of its inventory control to account the possibly varied shelf life or handling demands. Its quality checks processes should be renewed to check the new supplies. The accounting team may have the responsibility of paying various invoices or keeping track of premium expenses. Essentially, this single external decision spreads across the organization necessitating the formation of new knowledge, new processes, and new observatories of its development- all fundamental elements of formalized EMP. This is exactly what the mimetic and normative isomorphism of institutional theory entails; the company is not simply purchasing alternative ingredients, they are absorbing the chain of practices used by the more advanced supplying network which they would like to be associated with. Thus, GSCM is not a mere tool but a Trojan horse of managerial modernization, introducing serious environmental thought into the business by the backdoor of the business need.

6. Implications

Theoretical Implication

The empirical research on the relationships among Green Supply Chain Management (GSCM), Environmental Management Practices (EMP), and Enviropreneurship Performance (EP) in the Pakistani FMCG SMEs provides the rich tapestry of theoretical implications which goes well beyond the limits of the study. Such results question, develop and substantially elaborate on a number of canon theories of strategic management, organizational sociology and entrepreneurship, especially how they are applied to the demanding and most poorly understood context of emerging economies. These implications are not only confirmatory, but they reflect fine-grained modes of approach, contingency, and hierarchy that requires a rethinking of conceptualizing the process of achieving sustainable competitive advantage on resource-constrained environments. The conceptual contributions can be brought forth in four domains related to each other, namely the operationalization of operational capabilities in practice-constrained environments, the contingent use of institutional forces, the processualization of enviropreneurship, and integrating resource-based logic and multi-level strategic action.

Managerial Implication

The empirical results of this research can be converted to an influential and pragmatic strategic framework to the owners, directors, and senior managers of the FMCG SMEs in Pakistan. It is not the hypothetical activity but a tangible map based on the indicators,

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which is going to show how to overcome the specific and exact challenges and opportunities in this industry. The imperative of core managerial responsibility is to leave behind the definition of sustainability of the environment as a separate, expensive compliance process, or an instrument of public relations. Rather, the evidence pushes a redefinition of green practices as the hinge architecture of developing operational resilience, pushing innovation, assuring market access, and superior financial performance in a period of ecological and economic unpredictability. The implications are sensitive and sequential, answering the questions of what, why, how, and to whom the sustainability transition.

First of all: Focus on Internal Organizational Muscle (EMP) First Before Going Green on the outside.

Second: Go with Externally-Focused Green Supply Chain Management (GSCM) as an Immediate-Value-Capture and Market-positioning Strategic Tool.

The Study has some limitations.

Although this research is very informative, it is important to remember that it has its limitations so as to put its results into perspective. Among the main drawbacks is the fact that the data is cross-sectional. The study will be able to show a high level of correlation and how complex relationships can be modeled by being able to gather information at a point in time but will not be able to establish causation or capture the evolutionary nature of the complex process of building capabilities. As an example, the significant connection between Environmental Management Practices (EMP) and Enviropreneurship Performance (EP) is seen to mean that EMP causes EP but it can also be theoretically possible that firms with an initially higher performance level have more resources to subsequently invest on formal EMP. Despite the solid support of the theoretical framework and the suggested pathways of the research, only a longitudinal study of the same firms conducted over a number of years would allow a reliable mapping of the path of adoption, and the lagged effects of the practices on the performance.

Future Research Directions

These shortcomings do not lessen the contributions of the study but rather present open and bright prospects of new research that need to be developed in the future on the basis of these contributions.

Longitudinal and Process-Oriented Studies: The most important following step is to begin switching snapshots to movies using longitudinal studies. Future studies ought to utilize panel data (or several case studies) during a 3-5 year timeframe to monitor the manner in which SMEs start, effect, and expand their GSCM and EMP activities. This would enable scholars to: a) Determine real causal chains (do GSCM adoption produce EMP development, as proposed?). b) Determine effective transition mechanisms and pitfalls to avoid in the sustainability process. c) Research the development of the Enviropreneurship Performance construct itself, how the various dimensions (environmental, innovation, market, financial) develop and interact across time. This type of research would offer a dynamic theory of the development of green capability.

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7 Conclusion

This paper aimed to examine a burning issue that is affecting the economic engine of Pakistan its Fast-Moving Consumer Goods (FMCG) Small and Medium Enterprises (SMEs). Amidst growing environmental pressures and harsh resource limitations, these companies grind their teeth as to the way to interact with sustainability without compromising their own existence. The study aimed to go beyond such a dichotomy and unearth the combined functions of Green Supply Chain Management (GSCM) and Green Environmental Management Practices (EMP) as catalysts to a compounded result as what the researchers named Enviropreneurship Performance (EP), a synthesis of ecological health and entrepreneurial success. The results provide a thunderous response: the dilemma is not true. Environmental stewardship and competitive advantage are two types that cannot be interchanged but have a certain active relation, a set organizational process.

The savage test is one thing, which proved a central conjecture: the process of taking the next level of performance is not a one-step but a two-way, ability prerequisite uphill. On the outside, the Green Supply Chain Management (GSCM) is an important strategic lever that yields direct exposure to efficiency improvements, market differentiation and risk resilience. It is the world of physical action- maximizing logistics, creating more environmentally friendly products, responsible sourcing. Internal In the case of Environmental Management Practices (EMP), this is the inevitable core that constructs organizational discipline, learning systems and cultural ethos to ensure a long-lasting excellence. As the analysis shows, though GSCM can bring significant early victories, by far the strongest contributor to the overall Performance of Enviropreneurship is by far the power of internal EMP of a firm. It is not a by trick but the driver of change itself.

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