

**MODERATING EFFECT OF ORGANIZATION CULTURE ON  
SUSTAINABLE GREEN PROCUREMENT PRACTICES AND  
ORGANIZATIONAL PERFORMANCE OF MANUFACTURING FIRMS IN  
NAIROBI COUNTY**

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**DECLARATION**

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## **DEDICATION**

I dedicate this thesis to my family, whose unwavering support and encouragement have been the foundation of my journey. Thank you for believing in me and for your endless patience during the late nights and long weekends during the writing of the thesis.

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## ABSTRACT

Manufacturing firms in Nairobi County can achieve strong organizational performance characterized by high productivity, efficiency, profitability, and quality standards through sustainable green procurement practices. However, the sector continues to face persistent challenges such as limited technical efficiency, declining GDP contribution, and shrinking market share. Despite contributing 17.30% of total tax revenue, the sector's technical efficiency remains comparatively lower. Therefore, the main objective of this study was to establish the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms in Nairobi County. The specific objectives were to determine the influence of green product selection practice, green supplier selection practice, and green product lifecycle practice on organizational performance, and to examine the moderating effect of organizational culture on these relationships. The study was guided by Ecological Modernization Theory, Stakeholder Theory, and the Theory of Performance. An explanatory research design was employed, targeting 554 procurement managers across all manufacturing firms in Nairobi County, from which a sample of 232 respondents was obtained using Yamane's formula. Stratified random sampling was used to ensure representation, and structured questionnaires were employed to collect primary data. A pilot study conducted in Nakuru County tested the instruments for validity and reliability. Data were analyzed using descriptive and inferential statistics through SPSS version 25, where descriptive analysis included means, frequencies, minimums, maximums, and standard deviations, while inferential analysis involved correlation and regression models. The findings revealed that green product selection practice ( $\beta=0.165$ ,  $p=0.002$ ), green supplier selection practice ( $\beta=0.226$ ,  $p=0.001$ ), green product lifecycle practice ( $\beta=0.306$ ,  $p<0.001$ ), and organizational culture ( $\beta=0.074$ ,  $p=0.047$ ) had a positive and significant effect on organizational performance. Moreover, results indicated that organizational culture significantly moderated the relationships between green product selection practice ( $\beta=-0.036$ ,  $p=0.045$ ,  $R^2=0.573$ ,  $\Delta R^2=0.019$ ), green supplier selection practice ( $\beta=0.049$ ,  $p<0.001$ ,  $R^2=0.583$ ,  $\Delta R^2=0.010$ ), and green product lifecycle practice ( $\beta=-0.084$ ,  $p<0.001$ ,  $R^2=0.593$ ,  $\Delta R^2=0.010$ ) with organizational performance. The study concluded that integrating green product selection, supplier collaboration, lifecycle management, and a sustainability-oriented organizational culture enhances manufacturing firms' performance, cost-effectiveness, and competitiveness while strengthening environmental and social responsibility. Theoretically, the study reinforces the explanatory strength of Ecological Modernization, Stakeholder, and Performance theories by demonstrating that culture-driven sustainability practices significantly predict firm performance outcomes. The study recommends that firms cultivate sustainability-focused cultures, integrate green product, supplier, and lifecycle initiatives, align cultural values with environmental goals, participate in environmental certification programs, provide continuous employee training, and establish partnerships with environmentally responsible suppliers to optimize sustainability performance and long-term organizational success. The study findings provided valuable insights into how sustainable green procurement practices, moderated by organizational culture, influence organizational performance among manufacturing firms in Nairobi County, offering practical implications for managers, policymakers, and researchers.

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**LIST OF ABBREVIATIONS AND ACRONYMS**

<b>EFA</b>	Exploratory Factor Analysis
<b>EMT</b>	Ecological Modernization Theory
<b>ESG</b>	Environmental, Social and Governance
<b>GDP</b>	Gross Domestic Product
<b>GESIP</b>	Green Economy Strategy and Implementation Plan
<b>KAM</b>	Kenya Association of Manufacturers
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>LCA</b>	Life Cycle Assessment
<b>MCDM</b>	Multi-Criteria Decision-Making (
<b>NACOSTI</b>	National Council of Science, Technology, and Innovation
<b>ROI</b>	Return on Investment
<b>SGDP</b>	Sustainable Green Procurement Practices
<b>SPSS</b>	Statistical Package for Social Sciences
<b>ToP</b>	Theory of Performance
<b>TQM</b>	Total Quality Management
<b>VIF</b>	Variance Inflation Factor

## OPERATIONAL DEFINITIONS OF TERMS

**Organizational performance:** refers to the overall effectiveness and efficiency of a manufacturing company in achieving its goals and objectives (Lee et al., 2022). According to this study, manufacturing firm performance was defined as the firm's ability to meet financial and operational goals, as measured by indicators such as profitability, operational efficiency, and production outcomes.

**Sustainable green procurement practices:** refers to the integration of environmental, social, and governance (ESG) criteria into a company's procurement processes and decisions to minimize negative effects on the environment and society while still meeting business requirements (Fleck & SchjerningPovlsen, 2023). According to this study, sustainable green procurement practices were defined as procurement activities that integrated environmental considerations, ethical sourcing, and sustainability into the decision-making process, aiming to reduce environmental and social effects.

**Green product lifecycle practice:** is a holistic approach to managing a product's environmental effect throughout its entire lifecycle, from design to disposal or recycling (Gräßler & Pottebaum, 2021). According to this study, green product lifecycle practices were defined as the practices that ensure environmental considerations are integrated at each stage of a product's lifecycle, from design to disposal or recycling.

**Green product selection:** is a critical practice for organizations looking to reduce their environmental effect and promote sustainability (Khan, Dhir, Parida &

Papa, 2021). According to this study, green product selection was defined as the process through which manufacturing firms chose products based on their environmental effect and sustainability credentials.

**Green supplier selection:** is the process of choosing suppliers based on their commitment to environmental sustainability, in addition to traditional criteria like cost, quality, and reliability (Yildizbasi & Arioz, 2022). According to this study, green supplier selection was defined as the process by which manufacturing firms identified and selected suppliers who demonstrated environmental sustainability in their practices, alongside traditional criteria.

**Organizational culture:** refers to the shared values, beliefs, attitudes, and behaviors that characterize a company and guide its practices (Bamidele, 2022). According to this study, organizational culture was defined as the values, norms, and practices that shaped the decision-making processes and behaviors of individuals within manufacturing firms in Nairobi County.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Overview**

This chapter covers the background of the study, the statement of the problem, research objectives, and research questions, significance of the study, and scope of the study.

#### **1.2 Background of the Study**

Organizational performance is the capacity of the company to fulfil its financial obligations and other expenditure relevant to the company and also to make profit.

Organizational performance indicated that manufacturing organizations can run successfully without the need for aid or donations (Barauskaite & Streimikiene, 2021).

Organizational performance means that the manufacturing organizations can operate and help the poor as per its goals without the need for aid from donors.

Sustainable green procurement practices in the United States involve integrating environmental, social, and governance (ESG) criteria into procurement processes to enhance sustainability and mitigate negative environmental and societal effects (Neri, 2021). As companies face increasing pressure from stakeholders to adopt these strategies, sustainable procurement emphasizes sourcing eco-friendly products, promoting resource efficiency, and minimizing waste (Lee & Kim, 2021). Additionally, it encompasses social criteria, including labor practices, human rights, and community well-being (Anderhofstadt & Spinler, 2019).

In China, the organizational performance of manufacturing firms is influenced by various factors including financial performance, market performance, and operational efficiency. Sustainable green procurement practices, knowledge management tools, and organizational culture have been identified as key enhancers of performance.

Specifically, sustainable procurement practices that focus on environmental considerations positively effect organizational performance, with evidence of a positive relationship between these practices and both social and environmental performance (Ilmudeen et al., 2019; Gupta & Gupta, 2020; Agyabeng-Mensah et al., 2020). In Brazil, sustainable green procurement practices involve the integration of environmental, social, and governance (ESG) criteria into procurement processes to promote sustainability and mitigate negative effects. These practices are increasingly important due to pressure from various stakeholders, and they focus on sourcing eco-friendly products and minimizing waste (Pinheiro, 2023; Singh & Chan, 2022).

In Nigeria, the adoption of sustainable procurement practices has been hindered by economic constraints and a lack of awareness. However, companies that have embraced these practices report improvements in operational efficiency and market performance (Ogunsanya et al., 2022; Tortorella et al., 2019). In South Africa, government initiatives have promoted sustainable procurement, leading to greater adoption of eco-friendly practices among manufacturing firms (Shai et al., 2019; Ambe, 2019). In Ghana, there has been a rise in sustainable procurement initiatives within the manufacturing sector, driven by efforts to enhance environmental sustainability and social responsibility. Companies are increasingly integrating ESG criteria into their procurement processes, supported by government policies and incentives, which has led to improved operational efficiency and market positioning (Fiati, 2019; Marchetti, 2023; Suleman et al., 2022).

In Zambia, implementing sustainable procurement practices can yield cost savings and operational efficiency improvements. These practices help organizations reduce energy costs and compliance expenses while enhancing sustainability performance. They also

drive innovation and improve brand reputation, which can lead to financial benefits and market differentiation (Chileshe & Phiri, 2022; Patel, 2023). In Tanzania, organizational performance is a crucial indicator of success, measured through both financial and non-financial indicators. While financial analysis has traditionally been used to assess performance, it is important to also consider the efficiency of resource use in business operations, as stakeholders' value more than just financial outcomes (Ye & Tekka, 2020; Herciu, 2017).

Locally, in Kenya, as per the study done by Mose, (2021), successful firms represent a key ingredient for developing nations. Many economists consider them similar to an engine in determining their economic, social, and political development. To survive in a competitive business environment, every firm should operate in conditions of performance. Nowadays, organizational performance has become a relevant concept in strategic management research and is frequently used as a dependent variable. Although it is a very common notion in the academic literature, there is hardly a consensus about its definition and measurement (Haraguchi, Martorano & Sanfilippo, 2019). Manufacturing organization faces challenges in achieving optimal performance. Factors such as low sales, infrastructural decay, erratic power supply, and government policy inconsistencies have contributed to the underperformance of manufacturing firms in various regions, including Nairobi County (Ongaro, 2019). These challenges underscore the importance of enhancing organizational performance through effective management practices.

In the context of manufacturing firms in Nairobi County, the ability to improve organizational culture is directly linked to staying competitive, recruiting top talent, enhancing job satisfaction, and positively effecting the bottom line (Chepkole & Deya,

2019). The challenges faced by manufacturing enterprises, such as attracting skilled workers, adapting to digital transformation, and addressing outdated systems, underscore the critical need for a healthy and adaptive organizational culture (Syakur, Susilo, Wike & Ahmadi, 2020). The pivotal role of organizational culture is driving productivity, employee satisfaction, and overall company performance (Paais & Pattiruhu, 2020). Understanding the sources, effect, and management of organizational culture in the manufacturing sector is essential for developing strategies to enhance culture, attract talent, and improve profitability in manufacturing companies in Nairobi County.

### **1.3 Statement of the Problem**

In an ideal scenario, manufacturing firms in Nairobi County would exhibit strong organizational performance characterized by high productivity, efficiency, profitability, and adherence to quality standards. Such performance would be driven by the integration of sustainable green procurement practices that emphasize environmentally friendly sourcing, waste minimization, and social responsibility. A supportive organizational culture would reinforce these practices by promoting innovation, employee engagement, and commitment to environmental sustainability (Srisathan, Ketkaew & Naruetharadhol, 2020).

However, the actual situation reflects significant performance inefficiencies. The manufacturing sector's contribution to Kenya's Gross Domestic Product (GDP) has declined from 9.3% in 2016 to 7.2% in 2021 (Kenya National Bureau of Statistics [KNBS], 2022), despite contributing about 17.3% of total tax revenue. Technical efficiency levels, currently estimated at 59%, remain below those of comparable economies such as Malaysia at 74% (Onsomu, Munga, Nyabaro & Munene, 2022).

Persistent challenges such as erratic energy supply, high production costs, policy inconsistency, and weak adoption of sustainable procurement practices continue to limit productivity and competitiveness in the sector.

Empirically, existing studies have primarily focused on the direct relationship between green procurement practices and organizational performance (El-Kassar & Singh, 2019; Abbas, 2020; Wanjohi, 2020) with limited consideration of contextual and organizational factors that may strengthen or weaken this relationship. Few studies in Kenya have examined the moderating role of organizational culture in linking sustainable procurement to firm performance, leaving a gap in understanding how internal cultural dynamics influence sustainability outcomes.

Conceptually, previous research has often treated sustainable procurement practices as independent drivers of performance without integrating behavioral and cultural dimensions that may explain variations in implementation success across firms. The interplay between organizational culture and sustainable procurement remains underdeveloped in theoretical models, creating ambiguity in how cultural attributes such as shared values, employee commitment, and managerial attitudes mediate or moderate environmental practices' effectiveness. This limits the explanatory power of existing frameworks in predicting performance outcomes in diverse organizational settings.

Contextually, most available studies have been conducted in developed and emerging economies such as China, Brazil, and South Africa, where institutional and infrastructural conditions differ significantly from Kenya's (Ilmudeen et al., 2019; Ambe, 2019). Within the Kenyan context, few empirical investigations have focused on how energy inefficiency, resource constraints, and weak policy enforcement affect

the adoption of sustainable green procurement and its link to performance in manufacturing firms. This leaves a critical knowledge gap regarding the unique contextual dynamics of Nairobi County's manufacturing sector, which faces both operational and sustainability pressures.

Therefore, this study sought to address these empirical, conceptual, and contextual gaps by examining the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance among manufacturing firms in Nairobi County. The study aims to provide evidence-based insights into how cultural alignment with sustainability goals can enhance firm efficiency, competitiveness, and long-term performance.

#### **1.4 Research Objectives**

The study was guided by both general and specific objectives;

##### **1.4.1 General Objective**

The main objectives of this study were to establish the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms in Nairobi County.

##### **1.4.2 Specific Objectives**

- i. To establish the influence of green product selection practice on organizational performance of manufacturing firms in Nairobi County.
- ii. To determine the influence of green supplier selection practice on organizational performance of manufacturing firms in Nairobi County.
- iii. To assess the influence of green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County.

- iv) To examine the influence of organizational culture on organizational performance of manufacturing firms in Nairobi County.
- v) To determine the moderating effect of organizational culture on the relationship between:
  - a. Green product selection practice and organizational performance of manufacturing firms in Nairobi County.
  - b. Green supplier selection practice and organizational performance of manufacturing firms in Nairobi County.
  - c. Green product lifecycle practice and organizational performance of manufacturing firms in Nairobi County.

### **1.5 Research Hypotheses**

**H<sub>01</sub>:** Green product selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County.

**H<sub>02</sub>:** Green supplier selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County.

**H<sub>03</sub>:** Green product lifecycle practice has no significant effect on organizational performance of manufacturing firms in Nairobi County.

**H<sub>04</sub>:** There is no significant effect of organizational culture on organizational performance of manufacturing firms in Nairobi County.

**H<sub>05a</sub>:** Organizational culture does not moderate the relationship between green product selection practice and organizational performance of manufacturing firms in Nairobi County.

**H<sub>05b</sub>:** Organizational culture does not moderate the relationship between green supplier selection practice and organizational performance of manufacturing firms in Nairobi County.

**H<sub>05c</sub>:** Organizational culture does not moderate the relationship between green product lifecycle practice and organizational performance of manufacturing firms in Nairobi County.

### **1.6 Significance of the Study**

The study on the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms in Nairobi County benefited various stakeholders. Manufacturing firms, for instance, gained valuable insights into how sustainable green procurement practices can positively impact their organizational performance. These findings offer practical knowledge to improve procurement processes, ultimately boosting overall firm performance in the context of Nairobi County.

Procurement departments within manufacturing firms also found the study beneficial, as it provided them with essential information on integrating sustainable practices into their procurement processes. This knowledge enables them to enhance both efficiency and effectiveness in their operations, driving improvements that are aligned with environmental sustainability goals.

For top management, the study presented a deeper understanding of the critical role that organizational culture plays in mediating the relationship between sustainable green procurement practices and organizational performance. With this knowledge, top managers are better equipped to make informed decisions and implement strategic changes that foster sustainability and organizational success.

Policymakers in the public sector also benefited from the study's findings. They were able to use the results to develop and refine policies that promote sustainable procurement practices. This, in turn, helps create more environmentally friendly and

socially responsible procurement processes across industries, contributing to broader sustainability objectives.

Finally, researchers focusing on sustainable procurement, organizational culture, and organizational performance found this study valuable. It adds to the existing body of knowledge, providing insights and frameworks that can be used to further explore these areas and enhance future research in related fields.

### **1.7 Scope of the Study**

The study focused on examining the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms. Specifically, the independent variables were green product selection practices, green supplier selection practices, and green product lifecycle practices, while organizational performance constituted the dependent variable. The moderating variable was organizational culture, which was examined to determine how it influences the strength and direction of the relationship between sustainable procurement practices and performance outcomes.

The study was anchored on three theoretical foundations: The Ecological Modernization Theory, Stakeholder Theory, and the Theory of Performance, which together provided a conceptual framework for explaining the interrelationship among the study variables. The study was conducted within Nairobi City County, Kenya, which hosts the largest concentration of manufacturing firms in the country and serves as Kenya's main industrial and commercial hub. Nairobi County was selected because it represents a diverse range of manufacturing subsectors including food and beverage, chemical, textile, and construction materials thereby providing a suitable context for analyzing how sustainable green procurement practices and organizational culture

influence organizational performance. The findings from Nairobi are expected to reflect the general trends and challenges facing Kenya's urban manufacturing sector.

The study was carried out between March and May 2025, covering a three-month period of data collection and analysis. This timeframe was chosen to align with the 2024/2025 financial year when many manufacturing firms were implementing sustainability and performance improvement initiatives in response to national industrial policy reforms. The study's temporal scope ensures that the findings reflect current trends in sustainable procurement and cultural transformation within the Kenyan manufacturing industry.

Methodologically, the study adopted an explanatory research design, which was appropriate for establishing causal relationships among the study variables. The target population comprised 554 procurement managers from all registered manufacturing firms in Nairobi City County. Using Yamane's formula, a sample size of 232 respondents was determined to ensure representativeness. Data were collected using structured questionnaires, which facilitated the collection of quantitative data on procurement practices, organizational culture, and performance indicators. The data were analyzed using descriptive and inferential statistics, including correlation and regression models, with the aid of Statistical Package for Social Sciences (SPSS) version 25. The methodological scope was thus designed to ensure validity, reliability, and statistical rigor in addressing the study objectives.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Overview**

This section is describing theoretical and empirical literature review on the topic of this study.

#### **2.2 Theoretical Review**

The theoretical review section provides a foundation for understanding the conceptual frameworks that guide this study. It involves a critical examination of theories relevant to the investigation of sustainable green procurement practices and their effect on organizational performance. It was guided by Ecological Modernization, Stakeholder theory and Theory of Performance.

##### **2.2.1 Ecological Modernization Theory**

Ecological Modernization Theory (EMT) was developed by Joseph Huber and Arthur Mol in the 1980s, with significant theoretical contributions emerging around 1986-1987. This theory posits that economic development and environmental sustainability are not inherently contradictory, but can, in fact, be mutually reinforcing. Ecological Modernization Theory explains how pressures exerted by external institutions force manufacturing firms to adopt green manufacturing (Nazir et al., 2024). The theory encompasses the evolving politics of pollution that refer to dynamism of regulations and their effect on environmental innovations. The theory also posits that manufacturers can gain organizational performance improvements through innovations and enhancing their competitive advantage (Tu & Wu, 2021). Furthermore, manufacturers are adopting production systems that minimize the negative effects of operations on the environment and natural resources (Wang, 2019).

Manufacturers are also striving to comply with regulations and policies set by governments and environmental institutions on carbon emission limits through the use of 6R strategy which involves redesign, reduce, remanufacture, recycle, reuse, and recover (Kannan et al., 2022). The formulation of international environmental regulations such as RoHS, WEEE, and ISO 14000 series coupled with increased environmental awareness of consumers have a significant effect on manufacturing firms and global trade (Witczak, 2019).

This theory links to the current study in the sense that Ecological Modernization Theory emphasizes how external pressures, such as regulatory requirements and environmental concerns, drive manufacturing firms to adopt sustainable practices (Huang & Huang, 2022). This theory links directly to the variables of green procurement practices and organizational performance. According to the theory, when firms implement green product selection, green supplier selection, and green product lifecycle practices, they not only comply with environmental regulations but also enhance their organizational performance. By integrating these green procurement practices, firms can improve their efficiency, reduce waste, and innovate their processes, leading to better performance outcomes such as increased profitability and market competitiveness.

The Ecological Modernization Theory (EMT) posits that environmental sustainability and economic growth can be achieved simultaneously through technological innovation, regulatory reforms, and institutional adaptation. Although critics argue that EMT overemphasizes market and policy instruments, assumes rational corporate behavior, and overlooks social resistance and power inequalities, the theory remains valuable for explaining how firms can integrate environmental considerations into business practices. In this study, EMT informs the independent variables green product selection,

green supplier selection, and green product lifecycle practices by highlighting how manufacturing firms can enhance competitiveness and efficiency through eco-innovation, cleaner production, and compliance with environmental standards. It further supports the idea that adopting sustainable procurement practices not only mitigates ecological effect but also drives operational performance improvements. The theory also aligns with the moderating variable, organizational culture, by suggesting that institutional and cultural alignment is critical for the successful implementation of environmental strategies. Hence, EMT provides the conceptual foundation for understanding how environmentally driven procurement practices can translate into improved organizational performance within Nairobi County's manufacturing sector.

### **2.2.2 Stakeholder Theory**

Stakeholder Theory was developed by Freeman in 1984. This theory posits that organizations are not only accountable to shareholders but also to a wide range of stakeholders, including employees, customers, suppliers, communities, and the environment (Freeman et al., 2018). In the context of sustainable green procurement practices and organizational performance, Stakeholder Theory emphasizes the importance of considering the interests and concerns of all stakeholders, including environmental sustainability, in decision-making processes (Liu et al., 2021).

This theory connects to the variables of organizational culture and green procurement practices (Dmytriyev et al., 2021). It suggests that a firm's organizational culture, which shapes how it engages with stakeholders, influences the effectiveness of its green procurement practices. A culture that prioritizes transparency, collaboration, and sustainability can enhance how green procurement practices are implemented, leading to improved stakeholder relationships and overall organizational performance (Kalyar

et al., 2020). Thus, the theory helps explain how organizational culture can moderate the relationship between green procurement practices and performance by aligning these practices with stakeholder expectations and values.

In this study, the focus is on exploring how sustainable green procurement practices effect organizational performance within manufacturing firms, with a particular emphasis on the moderating effect of organizational culture (Waheed & Zhang, 2022). Stakeholder Theory suggests that organizational culture shapes the relationship between sustainable procurement practices and organizational performance by influencing stakeholder expectations, behaviors, and outcomes (Boruchowitch & Fritz, 2022). For instance, a culture that prioritizes stakeholder engagement, transparency, and accountability may lead to more effective implementation of green procurement practices, resulting in improved relationships with stakeholders and enhanced organizational performance.

Examining the moderating effect of organizational culture through the lens of Stakeholder Theory, this study sought to shed light on how manufacturing firms can better align their procurement practices with the interests and expectations of key stakeholders, including employees, customers, and the broader community (Assoratgoon & Kantabutra, 2023). Organizational culture serves as a mechanism through which firms navigate and respond to stakeholder pressures and expectations regarding sustainability (Grennan & Li, 2023). Understanding the interplay between organizational culture, sustainable procurement practices, and stakeholder interests can help firms develop strategies and initiatives that create value for all stakeholders while simultaneously enhancing organizational performance and long-term viability.

Although Stakeholder Theory is a useful model that users have relied on to comprehend the manner in which organizations ought to regard the concerns of a wide myriad of stakeholders, the theory has drawn flak in its vagueness and ambiguity of operation (Abukar, (2021). There is no clear indication in the theory on how to prioritize on various stake holder demands when they arise particularly in complex cases involving trade-offs between environmental, economic and social goals. As an example, activities aimed at meeting the interests of environmental stakeholders may need investment in costly green procurement systems, which in effect negatively on the bottom-line in the short-run and as such will go against shareholder interests. Such a lack of clarity makes implementing the theory in practice rather challenging, since it does not provide much help on how a firm can reconcile stakeholder interests without compromising that of performance or strategy.

Further, critics are citing Stakeholder Theory as idealistic since it assumes that all stakeholders can be equally considered, and that it is naive to believe firms are inclined to demonstrate ethical and sustainable behaviour all by themselves (Visser, 2019). As a matter of fact, the issue of the presence of power imbalances among the stakeholders tends to run parallel to the aspect of decision-making where the word of privileged groups (through the investors or other influential customers) silences the word of the underprivileged communities or environmental rights activists. The theory also presupposes the existence of certain discretion level of management and cultural matching that are not present within every organization (Cortes & Kiss, 2023). Consequently, companies can rely on their stakeholder engagement rhetoric to increase legitimacy without any meaningful adjustments of their actions the so-called stakeholder washing. So, the theory can be considered conceptually attractive, but it is

rather a difficult task to put it into practice in profit-oriented and politically complicated organisations.

### **2.2.3 Theory of Performance**

The study was guided by Theory of Performance (ToP) developed by John Campbell in 1990. This theory provides a comprehensive framework for understanding and improving performance across various contexts, including organizational settings such as manufacturing. The current level of performance is influenced by six interrelated components such as context which is the environment in which performance occurs. Level of knowledge which is the understanding and information the performer possesses. Levels of skills which is the abilities and competencies the performer has developed. Level of identity which is the performer's self-concept and how it relates to their performance. Personal factors which are individual circumstances that may affect performance. Fixed factors which is immutable characteristics, such as genetic traits, that effect performance (Campbell & Wiernik, 2015).

The ToP emphasizes understanding performance as a function of multiple interrelated components, including context, knowledge, skills, identity, personal factors, and fixed factors. This comprehensive perspective allows organizations to assess performance at both individual and group levels, leading to more targeted improvement strategies (Ahblom & Sjögren, 2019). The theory highlights the importance of identifying professional skills and behavioral competencies necessary for each role within the organization. By aligning these competencies with organizational goals, companies can ensure that employees are equipped to perform effectively, thereby enhancing overall performance. One of the axioms of the ToP is the necessity of an enriching environment that fosters engagement and reflection. Organizations can apply this by cultivating a

workplace culture that supports continuous learning, collaboration, and innovation, which are crucial for high performance. The ToP provides a framework for predicting future performance based on the assessment of current competencies and resources. This predictive capability can help organizations make informed decisions regarding training, development, and resource allocation to enhance their human capital. The theory encourages organizations to engage in reflective practices, allowing for ongoing assessment and adjustment of strategies to improve performance (Call-Cummings, et al., 2021). This iterative process can lead to sustained organizational growth and adaptability in a changing environment. By recognizing that individual performance contributes to organizational outcomes, the ToP facilitates the alignment of personal objectives with broader organizational goals. This alignment can enhance motivation and commitment among employees, driving higher performance levels across the organization.

One of the primary criticisms is the ambiguity surrounding the definition of "performance." Scholars argue that the term is used inconsistently across different studies and contexts, leading to confusion. The ToP attempts to integrate various definitions, but this can result in a lack of clarity and coherence in its application, as performance is conceptualized differently at individual and organizational levels (Shepherd, 2016). Critics point out that the ToP focuses heavily on individual performance and behaviors, potentially neglecting broader organizational and contextual factors that influence performance outcomes. This individual-centric view may overlook how organizational culture, team dynamics, and external environmental factors contribute to overall performance, leading to a limited understanding of performance in complex settings (Schechner, 2017).

The conceptual vagueness of the Theory of Performance (ToP) in the context of the definition and the area of performance is one of the major criticisms of the Theory of Performance (ToP) (Okwir, Nudurupati, Ginieis & Angelis, 2018). Although the theory tries to develop an overall framework of it, which involves combining a collection of aspects knowledge, skills and personal attributes, critics have claimed that they have failed to come up with a uniform definition of performance and there is therefore no standard of applying this theory in different research and in organizational settings. The fluidity of the word causes problems in attempting to measure with any degree of structural and objective clarity performance levels. Moreover, the theory tries enclosing various performance determinants both at an individual and organizational level; this is likely to make the theory too broad thus devoid of focus (Martin, 2019). This will make it difficult to offer easy to use actionable strategies to practitioners who need to boost performance results in a given setting, in this case, manufacturing companies.

The other example of criticism of the ToP is its inclination on focusing on individualistic determinants of performance at the expense of focusing on the system-wide or organizational determinations of performance (Hibbert et al., 2021). Despite the fact that the theory identifies the concept of context as the sixth element, working in the real world, it gives little attention to external factors that usually determine performance like organizational structure, politics at work, culture, and market environments that are consistently influential. This individualistic approach can lead to a focus on individual qualities around what people apply such as identity and aptitude, hence leaving out the important role of teams, leadership activities, and institutional resources in the definition of an outcome (Bolden, Gosling & Hawkins, 2023). Therefore, on the one hand, the theory provides practical insights into personal ways of performance development, but on the other hand, it might not ensure that the specifics

of the systemic and collective levels are considered to improve an organization (Kelleher, Wilson, Macdonald & Peppard, 2019).

This study is theoretically positioned within the intersection of the Ecological Modernization Theory (EMT), Stakeholder Theory, and the Theory of Performance, which collectively provide a comprehensive foundation for understanding the relationship between sustainable green procurement practices, organizational culture, and organizational performance. The Ecological Modernization Theory underpins the study by explaining how firms can achieve both environmental sustainability and economic efficiency through innovation and institutional adaptation. The Stakeholder Theory emphasizes the role of internal and external stakeholders such as employees, suppliers, customers, and regulators in shaping sustainable procurement decisions and performance outcomes. The Theory of Performance complements these perspectives by linking individual and organizational capabilities to improved productivity, quality, and efficiency. Together, these theories form an integrative framework that justifies the study's conceptual model, illustrating how organizational culture moderates the relationship between sustainable green procurement practices and organizational performance within Kenya's manufacturing sector.

## **2.2 Concept of Organizational Performance**

Organizational performance, according to Felix and Eboka (2024), is the extent to which the work mission is attained as determined by the work outcome, intangible assets, customer connection, and quality services. Organizational performance, according to Mazikana (2021), is the ability of the organization to use its human and material resources in an effective and efficient manner to achieve its goals. This definition gives corporations the basis to base employee performance evaluations on

objective performance standards. This is beneficial for formulating strategic plans for the companies' future performance as well as for assessing the accomplishment of organizational goals (Ekanem et al., 2022).

Organizational performance is a comprehensive measure of how effectively a firm achieves its goals and delivers value to its stakeholders (Akpa et al., 2021). It encompasses several key dimensions: financial performance, which includes profitability, revenue growth, and cost management; operational performance, reflecting efficiency in internal processes and resource utilization; customer performance, gauging satisfaction and loyalty through metrics such as retention rates and market share; employee performance, which assesses productivity, engagement, and satisfaction levels; and innovation and growth, indicating the firm's capacity for adaptation, R&D, and market expansion (Al-Shammari et al., 2022). In evaluating these dimensions, firms can understand the effect of their strategies, including sustainable green procurement practices, on their overall success. This view of organizational performance allows firms to identify strengths and areas for improvement, make informed strategic decisions, and enhance their competitive edge in the market.

Financial profitability and expansion are the most typical metrics of organizational performance, despite the fact that numerous studies have indicated that various organizations in different nations tend to emphasize on different objectives (Charles & Ochieng, 2023). There are countless definitions that may be applied to the idea of performance, many of which are related to particular situations or functional viewpoints. Raymundo (2020) provided a comprehensive definition of performance that was well-crafted and shared the idea of two main components: efficacy and efficiency. Efficiency is performance measured in terms of inputs and outputs; hence, a higher volume

produced for a given input volume indicated greater efficiency. Effectiveness is measured by how well intended goals are accomplished. For instance, the goal of preventing supply interruptions throughout time might be viewed as an efficient outcome.

### **2.3 Concept of Green Procurement Practices**

According to the study done by Sönnichsen and Clement (2020), green procurement practices, also known as sustainable procurement, entail the integration of environmental considerations into the procurement process. This approach aims to minimize the negative environmental effects associated with the acquisition of goods and services by favouring products and services that have a reduced environmental footprint throughout their lifecycle (Wanja & Achuora, 2020). Such practices encompass various strategies, including sourcing from suppliers with strong environmental credentials, prioritizing products with eco-friendly certifications, and implementing measures to reduce waste and energy consumption.

One key aspect of green procurement is supplier engagement (Awan et al., 2019). Organizations strive to partner with suppliers that demonstrate a commitment to sustainability, not only in the products they offer but also in their operational practices. This collaboration often involves transparent communication regarding environmental expectations and performance metrics, fostering a mutual understanding of shared sustainability goals (Dahlmann & Roehrich, 2019). Working closely with suppliers, organizations can influence and incentivize sustainable practices throughout the supply chain, leading to broader environmental benefits beyond their own operations.

Green procurement extends beyond environmental considerations to encompass social and economic dimensions (Ogunsanya et al., 2022). It involves promoting fair labor

practices, supporting local communities, and fostering economic development. Through initiatives such as fair-trade sourcing and supplier diversity programs, organizations can contribute to social equity and inclusivity while aligning procurement practices with broader sustainability objectives. Ultimately, green procurement represents a holistic approach to procurement that not only sought to minimize environmental effect but also fosters social responsibility and economic resilience.

#### **2.4 Concept of Organizational Culture**

Organizational culture is the shared values, beliefs, assumptions, and practices that characterize and guide the behavior of an organization and its employees (Lubis & Hanum, 2020). It is the unique personality and work environment of a company. Organizational culture is a system of shared assumptions, values, and beliefs that govern how people behave in an organization (Akpa et al., 2021). The main characteristics of organizational culture include innovation, attention to detail, emphasis on outcomes, emphasis on people, teamwork, aggressiveness, and stability. The prioritization of these characteristics defines a company's unique culture. Organizational culture has a strong influence on employee behavior, job satisfaction, and overall business performance. It helps attract and retain talent, and can either facilitate or hinder organizational change. There are four main types of organizational culture: clan, adhocracy, market, and hierarchy. These differ in their focus on internal vs. external orientation, and flexibility vs. control (Rostain, 2021).

Organizational culture is an essential part of any organizational performance of manufacturing firms' success. It is a set of shared beliefs, values, attitudes, and behaviours that govern how people operate within an organization. The culture of a company effects everything from employee behaviour to customer experience. When

it comes to manufacturing firms, understanding and cultivating a positive organizational culture can have a significant effect on customer satisfaction, employee engagement, and manufacturing firm's performance (Lehman, 2017). A positive organizational culture in an organizational performance of manufacturing firms can lead to improved customer experiences. Employees who feel valued and respected are more likely to provide excellent customer service. They are also more likely to be motivated to go above and beyond for their customers, leading to increased customer loyalty and repeat business (Levitt, 2019).

In addition to better customer experiences, a positive organizational culture can also result in improved employee engagement. When employees feel like they are a part of a supportive and positive work environment, they are more likely to be engaged in their work (Osborne & Hammoud, 2017). This can lead to higher productivity, lower turnover rates, and a more positive work environment. Moreover, a positive organizational culture can also have financial benefits for manufacturing firms. Employees who are engaged and motivated are more likely to be productive and efficient, which can lead to increased profits. Additionally, positive customer experiences can lead to increased sales and revenue (Kang & Sung, 2017).

Cultivating a positive organizational culture in an organizational performance of manufacturing firms requires a commitment from both management and employees. Define the company's core values and mission statement. Lead by example and ensure that management sets a positive tone. Encourage open communication and collaboration among employees (Paais & Pattiruhu, 2020). Recognize and reward employees who embody the company's values. Provide opportunities for employee development and growth. Celebrate successes and milestones as a team. By creating

and maintaining a positive organizational culture, manufacturing firms can improve customer experiences, employee engagement, and manufacturing firm's performance. It takes effort and commitment, but the benefits are well worth it (Kang & Sung, 2017).

An organization's culture defines the proper way to behave within the organization. This culture consists of shared beliefs and values established by leaders and then communicated and reinforced through various methods, ultimately shaping employee perceptions, behaviours and understanding (Yue, Men & Ferguson, 2021). Organizational culture sets the context for everything an enterprise does. Because industries and situations vary significantly, there is not a one-size-fits-all culture template that meets the needs of all organizations. A strong culture is a common denominator among the most successful companies. All have consensus at the top regarding cultural priorities, and those values focus not on individuals but on the organization and its goals. Leaders in successful companies live their cultures every day and go out of their way to communicate their cultural identities to employees as well as prospective new hires (Campuzano, 2019).

## **2.5 Empirical Review**

This section reviews studies done on the area of study as per the objectives.

### **2.5.1 Green Product Selection Practice and Organizational Performance**

According to El-Kassar and Singh (2019), the adoption of green product selection practices has a significant effect on the organizational performance of manufacturing firms. They argue that by integrating environmental considerations into product design and development processes, firms can enhance their competitiveness and sustainability. Through practices such as life cycle assessment (LCA) and eco-design principles, companies can minimize resource consumption, reduce waste generation, and improve operational efficiency. This not only leads to cost savings but also enhances the firm's reputation and brand image as environmentally responsible. While their study focus on the integration of environmental considerations is well-supported, but the discussion could benefit from specific examples or empirical evidence demonstrating how these practices have been implemented successfully in various industries.

Rawashdeh (2018) conducted a study on the influence of green product selection practices on organizational performance and found a strong positive correlation between the two variables. Their research suggests that manufacturing firms that prioritize sustainability in product selection experience improved financial performance, innovation, and market competitiveness. By investing in eco-friendly materials, technologies, and processes, these firms are able to meet the growing demand for sustainable products and gain a competitive edge in the market. While the study by Rawashdeh highlights a positive correlation, it would be useful to discuss any potential limitations or confounding variables that might affect the observed relationship between green product selection and organizational performance.

Goswami (2018) emphasizes the strategic importance of green product selection practices for manufacturing firms in today's business environment. They argue that sustainable practices not only contribute to environmental conservation but also drive business growth and profitability. Through collaboration with suppliers, customers, and other stakeholders, firms can develop innovative green products that meet consumer demand while minimizing environmental effect. This, in turn, enhances the firm's reputation, builds customer loyalty, and creates long-term value for shareholders.

Abbas (2020), supports the notion that green product selection practices positively affect the organizational performance of manufacturing firms. Their study indicated that firms that prioritize green product selection experience benefits across multiple dimensions of organizational performance. Specifically, they found that these firms not only achieve cost savings through improved resource efficiency and waste reduction but also enhance their brand reputation and market positioning as environmentally responsible entities (Yildiz Çankaya et al., 2019). Additionally, the study highlights the role of green product selection practices in fostering innovation and driving product differentiation, which are crucial factors for long-term success in today's competitive marketplace.

The study by Ardito and Dangelico (2018) delves into the relationship between green product selection practices and organizational performance from a supply chain perspective. Their findings suggest that the adoption of green product selection practices leads to greater collaboration and integration within the supply chain, resulting in improved overall performance for manufacturing firms (Li & Sarkis, 2022). Through working closely with suppliers and other partners to identify and implement environmentally sustainable solutions, firms can enhance supply chain efficiency,

reduce risks, and achieve better alignment with customer expectations for environmentally friendly products.

Abdallah and Al-Ghwayeen (2020) explored the connection between green supply chain practices and operational performance in manufacturing firms. Their findings highlighted the transformative effect of green practices on various facets of operations, including efficiency gains, cost reduction, and risk mitigation (Habib et al., 2020). Embracing sustainable supply chain practices, firms can streamline their operations, optimize resource utilization, and build resilience against environmental and regulatory risks, thereby enhancing overall organizational performance.

Within Nairobi County's manufacturing sector, the integration of eco-friendly criteria into product selection processes can serve as a strategic lever for enhancing competitiveness and mitigating risks associated with resource scarcity and regulatory compliance (Wanjohi, 2020). Investing in green technologies and practices, firms can not only achieve cost savings through improved resource efficiency but also differentiate them in the market by offering sustainable products that appeal to environmentally conscious consumers (Ochieng, 2019).

The adoption of green product selection practices can catalyse innovation and foster collaboration along the supply chain (Naidoo & Gasparatos, 2018). Engaging suppliers and partners in sustainable practices, firms can build resilient networks that are better equipped to address emerging environmental challenges and regulatory requirements (Singh, 2023). Additionally, by aligning their operations with sustainability goals, firms can attract top talent and enhance their reputation as responsible corporate citizens, thereby strengthening their social license to operate and fostering long-term stakeholder relationships.

Despite the potential benefits, the successful implementation of green product selection practices in Nairobi County may hinge upon overcoming various barriers, including limited access to green technology and financing, inadequate infrastructure, and a lack of awareness and capacity among stakeholders (De Jesus & Aguiar Borges, 2024). Thus, while the literature underscores the transformative potential of green product selection practices, there is a need for tailored strategies and interventions to address the unique challenges and opportunities within the manufacturing landscape of Nairobi County (Ogah & Asiegbu, 2022).

### **2.5.2 Green Supplier Selection and Organizational Performance**

Bakhat and Rajaa (2019) conducted study on Indian textile suppliers' sustainability evaluation using the grey approach. The paper evaluated suppliers within the Indian textile and clothing industry (both garment manufacturers and ancillary suppliers) using sustainability criteria and examining a sample of sixty-three suppliers. The study found out that while initially firms mainly focused on conventional criteria such as price, quality and delivery time; recently firms are moving towards the integration of environmental factors into supplier selection decisions.

The above findings are supported by Baki (2022) who conducted a study on green supplier selection model for high-tech industry and found out that with environmental awareness; increasingly more and more firms are carrying out supplier selection in the light of environmental aspect (Yildizbasi & Arioiz, 2022). Though firms need to consider both environmental and conventional factors in order to select the most appropriate supplier for partnership, they found out that some firms generally considered environmental aspects only, such as pollution production, resource

consumption, eco-design (environmental-conscious design), green image, and environmental management systems.

Shao and Ünal (2019) did a study to explore the link between green purchasing initiatives and business performance. The study targeted 92 organizations in the Philippines. The study found out that, in product content restriction the organization needs to specify that the products purchased should not contain environmentally hazardous attributes (Medalla et al., 2021). The organization requires the suppliers to provide a complete listing of the environment and safety attributes of the product contents of the items it buys from the suppliers. There was a statistically significant relationship between product content restrictions; that is, specifying products must not contain environmentally undesirable attributes and requiring suppliers to provide information about their environmental aspects. Greening/ monitoring suppliers' products content would ultimately lead to green process and thereafter to environmental performance and business performance.

In supplier assessment, most companies put into consideration several factors including green product pollution control green packaging (Akcan & Taş, 2019). Supplier selection and evaluation is a multi-criteria decision-making (MCDM) approach that provides an effective framework for comparing suppliers by considering the qualitative characteristic of environmental performance as an indicator in green supplier selection (Sellitto, 2018). Supplier selection has a critical effect on the competitiveness of the entire supply chain network (Taherdoost & Brard, 2019). Research results indicate that the supplier selection process appears to be the most significant variable in deciding the success of the supply chain. Additionally, selection of suppliers is one of the most important aspects that firms must incorporate into their strategic processes. As

organizations become more and more dependent on suppliers, the direct and indirect consequences of poor decision making in selecting the suppliers will become more critical (Amindoust, 2018). Apart from the common criteria such as cost and quality, this paper discusses the “green” issues which can play an important role in sourcing, and try to suggest critical environmental variables which can be used in supplier selection (Hosseini & Khaled, 2019).

Pollution control is an important parameter which should be accomplished to get priority selected as supplier (Mengistie, 2020). More and more companies want to deal with suppliers which have some special values. Supplier’s attitude toward the pollution is determining for working together. Solid wastes are the wastes disposed to the environment in solid form and cause pollution. Related to the negative effect of pollution the nations, municipalities, corporations and humans create the solid waste management systems (Benavente-Peces & Ibadah, 2020). The incorrectly removal of the solid waste leads to the damage of the health, environment, resource, economy and aesthetic. Thereby, it is obligatory that the wastes should be controlled and regulated by particular programs and directives.

### **2.5.3 Green Product Lifecycle Practice and Organizational Performance**

According to recent research by Pinto (2020), the adoption of green product lifecycle practices significantly influences the organizational performance of manufacturing firms. They argue that green product lifecycle practices, which encompass sustainability considerations throughout the entire product lifecycle from design to disposal, have emerged as a critical factor in driving organizational performance. Integrating environmental considerations into product design, material sourcing, manufacturing processes, distribution, and end-of-life management, firms can achieve

various benefits that positively affect their overall performance (Sahoo & Vijayvargy, 2021).

The study by Tokede and Traverso (2020) highlights the importance of life cycle assessment (LCA) as a tool for evaluating the environmental effects of products throughout their lifecycle. Conducting LCAs, firms can identify areas for improvement and implement strategies to reduce resource consumption, minimize waste generation, and mitigate environmental effects. This not only enhances the environmental sustainability of products but also improves operational efficiency and reduces costs, ultimately contributing to better organizational performance.

Similarly, a study by Ahmad et al. (2022) focuses on the influence of green product lifecycle practices on organizational performance in the context of supply chain management. Their research suggests that firms that adopt green product lifecycle practices experience improved supply chain performance, including enhanced collaboration, transparency, and resilience. In working closely with suppliers, customers, and other stakeholders to integrate environmental considerations into product lifecycle management, firms can achieve greater supply chain efficiency, reduce risks, and enhance overall organizational performance (Balon, 2022).

Furthermore, research by Kalyar et al. (2020) explores the relationship between green product lifecycle practices and financial performance in manufacturing firms. Their study findings indicate that firms that prioritize green product lifecycle practices tend to experience higher profitability, return on investment (ROI), and market value compared to their counterparts (Wang et al., 2020). Investing in sustainable product design, production processes, and supply chain management, these firms are able to

capture value from environmentally conscious consumers, reduce costs through resource efficiency, and gain a competitive advantage in the marketplace.

A study by Taddese et al. (2020) provides further insights into the influence of green product lifecycle practices on organizational performance in manufacturing firms. Their study focuses on the role of eco-design principles in driving sustainability throughout the product lifecycle. They found that firms that implement eco-design practices experience not only environmental benefits but also significant improvements in organizational performance metrics such as cost reduction, product quality enhancement, and market competitiveness (Ebrahimi & Koh, 2021). Designing products with environmental considerations in mind, firms can optimize resource usage, minimize waste generation, and create value for both customers and stakeholders.

The study by Kuo and Smith (2018) indicated that firms that integrate sustainability principles into product development and lifecycle management processes are more likely to innovate and introduce environmentally friendly products that meet customer demand. Leveraging green product lifecycle practices to drive innovation, firms can differentiate themselves in the market, attract environmentally conscious consumers, and gain a competitive edge over rivals (Sarkar et al., 2022).

Moreover, a meta-analysis conducted by Kühnen and Hahn (2018) consolidates evidence from multiple studies to assess the overall influence of green product lifecycle practices on organizational performance. Their analysis reveals a consistent positive relationship between the adoption of green product lifecycle practices and various dimensions of organizational performance, including financial performance, operational efficiency, innovation, and market reputation (Santos et al., 2019). The meta-analysis underscores the importance of integrating environmental considerations

into product lifecycle management to achieve sustainable growth and long-term success in manufacturing firms.

Hassan and Jaaron (2021) contribute to the understanding of the influence of green product lifecycle practices on organizational performance in manufacturing firms. Their study focuses on the implementation of environmental management systems (EMS) and their effect on organizational performance metrics. They found that firms that establish robust EMS, which includes green product lifecycle practices, experience improvements in various aspects of organizational performance, such as cost reduction, risk mitigation, and regulatory compliance. By integrating environmental considerations into their management systems, firms can effectively manage environmental risks and capitalize on opportunities for sustainable growth.

Moreover, the study by Lin (2024) explores the influence of green product lifecycle practices on organizational reputation and brand image. His research suggests that firms that prioritize sustainability throughout the product lifecycle not only enhance their environmental credentials but also improve their brand reputation and market positioning. Communicating their commitment to sustainability and eco-friendly practices, firms can attract environmentally conscious consumers, build brand loyalty, and differentiate themselves from competitors (Qiu et al., 2020). Benkarim and Imbeau (2021) indicate that firms that embrace sustainability principles in their operations tend to have higher levels of employee satisfaction, motivation, and commitment. Promoting a culture of sustainability and providing opportunities for employee involvement in green initiatives, firms can enhance employee morale, productivity, and retention, ultimately contributing to improved organizational performance.

The study by Graham (2018) suggests that firms that collaborate closely with suppliers and other stakeholders to integrate environmental considerations into product design and supply chain management processes experience improvements in supply chain efficiency, responsiveness, and resilience. Fostering collaboration and transparency throughout the supply chain, firms can reduce risks, improve resource utilization, and enhance overall supply chain performance, leading to better organizational performance.

#### **2.5.4 Moderating Effect of Organizational Culture on the Relationship Between Sustainable Green Procurement Practices and Organizational Performance**

Green product selection practice, the process of incorporating environmental considerations into product design and procurement decisions, has gained prominence as a means to improve sustainability and competitiveness in manufacturing firms (Sharma & Foropon, 2019). The adoption of green product selection practices is associated with benefits such as reduced environmental effect, enhanced brand reputation, and improved operational efficiency. However, the effect of green product selection on organizational performance may be contingent upon the prevailing organizational culture within manufacturing firms.

Organizational culture plays a crucial role in shaping attitudes and behaviors towards sustainability initiatives (Bertassini et al., 2021). A culture that values environmental stewardship and social responsibility is likely to facilitate the adoption and implementation of green product selection practices, thereby enhancing organizational performance. A culture that prioritizes short-term financial gains over long-term sustainability goals may hinder the effectiveness of green product selection initiatives (Srisathan et al., 2020). Therefore, understanding how organizational culture moderates

the relationship between green product selection practice and organizational performance is essential for improving sustainability practices within manufacturing firms.

The moderating effect of organizational culture extends beyond green product selection to encompass broader dimensions of organizational performance. A culture that fosters innovation, collaboration, and continuous improvement is likely to support the successful implementation of green product selection practices and drive positive outcomes in terms of financial performance, market competitiveness, and stakeholder satisfaction (Adams et al., 2018). A culture characterized by resistance to change, siloed decision-making, or lack of alignment with sustainability goals may impede the effectiveness of green product selection.

Green supplier selection practice, the process of evaluating and choosing suppliers based on their environmental performance and sustainability practices, has emerged as a key strategy for promoting sustainability within supply chains (Khan et al., 2018). The adoption of green supplier selection practices is associated with various benefits, including reduced environmental effect, enhanced brand reputation, and improved supply chain resilience. However, the effect of green supplier selection on organizational performance may be influenced by the prevailing organizational culture within manufacturing firms.

Organizational culture plays a pivotal role in shaping attitudes and behaviors towards sustainability initiatives (Pellegrini et al., 2018). A culture that values environmental stewardship, ethical business practices, and stakeholder engagement is likely to support the adoption and implementation of green supplier selection practices, thereby enhancing organizational performance. A culture that prioritizes cost reduction and

short-term financial gains over long-term sustainability goals may hinder the effectiveness of green supplier selection initiatives (Laari et al., 2018). Therefore, understanding how organizational culture moderates the relationship between green supplier selection practice and organizational performance is essential for promoting sustainability within manufacturing firms.

The moderating effect of organizational culture extends beyond green supplier selection to encompass broader dimensions of organizational performance. A culture that fosters collaboration, innovation, and continuous improvement is likely to support the successful implementation of green supplier selection practices and drive positive outcomes in terms of financial performance, operational efficiency, and stakeholder satisfaction (Malviya et al., 2018). Conversely, a culture characterized by resistance to change, siloed decision-making, or lack of alignment with sustainability goals may impede the effectiveness of green supplier selection initiatives and limit organizational performance improvements.

Green product lifecycle practice, which encompasses the integration of environmental considerations into product design, manufacturing, distribution, and disposal stages, has become increasingly important for organizations striving to minimize their environmental footprint and enhance sustainability (He et al., 2020). This holistic approach to product management not only reduces environmental effect but also contributes to improved resource efficiency, cost savings, and brand reputation. However, the effect of green product lifecycle practice on organizational performance may be contingent upon the prevailing organizational culture within manufacturing firms.

Organizational culture serves as the foundation for shaping attitudes, behaviors, and decision-making processes related to sustainability initiatives (Elsbach & Stigliani, 2018). A culture that embraces environmental stewardship, innovation, and collaboration is likely to foster the adoption and implementation of green product lifecycle practices, leading to enhanced organizational performance. Conversely, a culture that prioritizes short-term financial gains over long-term sustainability goals may hinder the effectiveness of green product lifecycle initiatives (Aggarwal & Agarwala, 2023). Therefore, understanding how organizational culture moderates the relationship between green product lifecycle practice and organizational performance is essential for promoting sustainability within manufacturing firms.

The extent to which organizational culture moderates the relationship between green product lifecycle practice and organizational performance may vary depending on factors such as leadership support, employee engagement, and organizational values (Khalil & Muneenam, 2021). Firms that cultivate a strong sustainability-oriented culture, supported by committed leadership and engaged employees, are better positioned to leverage green product lifecycle practices as a driver of organizational performance. Firms that fail to address cultural barriers or lack alignment with sustainability values may struggle to realize the full potential of green product lifecycle initiatives in enhancing organizational performance.

## **2.6 Summary of the Reviewed Literature**

From the reviewed literature there was theoretical and methodological gaps where there is a need to develop more comprehensive theoretical frameworks that integrate various aspects of green procurement practices and their effect on organizational performance. There is a lack of empirical studies that validate the theoretical links between green procurement practices and organizational performance across different contexts and industries. The relationship between green procurement practices and supply chain performance needs further empirical investigation to understand the mechanisms of collaboration and integration.

The study by De Jesus and Aguiar Borges (2024) highlights the barriers to implementing green product selection practices in Nairobi County, such as limited access to green technology and inadequate infrastructure. There is a need for tailored strategies and interventions to address these barriers and leverage the unique opportunities within the manufacturing landscape of Nairobi County.

The study by Tseng and Hung (2013) identifies gaps between customers' expectations and their perceptions of green products, emphasizing the importance of aligning product attributes with consumer demand. More research is needed to understand how these gaps can be bridged through effective green marketing and product development strategies. The study by Rupasinghe et al. (2024) identifies several gaps in the knowledge of green innovation, including green innovation behavior, green finance, and barriers to green innovation. There is a need for more systematic literature reviews and empirical studies to fill these gaps and provide a comprehensive understanding of green procurement practices.

Under methodological gaps many studies, including those by El-Kassar and Singh (2019) and Rawashdeh (2018), primarily use cross-sectional designs, which limit the understanding of how green product selection practices evolve over time and their long-term effect on organizational performance. Different studies employ varying metrics to assess organizational performance and green practices. For instance, while some focus on financial metrics, others emphasize operational efficiency or brand reputation. A standardized measurement approach is lacking, making comparisons across studies challenging. Most research relies heavily on quantitative methods, which may overlook qualitative insights. Incorporating mixed methods could provide a more nuanced understanding of the factors influencing green product selection and its effects on performance. Much of the existing research concentrates on larger manufacturing firms. There is a gap in understanding how green product selection practices affect SMEs, particularly in resource-constrained environments.

Under conceptual gaps while studies like those by Abbas (2020) and Goswami (2018) highlight the benefits of green practices, there is a lack of comprehensive theoretical frameworks that integrate various dimensions of sustainability, innovation, and organizational performance. Existing literature often emphasizes the firm's perspective on green practices without adequately considering the views of stakeholders such as customers, suppliers, and regulatory bodies. This gap can lead to an incomplete understanding of the drivers and barriers to effective green product selection. Although some studies touch on innovation as a benefit of green practices, there is limited exploration of how specific green product selection practices foster innovation within organizations. More detailed conceptual models are needed to delineate this relationship.

Under contextual gaps much of the research focuses on specific regions or countries, particularly in developed economies. There is a need for studies that explore the contextual factors influencing green product selection in developing regions, such as Nairobi County, as highlighted by Wanjohi (2020). While some studies address manufacturing broadly, there is a lack of research focusing on specific sectors within manufacturing that may face unique challenges and opportunities regarding green product selection. Although some literature mentions barriers to adopting green practices, there is insufficient exploration of the contextual factors that exacerbate these barriers, such as cultural attitudes towards sustainability, regulatory environments, and economic conditions. The role of digital technologies in enhancing or hindering green product selection practices remains underexplored. Understanding how digital tools can facilitate or complicate these practices is crucial in today's technology-driven landscape.

**Table 2.1 Summary of Literature Reviewed and Research Gaps**

<b>Author</b>	<b>Study Topic</b>	<b>Methodological Approach</b>	<b>Findings</b>	<b>Research Gaps</b>
El-Kassar & Singh (2019)	Green Innovation and Organizational Performance	Quantitative survey; Questionnaire	Green innovation enhances competitiveness and sustainability.	Lacks focus on organizational culture's moderating effects on green practices.
Rawashdeh (2018)	Green HR Management's Effect on Environmental Performance	Quantitative study; Correlation analysis	Positive correlation between green practices and financial performance.	Unspecified sampling methods; lacks exploration of organizational culture's moderating role.
Goswami (2018)	Importance of HR Management in Modern Organizations	Conceptual study; Literature review	Green product selection promotes business growth and environmental conservation.	Lacks empirical data, specific contexts, and methodological clarity.
Abbas (2020)	Effect of TQM on Corporate Green Performance	Quantitative study; Regression analysis	Green practices result in cost savings and better brand reputation.	Does not examine the interaction between organizational culture and green practices.
Ardito & Dangelico (2018)	Strategic and Organizational Orientations & Environmental Performance	Conceptual study; Literature review	Collaboration in supply chains enhances overall firm performance.	Fails to consider the moderating effects of organizational culture on green practices.

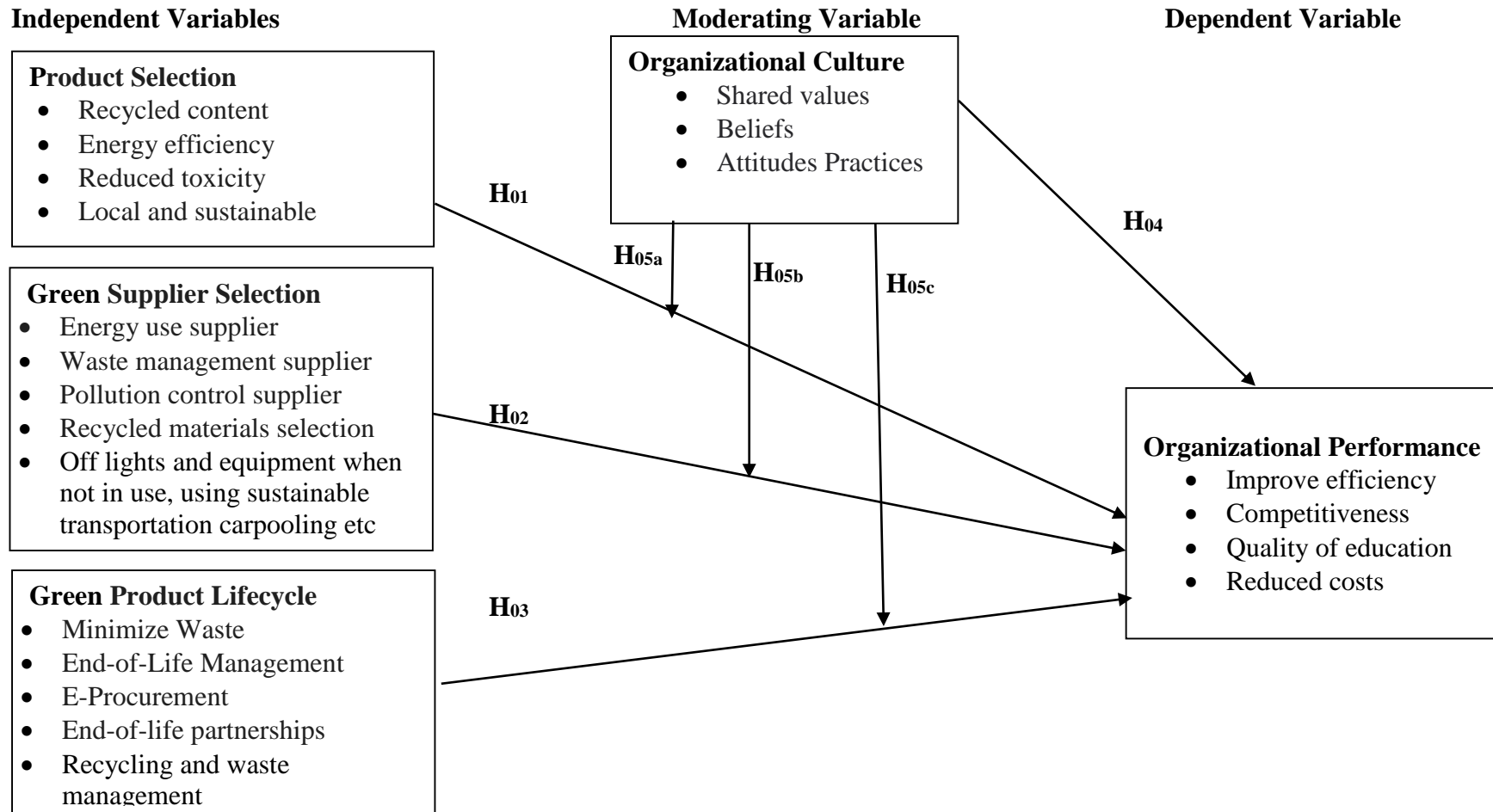
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Abdallah & Al-Ghwayeen (2020)	Green Supply Chain Management and Business Performance	Quantitative study; Structural equation modelling	Green supply chain practices increase efficiency and reduce risks.	Does not explore the moderating role of organizational culture on green supply chain practices.
De Jesus & Aguiar Borges (2024)	Urban Agriculture in Circular Economy	Qualitative case study; Thematic analysis	Limited access to green technology hampers implementation in Nairobi.	Study in Nordic cities; lacks focus on organizational culture in manufacturing contexts.

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## **2.7 Conceptual Framework**

Conceptual framework is a representation of the expected relationships between the independent variable (sustainable green procurement practices), moderator (organizational culture) and dependent variable (organizational performance) in a research study. Conceptual Framework for this study is illustrated in Figure 2.1.



**Figure 2.1 Conceptual Framework**

Source: Researcher (2025)

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Overview**

This chapter describes the methodology that was used in conducting the study. It includes research design, study area, target population, sample size, sampling techniques, data collection instruments, measurements of variables, validity and reliability of the instruments, data collection procedures, data analysis and presentation, assumptions of regression model and ethical considerations.

#### **3.2 Research Philosophy**

This study was guided by the positivist research philosophy, which is grounded in the belief that reality is objective, measurable, and can be understood through empirical observation and logical analysis. Positivism assumes that phenomena can be studied using scientific methods to generate quantifiable and generalizable findings (Saunders, Lewis & Thornhill, 2019). The philosophy is appropriate for this study because it emphasizes the use of structured data collection instruments, objective measurement, and statistical analysis to test hypotheses and examine relationships among variables.

Under the positivist paradigm, the researcher remained independent of the research process, ensuring minimal personal bias in data collection and interpretation. The study focused on observable variables green product selection practices, green supplier selection practices, green product lifecycle practices, organizational culture, and organizational performance which can be objectively measured and analyzed statistically. This aligns with the study's explanatory nature, which sought to determine causal relationships and test the moderating role of organizational culture on the

relationship between sustainable green procurement practices and organizational performance.

The positivist philosophy also aligns with the quantitative research approach employed in this study, as it allows for the use of standardized questionnaires, numerical data, and inferential statistical techniques such as correlation and regression analysis. These methods enable the researcher to identify patterns, test theoretical propositions, and draw generalizable conclusions applicable to manufacturing firms in Nairobi County.

Overall, adopting the positivist philosophy provided a rigorous, structured, and scientific framework for exploring how sustainable green procurement practices and organizational culture interact to influence organizational performance in Kenya's manufacturing sector.

### **3.3 Research Design**

This study utilized an explanatory cross section research design. Explanatory research design is designed to explain and explore a phenomenon in-depth by investigating the underlying reasons, causes and relationships behind it (Makri & Neely, 2021). This aligns well with the objective of the study, which is to understand how organizational culture affect the implementation and effect of sustainable procurement practices in manufacturing firms.

Explanatory research design helps to establish the causal relationships between sustainable procurement practices and firm performance (Wanja & Achuora, 2020). This helps determine the extent to which green practices like green product selection practice, green supplier selection practice, green product lifecycle practice and life cycle costing affect procurement outcomes. Investigate the moderating role of organizational culture in strengthening or weakening the link between sustainable green

procurement practices and organizational performance (Mazharul Islam & Alharthi, 2020). This explains why some firms may benefit more from green practices than others based on their cultural orientation. Furthermore, explanatory research is well-suited for studying topics where there are gaps in existing knowledge. Since the moderating role of organizational culture on sustainable procurement is not well-explored in the Kenyan manufacturing context, the explanatory approach can help fill this research gap.

### **3.4 Study Area**

The study was carried out among manufacturing companies in Nairobi City County. Nairobi City County is the industrial hub of Kenya, with a high concentration of manufacturing firms. According to the Kenya Association of Manufacturers (KAM) (2023), there are 554 large-scale manufacturing companies located in Nairobi City County. This provided a sufficient population size for the study. Manufacturing is a critical sector for Kenya's economic growth, contributing significantly to GDP, employment, and exports. However, the sector faces challenges such as high costs, limited access to markets, and environmental pressures. Studying how manufacturing firms can improve their sustainability and performance through green procurement is highly relevant. Nairobi provided a suitable setting to study the interplay between organizational culture and sustainable procurement due to the diversity of manufacturing firms in terms of size, sector, and ownership. This allowed for a more comprehensive understanding of the phenomenon. The findings of the study provide valuable insights to manufacturing firms in Nairobi on how to foster a culture that supports their green procurement initiatives and enhances their overall performance. This helped the sector become more competitive and environmentally responsible.

### 3.5 Target Population

According to the Kenya Association of Manufacturers (KAM, 2023) directory, there are 554 manufacturing firms operating in Nairobi. The unit of analysis for this study was the manufacturing companies from the 14 sectors while the unit of observation was procurement managers. Therefore, the study targeted 554 procurement managers of all manufacturing companies in Nairobi County. The target population is presented in Table 3.2.

**Table 3.2 Target Population**

<b>Sectors</b>	<b>Firms</b>	<b>Procurement managers</b>
1. Agriculture sector/agro-processing	26	26
2. Automotive	27	27
3. Building, mining and construction	20	20
4. Chemical & allied	70	70
5. Energy, electrical and electronics	34	34
6. Food and beverages	71	71
7. Leather and footwear	7	7
8. Metal and allied	66	66
9. Paper	63	63
10. Pharmaceutical and medical equipment	21	21
11. Plastics and rubber	68	68
12. Textile and apparels sector	35	35
13. Timber	17	17
14. Services and consultants	29	29
<b>Total</b>	<b>554</b>	<b>554</b>

**Source:** KAM) (2023)

### 3.6 Sample Size

The correct sample size in a study is dependent on factors such as the nature of the population to be studied, the purpose of the study, the number of variables in the study, the type of research design, the method of data analysis and the size of the accessible population. The researcher obtained sample size using Yamane formulae (1967).

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size required

N is the population size =554

e is the level of precision =0.05

$$n = \frac{554}{1 + 554(0.05)^2}$$

n =232

Therefore, the sample size was 232 as presented in Table 3.2.

**Table 3.2 Sample Size**

<b>Sectors</b>	<b>Proportion</b>	<b>Sample Size</b>
1. Agriculture sector/agro-	26/554*232	11
2. Automotive	27/554*232	11
3. Building, mining and	20/554*232	8
4. Chemical & allied	70/554*232	29
5. Energy, electrical and	34/554*232	14
6. Food and beverages	71/554*232	30
7. Leather and footwear	7/554*232	3
8. Metal and allied	66/554*232	28
9. Paper	63/554*232	26
10. Pharmaceutical and medical	21/554*232	9
11. Plastics and rubber	68/554*232	28
12. Textile and apparels sector	35/554*232	15

13. Timber	17/554*232	7
14. Services and consultants	29/554*232	12
<b>Total</b>	<b>554/554*232</b>	<b>232</b>

### 3.7 Sampling Techniques

Sampling technique refers to a procedure of selecting a part of population on which research can be conducted, which ensures that conclusions from the study can be generalized to the entire population (Mweshi & Sakyi, 2020). The study used stratified random sampling technique to select respondents from manufacturing companies. The study categorized manufacturing firms into 14 strata. After the population was stratified, the study used proportionate sampling to allocate the number of respondents from each stratum. Proportionate sampling ensures that the number of respondents selected from each group is in direct proportion to the size of that stratum within the overall population. This approach further enhanced the representativeness of the sample, ensuring that both large and small strata were fairly represented according to their actual proportion in the population.

Once the strata were established and the respondents were proportionally allocated, the study used simple random sampling to select the final respondents within each stratum. This means that, after categorizing the firms, each company within a given stratum had an equal probability of being chosen for inclusion in the study. The use of simple random sampling ensured that the selection of firms from each stratum was entirely random and unbiased. No firm was given preference over another, and the selection process was free from researcher influence or external bias. This randomization helped to preserve the integrity of the sampling process and ensured that the sample accurately

represented the broader population of manufacturing companies, both within each stratum and across the entire sample.

Simple random sampling, used after the stratification process, played a crucial role in ensuring fairness and eliminating bias in the selection of respondents. By combining stratified sampling for proper group categorization and simple random sampling for unbiased selection within each group, the study effectively improved the generalizability of its findings. This approach ensured that the sample was representative of the diverse population of manufacturing companies, allowing the conclusions of the study to be applied to the wider population.

### **3.8 Data Collection Instruments**

This research study used structured questionnaires to collect data. Questionnaires is preferred in this study because they are very economical in terms of time, energy and finances. The structured questions were used as they save money and time and facilitate an easier analysis as they are in immediate usable form. The questionnaire was divided into seven sections that included demographic information and the rest covering the four independent variables, the dependent variable and moderating variable questions. The questionnaire adopted a 5-point Likert scale questions. Likert scale for which 5-Strongly Agree, 4-Agree, 3-Undecided, 2-Disagree and 1-Strongly Disagree.

### **3.9 Measurement of Variables**

Research instruments to be used in this study was developed using measures from previous studies. Respondents were asked the extent to which they agree/disagree with a series of statements about their perceptions concerning the variables on a 5-point Likert scale of (5) strongly agree to (1) strongly disagree each variable with five items as shown in Table 3.3.

**Table 3.3 Measurement of Variables**

<b>Variables</b>	<b>Type</b>	<b>No. Items</b>	<b>Unit of Measurement</b>	<b>Source</b>
Organizational Performance	Dependent variable	5	5-point Likert scale	Singh et al., (2018).
Product Selection	Independent variable	5	5-point Likert scale	Garvey & Bolton (2017).
Green Supplier Selection	Independent variable	5	5-point Likert scale	Yazdani <i>et al.</i> 2017
Green Product Lifecycle	Independent variable	5	5-point Likert scale	Ren et al. (2019).
Organizational Culture	Moderator	5	5-point Likert scale	Warrick (2017).

### **3.10 Pilot Study**

Pre-testing of research instruments was achieved through pilot study in manufacturing companies in Nakuru County which had similar characteristics as manufacturing companies in Nairobi County. This assisted in testing for reliability and validity of the research instruments. The researcher used 23 respondents from manufacturing companies in Nakuru County for pilot study representing 10% of the sample population. Lewis et al. (2021) who suggested that 10% of sample population can be consider in determining sample size for pilot studies.

### **3.11 Validity of Research Instruments**

Validity is described as the degree to which the research findings accurately reflect the phenomena under study (Ahmed & Ishtiaq, 2021). In this study, both content validity

and construct validity were considered to ensure the accuracy and relevance of the research instruments. To achieve content validity, supervisors and experts were provided with the questionnaires for review. They analyzed the items to ensure clarity, logical consistency, and relevance. This process involved seeking the perspectives of lecturers to determine the extent to which each item reflected the intended variable. A variable was considered to possess content validity if there was general agreement from existing literature that the questionnaire items comprehensively covered all aspects of the concept being measured (Nordin et al., 2022).

To further establish construct validity, factor analysis was conducted. This statistical technique was used to examine the underlying structure of the data and to confirm whether the questionnaire items accurately represented the theoretical constructs. Items that loaded strongly (typically  $\geq 0.5$ ) on their respective factors indicated that they effectively measured the intended latent variables. Factor analysis thus helped to verify that each construct was distinct and that its items were internally consistent, supporting the instrument's validity in measuring abstract theoretical concepts. This combination of expert validation and statistical testing strengthened the overall validity of the research instruments.

### **3.11.2 Reliability of Research Instruments**

Reliability is the lack of difference in results if the research is repeated or consistency of responses to the questions (Amirrudin et al., 2021). In this study, reliability of research instruments was determined by use of a pilot study where internal consistency was applied. The reliability test was achieved by use of Cronbach's alpha coefficient. Cronbach's alpha coefficient values ranges between 0 and 1 (Kennedy, 2022). Higher

alpha coefficient values mean that scales are more reliable. As a rule of thumb, acceptable alpha was at least 0.70 or above (Schrepp, 2020).

### **3.12 Data Collection Procedures**

The researcher first obtained clearance from University Eldoret. This allowed the researcher to apply for a research permit from the National Council of Science, Technology, and Innovation (NACOSTI) before going to the field. Once permits are obtained the researcher proceeded to manufacturing companies in Nairobi County to ask for permission for data collection in their firms. Once the permission is granted, the researcher arranged to visit the respondents within the firms for familiarization purposes and book intended date for data collection within their departments. The researcher administered questionnaire personally.

### **3.13 Data Processing, Analysis and Presentation**

Data processing involved cleaning, sorting, coding of relevant data from the participants. Statistical Package for Social Science (SPSS) version 25 was used for data analysis which generated information from the data into an observable pattern of the occurrence. Collected data was analysed using both descriptive and inferential statistics.

#### **3.13.1 Descriptive Statistics**

Descriptive statistics was used in this study to describe the basic features of the respondents and data collected. Descriptive statistics includes frequency, means, mode, minimum and maximum and standard deviation.

#### **3.11.2 Inferential Statistics**

Inferential statistics includes correlation and regressions models. Correlation assisted the researcher to describe the linear relationship between independent variables and dependents variable as well as moderator. Multiple linear regression showed direct

effect between the dependent and the independent variables which best predict the value of dependent variable. Moderating effect was tested using hierarchical regression analysis (Baron & Kenny, 1986). Hierarchical regression model

$$OP = \beta_0 + \beta_1GPS + \beta_2GSS + \beta_3GPL + \varepsilon_1 \dots \dots \dots \text{Model 1}$$

$$OP = \beta_0 + \beta_1GPS + \beta_2GSS + \beta_3GPL + \beta_4OC + \varepsilon_2 \dots \dots \dots \text{Model 2}$$

2

$$OP = \beta_0 + \beta_1GPS + \beta_2GSS + \beta_3GPL + \beta_4 OC + \beta_5 OC \cdot GPS + \varepsilon_3 \dots \dots \dots \text{Model 3}$$

3

$$OP = \beta_0 + \beta_1GPS + \beta_2GSS + \beta_3GPL + \beta_4 OC + \beta_5 OC \cdot GPS + \beta_6 OC \cdot GSS + \varepsilon_4 \dots \dots \dots \text{Model 4}$$

4

$$OP = \beta_0 + \beta_1GPS + \beta_2GSS + \beta_3GPL + \beta_4 OC + \beta_5 OC \cdot GPS + \beta_6 OC \cdot GSS + \beta_7 OC \cdot GPL + \varepsilon_5 \dots \dots \dots \text{Model 5}$$

5

**Where:**

**OP** Represents organizational performance of manufacturing firms

**GPS** Represents green product selection practice

**GSS** Represents green supplier selection practice

**GPL** Represents green product lifecycle practice

**OC** Represents organizational culture (the moderator)

$\varepsilon$  represents Error term (Disturbance factors) which represents residual

$\beta_{0+}$  Represents a constant

**From  $\beta_1$  to  $\beta_7$**  represents the regression model's coefficients

Analysed data was presented in form frequency tables and percentages.

### **3.12 Assumptions of Multiple Linear Regression**

Multiple linear regression analysis makes several key assumptions:

#### **3.12.1 Test for Linearity**

There must be a linear relationship between the outcome variable and the independent variables. Tamhane (2020) postulate that a model relating the response variable to the predictors is normally assumed to be linear in the regression parameters. The parameter linearity assumption is often tested by plotting residual against predicted values of the response variable (Jarantow, Pisors & Chiu, 2023), whereby the relationship should take a linear form for this condition to be met. Correlation was used to test linearity assumptions.

#### **3.12.2 Normality Assumptions**

In multiple regression analysis, it is important to ensure that the residuals are normally distributed, as this supports valid statistical inference, including hypothesis testing and confidence interval estimation. The Shapiro-Wilk test is a widely used method for assessing the normality of residuals. It specifically tests the null hypothesis that a sample comes from a normally distributed population. A test statistic ( $W$ ) is calculated, and the resulting p-value determines the outcome. If the p-value is greater than 0.05, the null hypothesis is not rejected, indicating that the residuals are normally distributed and the assumption of normality is satisfied. However, if the p-value is less than or equal to 0.05, the null hypothesis is rejected, suggesting that the residuals significantly deviate from a normal distribution. The Shapiro-Wilk test is considered reliable and effective, particularly for small to moderately sized samples, making it a preferred choice for testing normality in regression analysis.

### **3.12.3 Multicollinearity**

Multiple regressions assume that the independent variables are not highly correlated with each other. This assumption was tested using Variance Inflation Factor (VIF) value. A tolerance of below 0.10 or a VIF greater than 10 is regarded as indicative of serious multicollinearity problem. Tolerance below 0.2 indicated a potential problem. When tolerance is close to 1 it implies that there is little multicollinearity. If tolerance is close to 0, it indicated that multicollinearity may be a threat (Williams, 2015). A VIF greater than 10 is considered unsatisfactory hence the independence variable should be removed from the analysis (Shrestha, 2020).

### **3.12.4 Homoscedasticity**

Homoscedasticity-This assumption states that the variance of error terms is similar across the values of the independent variables. A Levene's test of homogeneity was used to test this hypothesis; this homogeneity variances test is based on the groups mean and is the most robust test. It tests the null hypothesis that the population variances are equal (called homogeneity of variance or homoscedasticity). The assumption of homogeneity of variance is that the variance within each of the populations is equal. Levenes statistic values need to be above significance level of 0.05.

### **3.13 Ethical Considerations**

Firstly, an introduction letter was obtained from the University of Eldoret to authenticate the researcher's status as a bona fide student conducting academic fieldwork on the topic under investigation. This letter was presented to the National Commission for Science, Technology and Innovation (NACOSTI) to obtain the official research authorization letter and permit, in compliance with the Science, Technology and Innovation Act, 2013. All research activities were conducted strictly within the

scope approved by NACOSTI, ensuring adherence to national ethical and regulatory requirements for research involving human participants.

Prior to data collection, the researcher provided respondents with a clear and detailed explanation of the purpose, objectives, and significance of the study, as well as their rights as participants. This process ensured informed consent, where participants voluntarily agreed to take part in the study without coercion, manipulation, or undue influence. The consent process emphasized that participation was purely voluntary and that participants could withdraw from the study at any point without facing any form of penalty or disadvantage.

To maintain anonymity and confidentiality, no identifying information such as names, employee numbers, or company-specific identifiers was recorded in the questionnaires or data analysis. Each respondent was assigned a unique code number to ensure that their responses could not be traced back to them. The researcher guaranteed that all information provided was used exclusively for academic purposes and reported in aggregate form, thereby safeguarding the identity and privacy of participants.

Regarding data security, all collected data both hard copy and digital were securely stored to prevent unauthorized access. Hard copy questionnaires were kept in a locked cabinet accessible only to the researcher, while electronic data were password-protected and encrypted using secure storage devices. Data files were stored on a password-protected computer and backed up on an encrypted drive to prevent data loss. After the completion of the study and final submission of the thesis, all raw data will be retained for five years as per the University of Eldoret's research policy and then permanently deleted or shredded to ensure data protection.

Additionally, the researcher adhered to principles of respect for persons, beneficence, and justice, ensuring that the study posed no physical, psychological, or social harm to participants. The data collection process was conducted in a professional and transparent manner, with respondents assured that their responses would not affect their employment, organizational standing, or professional relationships in any way.

In compliance with NACOSTI's ethical research regulations, the researcher ensured that all procedures respected participants' rights, institutional protocols, and local community norms. The study also complied with the University of Eldoret's Ethical Research Policy, which mandates integrity, accountability, and protection of participants' welfare throughout the research process.

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION

#### 4.1 Overview

This chapter presents the results of data analysis, presentation and interpretation of findings. It begins with descriptive statistics to summarize the characteristics of the respondents and study variables. Reliability and validity of the instruments were tested using Cronbach's Alpha and Exploratory Factor Analysis. Assumption tests were conducted to ensure data suitability for analysis. Correlation and regression analyses were then performed to examine relationships among variables and test the study hypotheses. The results are presented in tables and interpreted in line with the study objectives.

#### 4.2 Response Rate

A response rate is an important metric in survey research, representing the percentage of individuals who complete a survey compared to the total number who did not take part in the survey. The questionnaires were distributed to the procurement managers of all manufacturing companies in Nairobi County. The response rate is presented in Table 4.2

**Table 4.2 Response Rate**

<b>Responses</b>	<b>Frequency</b>	<b>Percentages</b>
Questionnaires Responded	194	83.60
Questionnaires Not responded	38	16.40
<b>Total</b>	<b>232</b>	<b>100</b>

The response rate results in Table 4.1 revealed that out of 232 questionnaires administered to procurement managers, 194 were correctly and fully filled translating

to a response rate of 83.6%. According to Mugenda and Mugenda (1999) response rate above 70% is considered appropriate.

#### **4.2 Demographic Information**

This study examined a number of individual participant characteristics, including the size of the workforce and the duration of time individuals had held their professions. To reduce any potential, influence these factors might have on research findings and to improve understanding of the study's demographic context, these features were investigated. Gender, age group, number of years worked in the firm and the level of education in the manufacturing firms in Nairobi County were among the attributes evaluated by the respondents. Based on the results presented in Table 4.2, the gender distribution of the respondent indicates that majority of the respondent, 105(54.1%) of the total were male. On the other hand, there were 89(45.9%) who were female. These findings indicate that both genders had equal opportunities for inclusion in the study, suggesting a balanced distribution of gender among the participants' respondent.

The age bracket of the respondents as summarized in Table 4.2 indicates that, majority of the respondent, 91(46.9%) of the research participants were between the age bracket of 18 - 30 years of age, 84(43.3%) were between the age of 31–40 years. Moreover, 17(9.8%) of the respondents were aged were over 40 years of age. From Table 4.3, there is a clear indication that majority of the respondent were between the age of 18-30 years because they understand the characteristics and perspectives of the largest section of the population under study.

Further, based on the working experience in the manufacturing firm, the study results also showed that majority 78(40.2%) of the subjects indicated that they had worked in the manufacturing firm for a period of less than 5 years, 53(27.3%) indicated that they

had worked for a period of 5 to 10 years. Additionally, 24(12.4%) of the respondent had works in the manufacturing firm for a period of 10 to 15 years and finally 24(12.4%) indicate that they had worked for more than 16 years. This showed that majority of the respondent were below 5 years of working in the manufacturing firm.

Additionally, Table 4.2 showed that majority of the respondent 68(35.1%) indicated that they had a certificate level of education, 60(30.9%) indicated that they had diploma level of education, 30(15.5%) had a degree level of education, 21(10.8%) had a masters' level of education and finally 15(7.7%) had a PhD level of education. This showed that with 35.1% of the participants having a certificate level of education, it suggests that this is the most common educational attainment within the group

**Table 4.2 Background Information of the Respondents**

<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>
Males	105	54.1
Females	89	45.9
<b>Age Bracket</b>		
18-30	91	46.9
31-40	84	43.3
Above 40 years	19	9.8
<b>Years of operations</b>		
Below 5 years	78	40.2
5-10 Years	53	27.3
10-15 Years	39	20.1
Above 16 Years	24	12.4
<b>Education level</b>		
PhD	15	7.7
Masters	21	10.8
Degree	30	15.5
Diploma	60	30.9

Certificate	68	35.1
<b>Total</b>	<b>194</b>	<b>100.0</b>

### 4.3 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. The study conducted descriptive statistics and summarized the data using involving the frequency, mean and standard deviation of the study variables. Responses were elicited on a 5-point Likert scale of 1-5 where: 1–strongly disagree; 2–disagree; 3-neutral; 4-agree and 5-strongly agree.

#### 4.3.1 Descriptive Statistics for Green Product Selection Practice

The study sought establish influence of green product selection practice on organizational performance of manufacturing firms in Nairobi County. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.4 disagree; while 2.5-3.4 neutral; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree. The mean value of below 2 indicates that a few of the respondents deviated from the mean A total of 5 statements were used to establish influence of green product selection practice on organizational performance of manufacturing firms in Nairobi County. Results are presented in Table 4.3.

**Table 4.3 Descriptive Statistics for Green Product Selection Practice**

<b>Statements</b>		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>	<b>Std</b>
1. The availability of products with a high percentage of recycled materials significantly influences our company's selection process	F	19	29	10	89	47	3.60	1.28
	%	9.8	14.9	5.2	45.9	24.2		
2. When selecting products, our company prioritizes options with high energy efficiency ratings (low energy consumption).	F	18	25	11	86	54	3.69	1.26
	%	9.3	12.9	5.7	44.3	27.8		
3. Our company strongly considers the reduced toxicity of materials and potential health effects during product selection	F	17	30	15	79	53	3.62	1.28
	%	8.8	15.5	7.7	40.7	27.3		
4. Our company prioritizes sourcing products from local suppliers who practice sustainable production methods	F	16	26	15	81	56	3.70	1.25
	%	8.2	13.4	7.7	41.8	28.9		
5. Third-party certifications for recycled content, energy efficiency, and reduced toxicity heavily influence our green product selection	F	16	27	12	86	53	3.69	1.24
	%	8.2	13.9	6.2	44.3	27.3		
<b>Valid N = 194</b>							<b>3.66</b>	

According to the results in Table 4.3, the descriptive statistics findings showed that 136(70.1%) of the respondents agreed that the availability of products with a high percentage of recycled materials significantly influences our company's selection process while 48(24.7%) of the respondents disagreed that the availability of products with a high percentage of recycled materials significantly influences our company's

selection process. The study findings further revealed that the respondent agreed that the availability of products with a high percentage of recycled materials significantly influences our company's selection process with mean rating of 3.60. From the results of standard deviation of 1.27 implies that a few of the respondents also deviated from the mean. These findings imply that the company should continue to prioritize sustainable sourcing practices, as it not only aligns with environmental goals but also resonates with the values of its employees and potentially its customers. The study done by Rathore, (2017) reveals that sustainable marketing strategies focus on promoting products or services in an environmentally and socially responsible way. These strategies not only benefit the planet but also resonate with consumers who are increasingly conscious about sustainability.

Furthermore, 140(72.1%) of the respondents agreed that when selecting products, their company prioritizes options with high energy efficiency ratings (low energy consumption) and 43(22.2%) of the respondents disagreed that when selecting products, our company prioritizes options with high energy efficiency ratings (low energy consumption). However, respondents agreed in terms of mean and standard deviation that when selecting products, our company prioritizes options with high energy efficiency ratings (low energy consumption) with mean rating of 3.69. Additionally, standard deviation of 1.26 indicates that a few of the respondents deviated from the mean. Findings reveals that the company is likely to benefit from aligning its strategies with these shared values, as doing so can enhance employee engagement, improve operational practices, and strengthen the company's overall market position in a landscape increasingly focused on sustainability. These findings are consistent with Eldor, (2020) indicate that collective engagement, fuelled by shared organizational vision, improves service performance.

Further, 132(68.0%) of the respondents agreed that their company strongly considers the reduced toxicity of materials and potential health effects during product selection while those who disagreed are 57(23.3%). The study findings revealed that participants agreed with the statement that their company strongly considers the reduced toxicity of materials and potential health effects during product selection with mean rating of 3.62.

The standard deviation of 1.27 suggests that most respondents had similar views, with only a few deviating from the mean. This implies that the company prioritizes not only the environmental sustainability of its products but also the well-being of consumers and workers by selecting materials that are less harmful to human health. The previous research by Wong et al., (2015) companies like Hewlett-Packard have taken proactive steps to eliminate hazardous materials from their products, demonstrating a commitment to health and environmental stewardship throughout their supply chains.

Similarly, 137(70.7%) of the participants agreed that their company prioritizes sourcing products from local suppliers who practice sustainable production methods. However, 42(21.6%) of the respondents disagreed that their company prioritizes sourcing products from local suppliers who practice sustainable production methods. Further, the study findings revealed that participants agreed towards the statement that their company prioritizes sourcing products from local suppliers who practice sustainable production methods with mean rating of 3.70. The standard deviation of 1.25, which is below 2, indicates that there was low variation in responses, with only a few of the respondents deviating from the general response. This suggests that the company values responsible sourcing practices, which not only contribute to environmental sustainability but also strengthen relationships with local communities and suppliers. According to Villena and Gioia, (2018) reveals that many lower-tier suppliers address

their environmental and labour issues passively and constitute the riskiest suppliers in a supply network.

Finally, 139(71.6%) of the respondents agreed that third-party certifications for recycled content, energy efficiency, and reduced toxicity heavily influence our green product selection and on the other hand 43(22.1%) of the respondents disagreed that third-party certifications for recycled content, energy efficiency, and reduced toxicity heavily influence our green product selection.

Additionally, the study results further revealed that the respondents agreed that the third-party certifications for recycled content, energy efficiency and reduced toxicity heavily influence our green product selection with mean rating of 3.69 and a standard deviation of 1.24 indicates that most of responses deviated from the mean, with only a few differing significantly in their view. These findings are consistent with the study done by Darnall, Ji and Vázquez-Brust, (2018) found that consumers' trust of government and environmental NGOs to provide credible environmental information encourages consumers' use of ecolabels sponsored by these entities, and consumers do not differentiate between certified versus uncertified ecolabels in the presence of trust.

#### **4.3.2 Descriptive Statistics for Green Supplier Selection Practice**

The study sought to determine the influence of green supplier selection practice on organizational performance of manufacturing firms in Nairobi County. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.4 disagree; while 2.5-3.4 neutral; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree. A total of 5 statements were used to determine the influence of green supplier selection practice on organizational performance of manufacturing firms in Nairobi County. Results are illustrated in Table 4.4.

**Table 4.4 Descriptive Statistics for Green supplier selection practice**

<b>Statements</b>		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>	<b>Std</b>
1. When selecting energy suppliers, my firm prioritizes those offering renewable energy sources (solar, wind).	F	16	28	7	81	62	3.75	1.27
	%	8.2	14.4	3.6	41.8	32.0		
2. My firm actively sought out waste management suppliers with strong recycling and waste minimization practices	F	15	36	8	74	61	3.67	1.30
	%	7.7	18.6	4.1	38.1	31.4		
3. My firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies	F	14	34	15	79	52	3.62	1.25
	%	7.2	17.5	7.7	40.7	26.8		
4. In the selection process, my firm gives preference to suppliers that utilize recycled materials in their products or packaging	F	19	32	10	76	57	3.62	1.32
	%	9.8	16.5	5.2	39.2	29.4		
5. My firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain	F	16	31	10	83	54	3.66	1.27
	%	8.2	16.0	5.2	42.8	27.8		
<b>Valid N = 194</b>							<b>3.66</b>	

According to Table 4.4, 143(73.8%) of the respondents agreed that when selecting energy suppliers, their firm prioritizes those offering renewable energy sources (solar, wind). Similarly, 44(22.6%) of the respondents disagreed that when selecting energy suppliers, their firm prioritizes those offering renewable energy sources (solar, wind). Moreover, the study findings revealed that the respondent agreed in terms of mean and standard deviation that when selecting energy suppliers, their firm prioritizes those

offering renewable energy sources (solar, wind) with mean rating of 3.75. The standard deviation of 1.27, which is below 2 suggests low variability in responses, meaning that most participants had similar views. These findings implies that renewable energy sources reflect an awareness of environmental issues and a proactive approach to integrating sustainable practices into the firm's energy procurement processes, positioning the company as a responsible leader in its industry. The study done by Owusu and Asumadu-Sarkodie, (2016) renewable energy has the potential to significantly reduce greenhouse gas emissions compared to fossil fuels, thereby contributing to climate change mitigation and promoting social and economic development

Furthermore, 135(69.5%) of the respondents agreed that their firm actively sought out waste management suppliers with strong recycling and waste minimization practices and 51(26.3%) of the respondents disagreed that their firm actively sought out waste management suppliers with strong recycling and waste minimization practices. However, the respondents agreed that their firm actively sought out waste management suppliers with strong recycling and waste minimization practices with mean rating of 3.67. The standard deviation of 1.30, being below 2, indicates that a few of the respondents deviated from the mean, suggesting that most participants shared similar views, with only a few differing significantly from the overall agreement.

These findings suggest that the organization recognizes the value of partnering with suppliers that not only enhance operational efficiency but also contribute to environmental responsibility. These findings are consistent with Makhdoom et al., (2023) indicated that partnerships aimed at environmental corporate social responsibility (ECSR) can lead to improved financial performance as firms collaborate

to share resources and knowledge, ultimately benefiting both the environment and their bottom line.

Further, 131(67.5%) of the respondent agreed that their firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies and 48(24.7%) of the respondents disagreed that their firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies. Furthermore, the study's findings revealed that the respondents agreed with the statement that their firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies with mean rating of 3.62. The standard deviation of 1.25 indicates that a few of the respondents deviated from the mean. These reflects a growing awareness of environmental sustainability in procurement processes, where firms are increasingly integrating environmental criteria into supplier evaluations. The study done by Ağan, Kuzey, Acar and Açıkğöz, (2016) suppliers that exceed acceptable emission levels are often removed from consideration, ensuring that only those with strong environmental performance are evaluated further.

Similarly, 133(68.6%) of the participants agreed that in the selection process, their firm gives preference to suppliers that utilize recycled materials in their products or packaging. However, 51(26.3%) of the respondents disagreed that in the selection process, their firm gives preference to suppliers that utilize recycled materials in their products or packaging. Further, the study findings also indicated the respondents agreed that in the selection process, their firm gives preference to suppliers that utilize recycled materials in their products or packaging with mean rating of 3.62. The standard deviation of 1.32, which is below 2, suggests that there was low variability in responses, meaning most participants held similar views. The previous research by Gaustad,

Krystofik, Bustamante and Badami, (2018) suppliers who incorporate recycled materials, firms can significantly reduce their environmental effect and contribute to a circular economy, which emphasizes the reuse of resources and waste reduction.

Finally, 137(70.6%) of the respondents agreed that their firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain. On contrary 47(24.2%) of the respondents disagreed that their firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain. Further, the mean rating of 3.66 indicated that the respondents agreed that their firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain. The standard deviation of 1.27 indicates that most of the respondents deviated from the mean.

Similarly, commitment to working with suppliers highlights the organization's proactive approach to sustainability and energy efficiency, recognizing that partnerships can lead to innovative solutions for minimizing energy use. According to Makhdoom *et al.*, (2023) initiatives such as the Renewable Energy and Energy Efficiency Partnership (REEEP) focus on creating market readiness for clean energy solutions, further emphasizing the importance of supplier collaboration in achieving energy efficiency and sustainability objectives.

#### **4.3.3 Descriptive Statistics for Green Product Lifecycle Practice**

The study sought to assess the influence of green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.4 disagree; while 2.5-3.4 neutral; with 3.5- 4.5 being agree and

finally >4.5 represented strongly agree. A total of 5 statements were used to assess the influence of green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County. Results are illustrated in Table 4.5.

**Table 4.5 Descriptive Statistics for Green Product Lifecycle Practice**

Statements		SD	D	N	A	SA	Mean	Std
1 The firm actively sought ways to minimize waste generation throughout the product lifecycle	F	20	27	7	84	56	3.66	1.31
	%	10.3	13.9	3.6	43.3	28.9		
2 The firm have a defined strategy for managing products at the end of their useful life	F	23	26	7	84	54	3.62	1.33
	%	11.9	13.4	3.6	43.3	27.8		
3 The firm utilize e-procurement systems to source environmentally friendly materials and resources	F	16	32	9	76	61	3.69	1.29
	%	8.2	16.5	4.6	39.2	31.4		
4 The firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products	F	19	21	11	79	64	3.76	1.29
	%	9.8	10.8	5.7	40.7	33.0		
5 Minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County	F	14	24	12	92	52	3.74	1.19
	%	7.2	12.4	6.2	47.4	26.8		
<b>Valid N= 194</b>							<b>3.69</b>	

According to the results in Table 4.5, the descriptive statistics findings showed that 140(72.2%) of the respondents agreed that the firm actively sought ways to minimize waste generation throughout the product lifecycle while 47(24.2%) of the respondents

disagreed that the firm actively sought ways to minimize waste generation throughout the product lifecycle. The study findings further revealed that with mean rating of 3.66 reveals that they agreed that the firm actively sought ways to minimize waste generation throughout the product lifecycle. Also, standard deviation of 1.31 indicates the low variability in responses, suggesting that most participants deviated from the mean, with only a few deviating significantly from the overall agreement. These findings agreed with Zorpas, (2020) pursuing waste reduction strategies, the firm is likely focused on enhancing operational efficiency, reducing costs associated with waste disposal, and mitigating environmental effect. These findings agreed with the study done by companies aim to reduce their environmental effect by implementing strategies that focus on waste reduction at every stage, from design and production to disposal. Effective waste management not only conserves resources but also enhances operational efficiency and can lead to significant cost savings.

Furthermore, 138(71.1%) of the respondents agreed that the firm have a defined strategy for managing products at the end of their useful life and 49(25.3%) of the respondents disagreed that that the firm have a defined strategy for managing products at the end of their useful life. However, respondents agreed that that the firm have a defined strategy for managing products at the end of their useful life with mean rating of 3.62 and Standard deviation of 1.33. This implies that a significant portion of participants recognizes the firm's commitment to effective product lifecycle management (PLM), particularly in addressing the end-of-life phase of products.

Having a defined strategy suggests that the firm is proactive in minimizing waste and maximizing resource recovery, which can include recycling, refurbishment, or responsible disposal methods. These findings are consistent with Huang, Shafiee,

Charnley and Encinas-Oropesa, (2022) effective end-of-life management includes strategies such as recycling, repurposing, and responsible disposal, which not only reduce environmental effect but also contribute to a circular economy.

Additionally, majority 137(70.6%) of the respondents agreed that the firm utilize e-procurement systems to source environmentally friendly materials and resources. On contrary to that, 48(24.7%) of the respondents disagreed that the firm utilize e-procurement systems to source environmentally friendly materials and resources. Further, the study results also indicated that the respondents agreed that the firm utilize e-procurement systems to source environmentally friendly materials and resources with mean rating of 3.69. The standard deviation of 1.29 indicates that most of the respondents deviated from the mean. This suggests that the firm is actively integrating eco-friendly sourcing into its procurement strategy, leveraging e-procurement systems to streamline the selection of suppliers based on their environmental performance. These findings agreed with Abdullah and Lim, (2023) digital approach not only streamlines procurement processes but also significantly reduces paper waste, contributing to overall environmental conservation.

Last but not least, 143(73.7%) of the respondents agreed that the firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products. However, 40(20.6%) of the respondents disagreed that the firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products. Analysis on mean of 3.76 revealed that the respondents agreed with the statement that the firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products. Additionally, the standard deviation of 1.29 indicates that the respondents deviated from the mean. This

collaboration indicated a proactive approach to ensuring that products are disposed of responsibly, highlighting the importance of partnerships in enhancing recycling efforts and minimizing environmental effect. These findings are consistent with the study done by Aid, Eklund, Anderberg and Baas, (2017) collaboration with specialized partners is essential for implementing effective waste management strategies, enabling firms to enhance their capacity to reuse or recycle materials and recover valuable resources from end-of-life products instead of sending them to landfills.

Finally, it was noted that 144(73.2%) of the participants agreed that minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County. Conversely to that, it was noted that 38(19.6%) of the respondents disagreed that minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County. Further, the mean rating of 3.74 revealed that the respondents agreed that minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County. Further, the standard deviation of 1.19 indicates that most of the respondents deviated from the mean. The study findings agreed with Mwangi, (2018) found that sustainable manufacturing practices have a significant effect on operational performance in manufacturing firms in Nairobi, Kenya.

#### **4.3.4 Descriptive Statistics for Organizational Culture**

The study sought to determine organizational culture. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.4 disagree; while 2.5-3.4 neutral; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree. A total of 5 statements were used to determine organizational culture. Results are illustrated in Table 4.6.

**Table 4.6 Descriptive Statistics for Organizational Culture**

<b>Statements</b>		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>	<b>Std</b>
1. Our organization has a clear set of values	F	22	23	11	76	62	3.69	1.33
	%	11.3	11.9	5.7	39.2	32.0		
2. Employees are encouraged to be innovative and take risks	F	16	27	6	80	65	3.78	1.27
	%	8.2	13.9	3.1	41.2	33.5		
3. There is a strong sense of teamwork and collaboration in our organization	F	17	27	11	80	59	3.71	1.28
	%	8.8	13.9	5.7	41.2	30.4		
4. Employees feel valued and respected by their managers	F	17	27	12	85	53	3.67	1.26
	%	8.8	13.9	6.2	43.8	27.3		
5. There strong culture of using environmentally friendly inputs	F	15	33	12	76	58	3.67	1.28
	%	7.7	17.0	6.2	39.2	29.9		
<b>Valid N = 194</b>							<b>3.70</b>	

According to Table 4.6, 138(71.2%) of the respondents agreed that their organization has a clear set of values. Additionally, 45(23.2%) of the respondents disagreed that their organization has a clear set of values. Moreover, the study findings revealed that the respondents agreed with the statement that their organization has a clear set of values with mean rating of 3.69 The standard deviation of 1.33 indicates that a few of the respondents deviated from the mean implying while the majority agreed that their organization has a clear set of values, there were some differing opinions, though not widespread enough to suggest major disagreement.

This suggests that the organization fosters a strong, values-driven culture, which can enhance employee engagement, cohesion, and alignment with the company's mission. These findings agreed Az-Zaakiyyah, Ausat and Suherlan, (2024) indicates that a well-

defined set of organizational values serves as a guiding framework for decision-making and behavior within the company, fostering a cohesive culture and aligning employees with the organization's mission.

Similarly, 145(74.7%) of the participants agreed that employees are encouraged to be innovative and take risks. However, 43(22.1%) of the respondents disagreed that employees are encouraged to be innovative and take risks. Further, the study findings revealed that participants agreed that employees are encouraged to be innovative and take risks with mean rating of 3.78. Findings also indicates that the standard deviation of 1.27 reveals that a few of the respondents deviated from the mean. This suggests that the organization values and supports proactive thinking, allowing employees to explore new ideas and approaches without fear of failure. According to Arshi and Rao, (2019) organizations that empower their employees to explore new ideas and take calculated risks often experience increased creativity and engagement, which can lead to groundbreaking innovations and improved processes.

Moreover, 139(71.6%) of the respondents agreed that there is a strong sense of teamwork and collaboration in our organization and on the other hand 44(22.7%) of the respondents disagreed that there is a strong sense of teamwork and collaboration in our organization. Additionally, the study results further revealed that the respondents agreed that there is a strong sense of teamwork and collaboration in our organization with mean rating of 3.71. The standard deviation of 1.28 reveals that a few deviated from the mean, indicating a generally consistent level of agreement with some minor variations in opinion. This suggests that the organization promotes effective communication, mutual support, and shared goals among team members, which can enhance overall productivity and job satisfaction.

A strong sense of teamwork fosters a culture of trust and respect, enabling employees to work together more effectively to solve problems and achieve common objectives. These findings are consistent with the study done by Salas, E., Shuffler, Thayer, Bedwell and Lazzara, (2015) showed that effective teamwork has been shown to lead to increased job satisfaction and higher productivity, as it allows individuals to leverage their diverse skills and perspectives to drive better outcomes

However, 138(71.1%) of the participants agreed that employees feel valued and respected by their managers. On contrary, 44(22.7%) of the participants disagreed that employees feel valued and respected by their managers. Further, the study results also showed that the respondents agreed that employees feel valued and respected by their managers with mean rating of 3.67. Standard deviation of 1.28 indicates that the majority of participants held consistent views, while only a few deviated from the mean. This suggests that managers are likely engaging in practices that foster recognition, appreciation, and respect for their team members, which can enhance employee morale and job satisfaction. When employees feel valued, they are more likely to be motivated, committed, and productive, leading to improved performance and reduced turnover rates. Schein and Schein, (2018) respectful environment encourages open communication and collaboration, allowing team members to express their ideas and concerns freely.

Lastly, vast majority of the respondent 134(69.1%) of the respondents agreed that their strong culture of using environmentally friendly inputs. However, 48(24.7%) of the respondents disagreed that their strong culture of using environmentally friendly inputs. Analysis on mean of 3.66 revealed that the respondents agreed with the statement that their strong culture of using environmentally friendly inputs. Further, the standard

deviation of 1.28 reveals that a few of the respondents deviated from the mean. According to Sharma, Prakash, Kumar, Mussada, Antony and Luthra, (2021) found that the most relevant factor of innovation is the adaptability of green culture and green performance was found as the major outcome and significant mediating role of employee commitment between innovation and green performance.

#### **4.3.5 Descriptive Statistics for Organizational Performance**

The study sought to determine organizational performance of manufacturing firms in Nairobi County. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.4 disagree; while 2.5-3.4 neutral; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree. A total of 5 statements were used to determine organizational performance of manufacturing firms in Nairobi County. Results are illustrated in Table 4.7.

**Table 4.7 Descriptive Statistics for Organizational Performance**

<b>Statements</b>		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>Mean</b>	<b>Std</b>
1. Improved efficiency in production processes has a strong positive effect on overall organizational performance	F	20	27	7	70	70	3.74	1.35
	%	10.3	13.9	3.6	36.1	36.1		
2. To be highly competitive in the market, manufacturing firms have prioritize reducing production costs	F	17	26	7	86	58	3.73	1.26
	%	8.8	13.4	3.6	44.3	29.9		
3. A well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi County manufacturing firms	F	22	26	12	77	57	3.62	1.33
	%	11.3	13.4	6.2	39.7	29.4		
4. Compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County	F	20	27	11	79	57	3.65	1.31
	%	10.3	13.9	5.7	40.7	29.4		
5. There is a positive correlation between employee skill level (through quality education) and production efficiency in Nairobi County manufacturing firms	F	16	20	8	84	66	3.85	1.23
	%	8.2	10.3	4.1	43.3	34.0		
<b>Valid N = 194</b>							<b>3.72</b>	

According to Table 4.7, 140(72.2%) of the respondents agreed that improved efficiency in production processes has a strong positive effect on overall organizational performance and on the other hand 47(24.2%) of the respondents disagreed that improved efficiency in production processes has a strong positive effect on overall organizational performance. Moreover, the study findings revealed that the respondents

agreed with the statement that improved efficiency in production processes has a strong positive effect on overall organizational performance with mean rating of 3.73. The standard deviation of 1.35 reveals that a few of the respondents deviated from the linearity. This suggests that employees understand that streamlined production processes can lead to reduced costs, increased output, and higher quality products or services.

Improved efficiency not only boosts productivity but also allows the organization to respond more quickly to market demands and customer needs, thereby enhancing competitiveness. These findings are consistent with the study done by Marchi and Zanoni, (2017) enhancing production efficiency allows organizations to maximize output while minimizing waste and costs, which directly contributes to higher profitability and competitiveness.

Furthermore, 144(74.2%) of the respondents agreed that to be highly competitive in the market, manufacturing firms have prioritize reducing production costs and 43(22.2%) of the respondents disagreed that to be highly competitive in the market, manufacturing firms have prioritize reducing production costs. However, the respondents agreed that to be highly competitive in the market, manufacturing firms have prioritize reducing production costs with mean rating of 3.73.

Standard deviation of 1.26 reveals that a few of the respondents deviated from the mean. This suggests that employees understand that lower production costs can lead to better pricing strategies, improved profit margins, and enhanced ability to invest in innovation and quality improvements. These findings are consistent with Hussain, Ajmal, Khan and Saber, (2015) show that large manufacturing companies are putting more emphasis on “Know-Why” knowledge attribute in all four competitive priorities for achieving customer focus. While, small size manufacturing companies put higher weight on

“Know-What” knowledge attribute by focussing on two competitive priorities (flexibility and quality).

Further, 134(69.1%) of the respondent agreed that a well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi County manufacturing firms and 48(24.7%) of the respondents disagreed that a well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi County manufacturing firms. Furthermore, the study findings revealed that the respondents agreed with the statement that a well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi County manufacturing firms with mean rating of 3.62. The standard deviation of 1.33 reveals that a few of the respondents deviated from the mean. The study done by Mwangi, (2015) found out that top management commitment, employees’ training, continuous improvement of products and services and communication were all critical since they had positive influence in the implementation of TQM.

Similarly, 136(70.1%) of the participants agreed that compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County. However, 47(24.2%) of the respondents disagreed that compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County. Further, the study findings also indicated the respondents agreed that compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County with mean rating of 3.65. The standard deviation of 1.31 reveals that a few of the respondents deviated from the mean.

These findings indicate an understanding that lower production costs can enhance profitability, improve competitiveness, and allow for more flexible pricing strategies in a challenging market. It also suggests that employees recognize the importance of operational efficiency and effective cost management as essential components for achieving superior performance. The previous research by Kiveu, Namusonge and Muathe, (2019) indicate 97% of the manufacturing SMEs were innovating with majority implementing incremental innovations. Process, marketing and organisational innovations had positive significant effect on competitiveness, while product innovation had positive non-significant effect.

Finally, 150(77.3%) of the respondents agreed that there is a positive correlation between employee skill level (through quality education) and production efficiency in Nairobi County manufacturing firms. On contrary 36(18.5%) of the respondents disagreed that there is a positive correlation between employee skill level (through quality education) and production efficiency in Nairobi County manufacturing firms. Further, the mean rating of 3.85 indicated that the respondents agreed that there is a positive correlation between employee skill level (through quality education) and production efficiency in Nairobi County manufacturing firms the standard deviation of 1.23 indicates that a few of the respondents deviated from the mean.

These findings agreed with Ambula, (2015) findings revealed that a learning organization positively influences firm performance, showing a significant positive relationship with both financial and non-financial performance. However, the study found insufficient evidence to support the mediation effect of employee outcomes in the link between learning organization and firm performance. Likewise, it concluded

that knowledge management does not moderate the relationship between learning organization and firm performance.

#### 4.4 Reliability of Research Instruments

Reliability is the lack of difference in results if the research is repeated or consistency of responses to the questions (Amirrudin et al., 2021). In this study, reliability of research instruments was determined by use of a pilot study where internal consistency was applied. The reliability test was achieved by use of Cronbach's alpha coefficient. Cronbach's alpha coefficient values range between 0 and 1 (Kennedy, 2022). Higher alpha coefficient values mean that scales are more reliable. As a rule of thumb, acceptable alpha was at least 0.70 or above (Schrepp, 2020). The Reliability Test results are presented in the Table 4.8.

**Table 4.8 Reliability Test Results**

<b>Variables</b>	<b>Cronbach's Alpha</b>	<b>N of Items</b>	<b>Comment</b>
Green product selection practice	.754	5	Reliable
Green supplier selection practice	.739	5	Reliable
Green product lifecycle practice	.710	5	Reliable
Organizational culture	.743	5	Reliable
Organizational performance	.769	5	Reliable

The study results in Table 4.8 revealed that green product selection practice' has a Cronbach's Alpha of .754, indicating good reliability, as values above 0.7 are generally considered acceptable. Similarly, green supplier selection practice' .739 and 'Organizational culture' 0.743 also demonstrate acceptable internal consistency. The 'Green product lifecycle practice' showed a slightly lower alpha of .710 but remains within the acceptable range. Additionally, the highest reliability is observed in

‘Organizational performance of manufacturing firms in Nairobi County,’ with an alpha of .769, suggesting strong internal consistency among the items measuring this construct. All constructs consist of five items, reflecting a well-structured approach to measuring these dimensions.

#### **4.5 Validity Test Results**

The study used factor analysis to test for validity of research instruments. Factor analysis was conducted to identify latent variables in the data constructs and to prepare the data for regression analysis (Williams et al., 2010; Idinga, 2015). The study employed Exploratory Factor Analysis (EFA) to explore the underlying factor structure (Idinga, 2015). The study findings in Table 4.9 revealed that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielding a value of 0.719. This result falls within the "middling" range, indicating that the sample size and correlations among variables were adequate for factor analysis. Additionally, Bartlett's Test of Sphericity was statistically significant ( $\chi^2 = 1382.117$ ,  $df = 210$ ,  $p = .000$ ), confirming that the correlation matrix was not an identity matrix and that factor analysis was appropriate.

The EFA extracted five components with eigenvalues greater than 1, collectively accounting for 61.32% of the total variance. This level of explained variance exceeds the minimum threshold of 50% commonly accepted in the social sciences, suggesting a strong factor structure. Each component was interpreted based on the thematic grouping of variables with high loadings. The first component, which explained 15.178% of the variance, encompassed items related to organizational performance, such as production efficiency, cost reduction, and workforce quality. These items all loaded strongly (above 0.70), indicating a coherent dimension that captures strategic performance drivers within manufacturing firms in Nairobi County.

The second component, explaining 13.139% of the variance, was categorized as green product selection practices. Items within this factor focused on how companies prioritize energy efficiency, low toxicity, and sustainable sourcing during procurement. Notably, these items had high loadings (e.g., 0.866 for prioritizing local sustainable products), indicating a solid representation of environmental considerations in procurement decisions. The third component, accounting for 12.172% of the variance, was labelled green product lifecycle practices. This dimension included practices such as waste minimization, end-of-life product strategies, and collaboration with recyclers. The items had loadings between 0.708 and 0.793, showing a moderate to strong association with the latent construct.

The fourth component, labelled organizational culture, accounted for 10.937% of the variance. These items had high loadings, including 0.857 for encouraging innovation and risk-taking, suggesting that the internal environment significantly influences organizational success. Lastly, the fifth component, which explained 9.896% of the variance, pertained to green supplier selection practices. This factor focused on how firms evaluate potential suppliers based on pollution control, use of recycled materials, and commitment to renewable energy. The high factor loadings (0.775 for emissions control consideration) further reinforce the importance of sustainable supplier criteria.

**Table 4.9 Factor Analysis Results**

Statements	Component				
	1	2	3	4	5
Improved efficiency in production processes has a strong positive effect on overall organizational performance.			.764		
To be highly competitive in the market, manufacturing firms have prioritize reducing production costs.			.875		
A well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi County manufacturing firms.			.788		
Compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County.			.756		
The availability of products with a high percentage of recycled materials significantly influences our company's selection process.		.766			
When selecting products, our company prioritizes options with high energy efficiency ratings (low energy consumption).		.646			
Our company strongly considers the reduced toxicity of materials and potential health effects during product selection.		.784			
Our company prioritizes sourcing products from local suppliers who practice sustainable production methods.		.866			
The firm actively sought ways to minimize waste generation throughout the product lifecycle					.793
The firm have a defined strategy for managing products at the end of their useful life					.751
The firm utilize e-procurement systems to source environmentally friendly materials and resources					.746
The firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products					.708
Our organization has a clear set of values.	.711				
Employees are encouraged to be innovative and take risks.	.857				
There is a strong sense of teamwork and collaboration in our organization.	.836				
Employees feel valued and respected by their managers.	.841				

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When selecting energy suppliers, my firm prioritizes those offering renewable energy sources (solar, wind).						.774
My firm actively sought out waste management suppliers with strong recycling and waste minimization practices.						.658
My firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies.						.775
In the selection process, my firm gives preference to suppliers that utilize recycled materials in their products or packaging.						.662
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.					.719	
Bartlett's Test of Sphericity Approx. Chi-Square					1382.117	
Df					210	
Sig.					.000	
Total					3.187	2.759 2.556 2.297 2.078
% of Variance					15.178	13.139 12.172 10.937 9.896

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#### **4.6 Data Transformation**

The data in Table 4.10 presents the results of a descriptive statistical analysis for five key variables measured across 194 participants. These variables include organizational performance, green product selection practice, green supplier selection practice, green product lifecycle practice, and organizational culture. The statistical measures provided in the table include the number of valid cases (N), minimum and maximum values, means, standard deviations, skewness, and kurtosis for each variable.

The data for each variable was originally collected using a Likert-type scale ranging from 1 to 5, where 1 represented the lowest possible agreement or perception, and 5 represented the highest. Since Likert-scale data is typically ordinal, the raw responses were transformed into numerical data to facilitate a more comprehensive descriptive analysis. This transformation allows the data to be treated as interval-level data for the purpose of calculating means, standard deviations, skewness, and kurtosis. These transformations allowed for a clearer interpretation of the relationships between the study variables, supporting further analysis on how organizational culture moderates the relationship between green procurement practices and organizational performance.

In terms of central tendency, the mean scores for all five variables are relatively high and closely grouped, ranging from 3.65 to 3.71. This suggests that participants generally held positive views about organizational performance and the implementation of green practices within their organizations. Specifically, organizational culture had the highest mean (3.71), indicating that it may be the most favourably perceived aspect among respondents. Meanwhile, green product selection practice had the lowest mean (3.65), but even this value still reflects an overall positive evaluation.

The standard deviations across variables are moderate, ranging from approximately 0.90 to 1.05, suggesting a reasonable amount of variability in the responses. This implies that while most respondents viewed the variables positively, there was still some variation in opinion. Organizational performance and organizational culture had the highest standard deviations (1.05), indicating that perceptions in these areas were slightly more varied compared to others.

Regarding the shape of the data distribution, all variables show negative skewness values (ranging from -0.893 to -1.085), meaning the distributions are left-skewed. This indicates that most responses were on the higher end of the scale, further supporting the interpretation that participants viewed these organizational and green practices positively. The kurtosis values, which range from 0.231 to 1.089, suggest that the data are either normally distributed or slightly more peaked than a normal distribution. This peakiness implies that many responses clustered around the mean, reinforcing the consistency of positive attitudes among respondents.



## 4.7 Testing of Regression Assumptions

Data for these variables were consequently examined for regression assumptions; linearity, normality, homoscedasticity, multicollinearity and autocorrelation.

### 4.7.1 Test of Linearity Results

The test of linearity assesses the relationship between the organizational performance of manufacturing firms and the various green practices along with the moderating factor as well as their respective correlations. This analysis is important because understanding these relationships helps determine if a linear regression model is appropriate for further analysis and insights. The results are presented in Table 4.11.

**Table 4.11 Linearity Test Results**

<b>Variables</b>	<b>Linearity</b>	<b>Deviation from Linearity</b>
Green product selection practice	.000	.126
Green supplier selection practice	.000	.117
Green product lifecycle practice	.000	.109
Organizational culture	.000	.121

The results presented in Table 4.11, which pertain to the linearity test, indicate that all variables examined namely, green product selection practice, green supplier selection practice, green product lifecycle practice, and organizational culture demonstrate a statistically significant linear relationship with the dependent variable. This is evidenced by the p-values for the linearity test, which are 0.000 for each of the variables. A p-value of 0.000 is well below the conventional threshold of 0.05, thereby confirming the presence of a significant linear relationship between each independent variable and the dependent variable.

Furthermore, the p-values for the deviation from linearity test are 0.126, 0.117, 0.109, and 0.121 for the respective variables, all of which exceed the standard significance level of 0.05. This suggests that there is no statistically significant deviation from linearity for any of the variables tested. In other words, the relationships between these variables and the dependent variable do not display any notable non-linear patterns.

The findings indicate that the relationships between the green procurement practices such as green product selection, green supplier selection, green product lifecycle practices and organizational culture with the dependent variable are linear. Additionally, there is no evidence to suggest that these relationships are significantly influenced by non-linear factors. Similar findings are reported in Hervani et al. (2005), where sustainable practices in the product lifecycle contributed significantly to enhancing firm performance, particularly in reducing costs and improving customer loyalty.

#### **4.7.2 Normality Assumption Test**

The Shapiro-Wilk test is used to assess whether a variable follows a normal distribution. The null hypothesis of the Shapiro-Wilk test is that the data is normally distributed. If the p-value (Sig.) is greater than the chosen significance level (usually 0.05), we fail to reject the null hypothesis, indicating that the data is normally distributed. The results are presented in Table 4.12.

**Table 4.12 Shapiro-Wilk test**

<b>Variables</b>	<b>Statistic</b>	<b>Sig.</b>
Green product selection practice	.842	.131
Green supplier selection practice	.798	.136
Green product lifecycle practice	.808	.117

Organizational culture	.850	.136
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The Shapiro-Wilk test results shown in Table 4.12 showed that green product selection has a test statistic of 0.842 and a p-value of 0.131, which is greater than 0.05 showing that the data for green product selection follows a normal distribution. Green Supplier Selection showed a test statistic of 0.798 and a p-value of 0.136, which is also greater than 0.05 hence data for green supplier selection is normally distributed. Green product lifecycle has a test statistic of 0.808 and a p-value of 0.117, greater than 0.05, leading to the conclusion that the data for green product lifecycle is normally distributed. Organizational culture has a test statistic of 0.850 and a p-value of 0.136, which is greater than 0.05 as well implying that the data for organizational culture is normally distributed.

The results showed that all the variables involved green product selection, green supplier selection, green product lifecycle practices, and organizational culture follow normal distributions. This aligns with the findings from Kline (2011), who emphasized the importance of ensuring normality for valid regression analysis. In addition, Schmidt and Finan, (2018) suggest that when variables exhibit normality, regression models are more reliable, leading to more accurate estimates of the coefficients. Given that all variables in this study show normal distributions, this enhances the robustness of subsequent statistical analyses, such as regression modelling, making them more likely to produce reliable and valid results. Thus, the normality of the data supports the use of parametric tests, such as regression analysis, which will allow for a clearer understanding of the relationships between the green practices and organizational performance, as well as the moderating effect of organizational culture.

### 4.7.3 Multicollinearity Assumption Test

Multicollinearity occurs when two or more predictor variables in a regression model are highly correlated with each other, which can lead to unreliable estimates of the regression coefficients. The Variance Inflation Factor (VIF) and Tolerance are two common diagnostic tools used to check for multicollinearity. The results are presented in Table 4.13.

**Table 4.13 Tolerance and Variance Inflation Factor Test**

<b>Variables</b>	<b>Tolerance</b>	<b>VIF</b>
Green product selection practice	.526	1.902
Green supplier selection practice	.352	2.843
Green product lifecycle practice	.424	2.361
Organizational culture	.929	1.077

The study findings in Table 4.13 revealed that green product selection had Tolerance value of 0.526 and the VIF of 1.902. Both values suggest that there is no significant multicollinearity concerning green product selection, as the VIF is well below the threshold of 10, and the tolerance is above 0.1. Green supplier selection had the Tolerance value of 0.352 and the VIF of 2.843. Although the VIF is slightly higher than green supplier selection, it still remains below the 10 thresholds, indicating no serious multicollinearity problem for this variable.

Green product lifecycle had Tolerance of 0.424 and a VIF of 2.361, hence does not exhibit significant multicollinearity. The VIF is less than 10, and the Tolerance value is above 0.1, which is acceptable. Organizational culture had Tolerance value is 0.929, and the VIF is 1.077. These values suggest that organizational culture is not subject to

any significant multicollinearity, as the VIF is far below the critical value of 10, and the Tolerance value is comfortably above 0.1.

The results from the multicollinearity test in Table 4.13 suggest that multicollinearity is not a problem in this model. This is consistent with recommendations from Field (2013), who stated that for most models, VIF values less than 5 are generally acceptable, and values between 5 and 10 may indicate moderate multicollinearity that could affect interpretation. The current study's VIF values are well below the critical threshold of 10, indicating that the model's predictors are not excessively correlated. Additionally, Hair et al. (2010) emphasize that collinearity diagnostics should be performed to ensure that independent variables do not contain redundant information, which could affect the stability of regression estimates. The results from this study support this practice, confirming that the multicollinearity assumption is satisfied and the regression model is reliable.

#### **4.7.4 Homoscedasticity Assumption Test Results**

Homoscedasticity refers to the assumption that the variance of the errors (residuals) is constant across all levels of the independent variables in a regression model. If this assumption is violated, it can lead to inefficient estimates and affect the reliability of statistical tests. The Levene's test is commonly used to assess homoscedasticity. The null hypothesis of Levene's test is that the variances are equal across the groups being compared. If the p-value (Sig.) is greater than 0.05, we fail to reject the null hypothesis, indicating that homoscedasticity holds. The results are presented in Table 4.14.

**Table 4.14 Levene's Test Results**

<b>Variable</b>	<b>Levene Statistic</b>	<b>df1</b>	<b>df2</b>	<b>Sig.</b>
Green product selection practice	3.955	27	166	.195
Green supplier selection practice	3.485	29	164	.120
Green product lifecycle practice	2.552	27	166	.153
Organizational culture	2.117	34	159	.105

The Levene's test results for homoscedasticity in Table 4.14 revealed that green product selection had Levene Statistic of 3.955, with a p-value of 0.195, which is greater than the typical threshold of 0.05. This indicated that there is no significant difference in variances, and the assumption of homoscedasticity holds for this variable.

Green supplier selection had Levene Statistic of 3.485, with a p-value of 0.120, which is also greater than 0.05 suggesting that the variance of residuals is constant for this variable as well. Green product lifecycle had Levene Statistic of 2.552 and a p-value of 0.153, the result is again above 0.05. This indicated that the variance of residuals for green product lifecycle is consistent, and homoscedasticity holds. Organizational culture had Levene Statistic of 2.117, with a p-value of 0.105, which is also greater than 0.05. Hence, there is no significant evidence to suggest heteroscedasticity for this variable.

The results in Table 4.14 align with the findings in Field (2013), who discussed the importance of homoscedasticity in regression models. In general, a p-value greater than 0.05 for Levene's test indicated that the assumption of constant variance holds. This is further supported by Tabachnick and Fidell (2013), who recommended using Levene's

test to check for homogeneity of variance, especially when dealing with multiple predictors in regression analysis.

#### 4.8 Inferential Analysis Results

Inferential analyses used in this section were correlation and regression models. Correlation and regression analysis showed the relationship between independent variables and the dependent variable.

##### 4.8.1 Correlation Analysis Results

Pearson correlation analysis was carried out to show the strength and direction of the association between independent and dependent variables. Table 4.15 presents the results.

**Table 4.15 Correlation Analysis Results**

<b>Variables</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Organizational performance	1				
Green product selection practice	.601**	1			
Green supplier selection practice	.672**	.663**	1		
Green product life cycle practice	.676**	.598**	.747**	1	
Organization culture	.214**	0.043	.226**	.145*	1

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

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

The study findings presented in Table 4.15 indicate that green product selection practice and organizational performance of manufacturing firms in Nairobi County had a moderate, positive, and statistically significant correlation ( $r = 0.601^{**}$ ,  $p < 0.01$ ). This implies that as firms increase their focus on selecting environmentally friendly products such as those with recycled content, low toxicity and energy efficiency they are likely to experience improved organizational outcomes. Similarly, green supplier selection practice was also found to have a moderate and positive correlation with organizational

performance of manufacturing firms in Nairobi County ( $r = 0.672^{**}$ ,  $p < 0.01$ ), implying that engaging suppliers who adhere to sustainable practices contributes meaningfully to a firm's operational success.

Further, green product lifecycle practice shows a moderate, positive and statistically significant relationship with organizational performance of manufacturing firms in Nairobi County ( $r = 0.676^{**}$ ,  $p < 0.01$ ), indicating that practices such as minimizing waste, responsible end-of-life management and use of e-procurement systems positively influence performance outcomes. Finally, the study established a statistically significant but relatively weak positive correlation between organizational culture and organizational performance of manufacturing firms in Nairobi County ( $r = 0.214^{**}$ ,  $p < 0.01$ ), implying that while a supportive culture enhances performance, its effect is not as strong as the direct effects of green procurement practices. Orodho (2003) a strong correlation means that two or more variables have a strong relationship with each other while a weak or low, correlation means that the variables are hardly related.

#### **4.9 Hierarchical Moderated Regression Analysis**

Hierarchical regression analysis is used to examine how a moderator variable (organizational culture) influences the relationship between the independent variables (green product selection practice, green supplier selection practice, green product lifecycle practice) and the dependent variable (organizational performance). The analysis involves adding the moderator variable and interaction terms step-by-step into the regression model to observe the changes in R-squared ( $R^2$ ) and the significance of the F-change. These tests help identify if the moderator has a significant effect on the strength or direction of the relationship between the predictors and the dependent variables.

**Table 4.16 Hierarchical Moderated Regression Analysis**

	Model 1		Model 2		Model 3		Model 4		Model 5	
	$\beta$	Sig.	$\beta$	Sig.	$\beta$	Sig.	$\beta$	Sig.	$\beta$	Sig.
(Constant)	.930***	.000	.766***	.000	.483***	.005	.710***	.000	.359	.166
Green product selection practice	.165**	.002	.179***	.001	.295***	.000	.280***	.000	.236***	.001
Green supplier selection practice	.226***	.001	.196**	.004	.223***	.001	.175*	.014	.148*	.038
Green product lifecycle practice	.306***	.000	.307***	.000	.288***	.000	.246***	.000	.470***	.000
Organizational culture			.074*	.047	.188***	.001	.112	.083	.243**	.007
M* Green product selection practice					-.048**	.004	-.050**	.003	-.036*	.045
M* Green supplier selection practice							.035*	.036	.049**	.006
M* Green product lifecycle practice									-.084*	.036
R <sup>2</sup>	.545		.554		.573		.583		.593	
R Square Change	.545		.009		.010		.010		.010	
F	75.789		58.735		50.465		43.573		38.684	

Note: \* p  $\leq$  .05, \*\* p  $\leq$  .01, \*\*\* p  $\leq$  .001

The hierarchical regression analysis showed the progression of the model as various predictors and interaction terms are added step-by-step. The initial model 1 includes only the independent variables (green product selection practice, green supplier selection practice and green supplier lifecycle practice), with an  $R^2$  of 0.545 and an Adjusted  $R^2$  of 0.538. The F-change is 75.789, with a p-value of 0.000, indicating that the model significantly explains the variance in the dependent variable (organizational performance).

In this model 2, organizational culture is added as a moderator variable. This leads to a small increase in  $R^2$  (from 0.545 to 0.554), which corresponds to a 0.009  $R^2$  change. The F-change value is 3.991, with a p-value of 0.047, which is statistically significant. This indicated that the inclusion of the organizational culture significantly improves the model, suggesting that organizational culture has a moderate influence on the relationship between green practices and organizational performance.

In Model 3 the interaction terms between organizational culture and green product selection practice, are added, resulting in an increase in  $R^2$  from 0.554 to 0.573 (a 0.019  $R^2$  change). The F-change is 8.306, with a p-value of 0.004, indicating that the interaction between organizational culture and green product selection practice significantly enhances the model. This showed that organizational culture strengthens the effect of green product selection practice on organizational performance.

In Model 4 the interaction term between organizational culture and green supplier selection practice is added, resulting in a small increase in  $R^2$  from 0.573 to 0.583 (a 0.010  $R^2$  change). The F-change is 4.463, with a p-value of 0.036, suggesting that the interaction between organizational culture and green supplier selection practice also significantly improves the model. This indicated that organizational culture further

moderates the relationship between green supplier selection and organizational performance.

In Model 5 the interaction term between organizational culture and green supplier lifecycle practice is included, with a similar  $R^2$  increase from 0.583 to 0.593 (a 0.010  $R^2$  change). The F-change is 4.483, with a p-value of 0.036, suggesting that the interaction between organizational culture and green supplier lifecycle practice also significantly contributes to explaining organizational performance. This showed that organizational culture moderates the relationship between green product lifecycle practices and organizational performance.

The findings from this hierarchical moderated regression analysis are consistent with studies that emphasize the moderating role of organizational culture in shaping the effectiveness of green practices. For instance, Brockman et al. (2016) found that organizational culture can enhance the effect of sustainable practices by aligning them with the company's values and strategies. Similarly, Lee et al. (2012) found that organizational culture moderated the relationship between green practices and firm performance, supporting the notion that cultural alignment is crucial for the successful implementation of sustainability strategies. Moreover, the  $R^2$  changes and F-change values observed in this study align with Baron and Kenny's (1986) framework for testing moderation, where significant changes in  $R^2$  and F-change after the inclusion of interaction terms indicate that the moderator (organizational culture) has a substantial effect on the relationship between independent variables and the dependent variable.

The ANOVA (Analysis of Variance) test evaluates the overall fitness of the regression model by comparing the variance explained by the model (regression sum of squares) with the residual variance (unexplained variance). The F-statistic is used to assess

whether the model explains a significant portion of the variance in the dependent variable (Y). If the p-value (Sig.) is less than 0.05, the model is considered to fit the data significantly.

Table 4.16 shows the fitness of each regression model as it progresses through the inclusion of different predictors and interaction terms. Each model assesses whether the model explains a significant amount of variance in organizational performance. The key aspects to focus on are the F-statistics and p-values (Sig.) for each model.

In Model 1 the F-statistic for the regression is 75.789, with a p-value of 0.000, indicating that Model 1 significantly explains the variance in organizational performance. This model includes the independent variables (Green Product Selection), (Green Supplier Selection) and (Green Product Lifecycle). The significance of the model suggests that these green practices collectively have a significant effect on organizational performance.

In Model 2 the F-statistic is 58.735, with a p-value of 0.000, showing that the inclusion of the moderator (Organizational Culture) improves the model's explanatory power. The addition of organizational culture as a predictor leads to a better fit, suggesting that organizational culture plays a role in explaining the variance in organizational performance.

In model 3 the F-statistic for this model is 50.465, with a p-value of 0.000. The addition of the interaction term between organizational culture and green product selection practice significantly improves the model fit. The model indicated that the interaction between organizational culture and green product selection practices enhances the explanation of organizational performance.

In Model 4 the F-statistic is 43.573, with a p-value of 0.000. The inclusion of the interaction term between organizational culture and green supplier selection practice significantly improves the model. This result showed that organizational culture moderates the relationship between green supplier selection practices and organizational performance.

In model 5 the F-statistic is 38.684, with a p-value of 0.000, indicating that the final model, which includes the interaction term between organizational culture and green supplier lifecycle practice, further improves the model fit. This suggests that organizational culture also moderates the relationship between green product lifecycle practices and organizational performance, contributing to a better overall model.

The results are consistent with studies on moderated regression, such as those by Baron and Kenny (1986) and Aiken and West (1991), which explain that the significance of interaction terms in hierarchical models reflects the moderating effect. These findings align with research by Zhang et al. (2016), who found that moderators like organizational culture strengthen the relationship between green practices and firm performance. Similarly, Dangelico & Pujari (2010) noted that the interaction between environmental practices and organizational factors (like culture) could significantly enhance a firm's sustainability outcomes. Moreover, the F-statistics and significant p-values for each model support the findings of Field (2013), who emphasized that a significant F-statistic indicated that the model is a good fit, and the inclusion of moderators and interaction terms improves the model's explanatory power.

The coefficients in Table 4.16 presents the results of the regression models, showing the effect of each predictor (and interaction term) on the dependent variable (Y) (organizational performance). The unstandardized coefficients (B) represent the raw

effect of each predictor on organizational performance, while the standardized coefficients (Beta) indicate the relative importance of each predictor. The t-statistics and p-values (Sig.) assess the statistical significance of each predictor.

Regression coefficients result of model 1 in Table 4.16 showed that green product selection had a positive and significant effect on organizational performance ( $\beta_1=0.165$ ,  $p<.05$ ). Green supplier selection had a positive and significant effect on organizational performance ( $\beta_2=0.226$ ,  $p<.05$ ). Green product lifecycle had a positive and significant effect on organizational performance ( $\beta_3=0.306$ ,  $p<.05$ ). In model 2 organizational culture is added as a moderator. Its unstandardized coefficient is 0.074, with a standardized Beta of 0.101. The p-value of 0.047 indicated that organizational culture has a significant but moderate positive effect on organizational performance. All other predictors remain significant, with green product Selection practice, green Supplier Selection practice and green product lifecycle practice showing similar results to Model 1.

In model 3 the interaction term between Organizational culture and green product Selection practice is added, which showed a significant negative effect (unstandardized coefficient = -0.048, Beta = -0.268,  $p = 0.004$ ). This suggests that the moderating effect of organizational culture on green product selection practice is negative. Organizational culture itself has a strong positive effect on organizational performance (unstandardized coefficient = 0.188, Beta = 0.255,  $p = 0.001$ ). In model 4 the interaction between organizational culture and green supplier selection practice is added. This term has a positive effect (unstandardized coefficient = 0.035, Beta = 0.201,  $p = 0.036$ ), showing that organizational culture positively moderates the relationship between green supplier selection and organizational performance. Organizational culture now has a marginally

non-significant effect on performance ( $p = 0.083$ ), but the interaction terms remain significant.

In model 5 the final model adds the interaction term between organizational culture and green product lifecycle practice. The unstandardized coefficient is  $-0.084$ , with a significant negative Beta ( $-0.417$ ,  $p = 0.036$ ), indicating that organizational culture negatively moderates the effect of green product lifecycle practice on organizational performance. Organizational culture continues to show a positive effect on organizational performance (unstandardized coefficient =  $0.243$ , Beta =  $0.329$ ,  $p = 0.007$ ), although its influence has diminished compared to previous models. Therefore, the final model was as shown:

$$Y = .930 + 0.165GPS + 0.226GSS + 0.306GPL + 0.074Z - 0.048Z*GPS + 0.035Z*GSS - 0.084Z*GPL$$

#### **4.10 Hypotheses Testing**

For each hypothesis, the regression equation was initially derived using the B coefficients from the best-fit line. The decision criterion was that if the p-value was below the standard threshold of 0.05, the null hypothesis would be rejected; otherwise, if the p-value exceeded 0.05, the null hypothesis would not be rejected. Hypotheses were evaluated at a 5% significance level ( $\alpha = 0.05$ ).

##### **4.10.1 Hypothesis testing of effect of green product selection practice on organizational performance**

Hypothesis  $H_{01}$  stated that green product selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County. However, the study findings revealed that  $\beta$  Value = 0.165 indicated a positive effect between green product selection and organizational performance. The p-Value = 0.002 (which is less than 0.05), indicating a statistically significant effect. Since the p-value is less than 0.05, the study rejected the null hypothesis, meaning green product selection does have a significant positive effect on organizational performance in Nairobi County.

This finding implies that manufacturing firms that prioritize the selection of environmentally friendly or sustainable products tend to achieve better overall performance outcomes. By adopting green product selection practices, such firms likely experience enhanced operational efficiency, improved brand reputation, and increased customer loyalty, all of which contribute to superior organizational performance. The significant positive relationship therefore suggests that integrating sustainability considerations into procurement and production decisions can serve as a strategic driver of competitiveness and long-term growth among manufacturing firms in Nairobi County.

#### **4.10.2 Hypothesis testing of effect of green supplier selection practice on organizational performance**

Hypothesis H<sub>02</sub> stated that green supplier selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County. However, the study findings revealed that  $\beta$  Value =0.226 indicated a positive relationship between green supplier selection and organizational performance. The p-Value =0.001 (which is less than 0.05), indicating a statistically significant effect. Since the p-value is less than 0.05, the study rejected the null hypothesis, confirming that green supplier selection significantly influences organizational performance in Nairobi County.

This result suggests that the process of carefully choosing suppliers who adhere to environmentally sustainable standards positively contributes to the overall performance of manufacturing firms. Firms that engage green suppliers are more likely to benefit from improved resource efficiency, reduced waste, and compliance with environmental regulations, which in turn enhance operational effectiveness and corporate image. Therefore, green supplier selection not only supports environmental conservation but also strengthens competitiveness and long-term sustainability of manufacturing firms in Nairobi County.

#### **4.10.3 Hypothesis testing of effect of green product lifecycle practice on organizational performance**

Hypothesis H<sub>03</sub> stated that green product lifecycle practice has no significant effect on organizational performance of manufacturing firms in Nairobi County. However, the study findings revealed that  $\beta$  Value =0.306 suggests a positive relationship between green product lifecycle practices and organizational performance. The p-Value = 0.000 (which is less than 0.05), indicating statistical significance. With a p-value less than

0.05, the study rejected the null hypothesis, meaning green product lifecycle practices significantly effect organizational performance.

This finding implies that when manufacturing firms implement green practices throughout the product lifecycle from design, production, distribution, use, to disposal they achieve improved performance outcomes. Such practices enhance resource optimization, minimize waste generation, and reduce environmental impact, which collectively improve efficiency and cost savings. Moreover, adopting green lifecycle management promotes innovation and strengthens a firm's reputation among environmentally conscious consumers, thereby contributing positively to organizational performance in Nairobi County.

#### **4.10.4 Hypothesis testing of effect of organizational culture on organizational performance**

Hypothesis H<sub>04</sub> stated that there is no significant effect of organizational culture on organizational performance of manufacturing firms in Nairobi County. Findings revealed that organizational culture has a positive significant effect on organizational performance of manufacturing firms in Nairobi County ( $\beta_{04}=0.074$ ;  $p<0.05$ ). The p-Value = 0.047 (which is less than 0.05), indicating statistical significance. The results showed that organizational culture had an influence on organizational performance of manufacturing firms in Nairobi County, thus rejecting the null hypothesis H<sub>04</sub>.

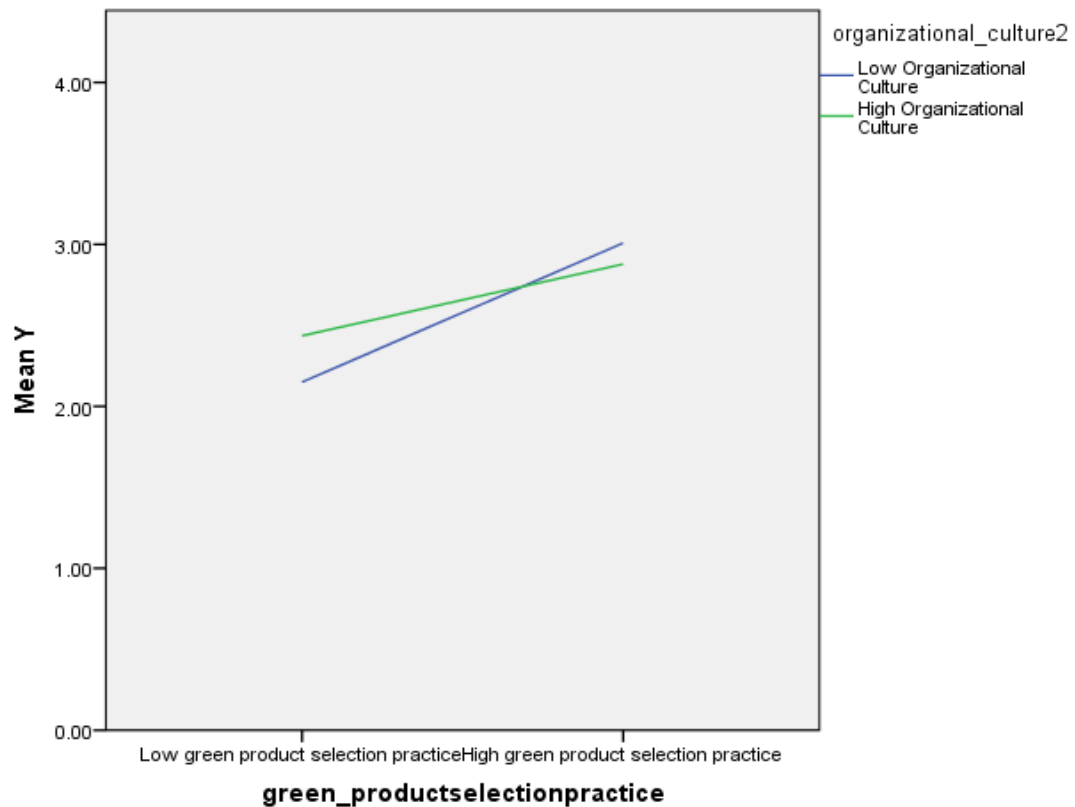
This finding implies that a strong and positive organizational culture enhances performance by fostering teamwork, innovation, commitment, and employee motivation. When employees share common values and goals, they are more likely to work efficiently and align their efforts with the firm's strategic objectives. A supportive culture also improves communication, decision-making, and adaptability to change, all

of which contribute to higher productivity and sustainable performance among manufacturing firms in Nairobi County.

#### **4.10.5 Hypothesis testing of moderating effect of organizational culture on the relationship between green product selection practice and organizational performance**

Hypothesis H<sub>05a</sub> stated that organizational culture has no moderating effect on the relationship between green product selection practice and organizational performance of manufacturing firms in Nairobi County. However, the results revealed that  $\beta$  Value = -0.048 showing a negative moderating effect of organizational culture on the relationship between green product selection and organizational performance. The p-Value = 0.004 (less than 0.05), indicating statistical significance. The study rejected the null hypothesis, meaning that organizational culture significantly moderates the relationship between green product selection and organizational performance.

This result suggests that cultivating a strong organizational culture characterized by shared values, trust, and commitment can directly enhance performance outcomes. A positive culture encourages collaboration, innovation, and employee engagement, which improve productivity and the quality of work. Therefore, firms with supportive cultural practices are better positioned to adapt to market dynamics, maintain competitive advantage, and achieve sustainable growth within the manufacturing sector in Nairobi County.



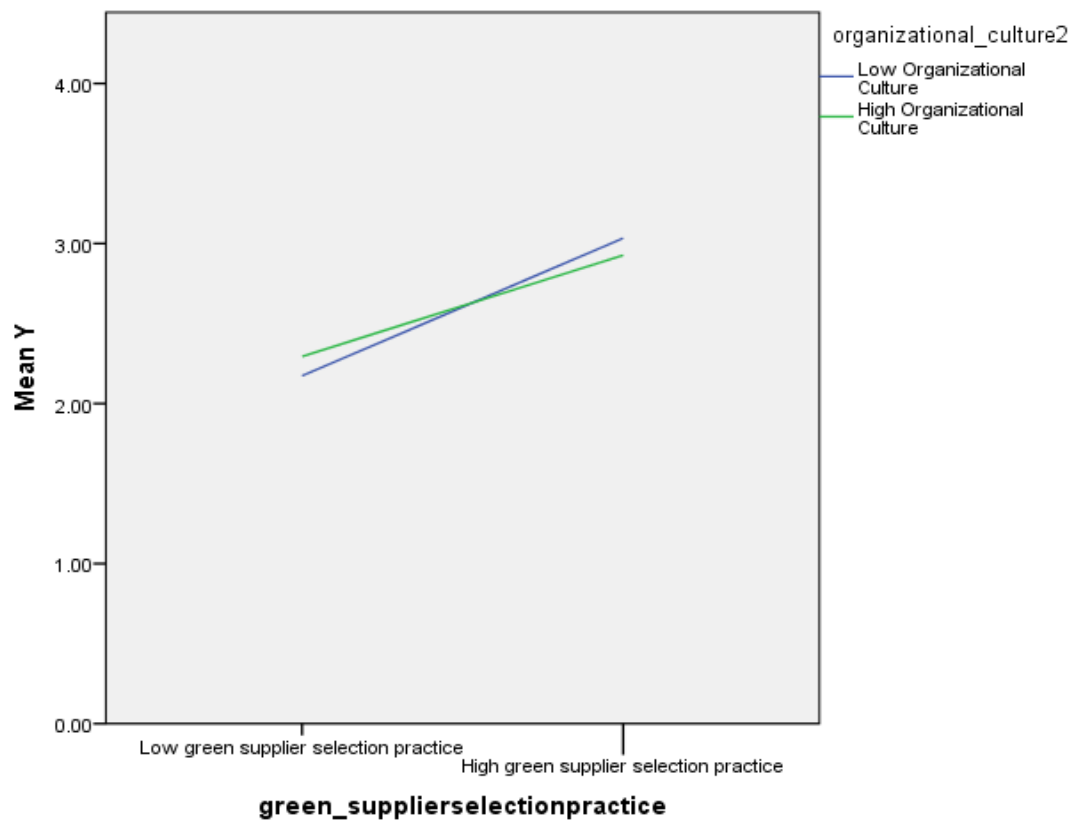
**Figure 4.1 Organizational Culture on the Relationship between Green Product Selection Practice and Organizational Performance**

In Figure 4.1, the interaction plot reveals the moderating effect of organizational culture on the relationship between green product selection practice and organizational performance. The graph shows that as green product selection practice increases, organizational performance also improves for both low and high levels of organizational culture. However, the steeper slope for firms with high organizational culture compared to those with low organizational culture suggests that organizational culture strengthens the positive effect of green product selection practice on organizational performance. This indicates that organizational culture plays a significant role in enhancing the effectiveness of green practices within manufacturing firms.

#### **4.10.6 Hypothesis testing of moderating effect of organizational culture on the relationship between green supplier selection practice and organizational performance**

Hypothesis H<sub>05b</sub> stated that organizational culture has no moderating effect on the relationship between green supplier selection practice and organizational performance of manufacturing firms in Nairobi County. However, the results revealed that  $\beta$  Value = 0.035 indicated a positive moderating effect of organizational culture on green supplier selection and organizational performance. The p-Value: 0.036 (less than 0.05), indicating statistical significance. Since the p-value is less than 0.05, the study rejected the null hypothesis, confirming that organizational culture significantly moderates the relationship between green supplier selection and organizational performance.

This finding implies that a supportive organizational culture strengthens the positive influence of green supplier selection on organizational performance. When firms cultivate values that promote environmental responsibility, collaboration, and innovation, they create an enabling environment where green procurement decisions are effectively implemented. Such a culture enhances the alignment between sustainability goals and supplier management practices, leading to improved efficiency, reduced environmental risks, and better overall performance of manufacturing firms in Nairobi County.



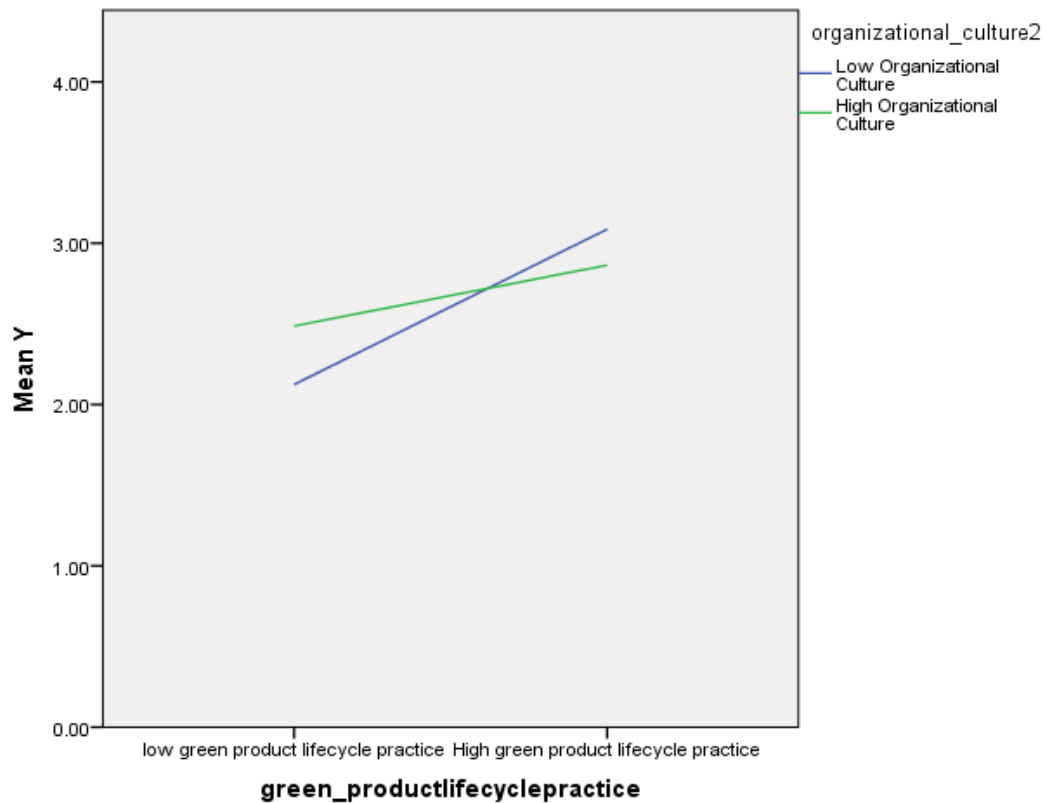
**Figure 4.2 Organizational Culture on the Relationship between Green Supplier Selection Practice and Organizational Performance**

The interaction plot shows that as green supplier selection practice increases, organizational performance improves for both low and high organizational culture. The lines for low and high organizational culture show a positive trend, with the high organizational culture group having a slightly steeper slope, suggesting that organizational culture positively moderates the relationship between green supplier selection practice and organizational performance. This indicates that organizational culture plays a significant role in enhancing the effectiveness of green practices, as shown by the interaction effect. The statistical hypothesis test confirms that organizational culture significantly moderates this relationship

#### **4.10.7 Hypothesis testing of moderating effect of organizational culture on the relationship between green product lifecycle practice and organizational performance**

Hypothesis H<sub>05c</sub> stated that organizational culture has no moderating effect on the relationship between green product lifecycle practice and organizational performance of manufacturing firms in Nairobi County. However, the results  $\beta$  Value = -0.084 showed a negative moderating effect of organizational culture on the relationship between green product lifecycle practices and organizational performance. The p-Value: 0.036 (less than 0.05), indicating statistical significance. The study rejected the null hypothesis, meaning that organizational culture has a significant moderating effect on the relationship between green product lifecycle practices and organizational performance.

This finding suggests that while organizational culture significantly moderates the relationship, its negative coefficient indicates that certain cultural attributes may weaken the effectiveness of green product lifecycle practices on performance. For instance, rigid or risk-averse cultures may limit innovation and reduce the efficiency of implementing green lifecycle initiatives. Therefore, for firms to fully benefit from green product lifecycle management, they need to cultivate flexible, adaptive, and sustainability-oriented cultural values that encourage continuous improvement and environmental innovation.



**Figure 4.3 Organizational Culture on the Relationship between Green Product Lifecycle Practice and Organizational Performance**

The interaction plot you provided visually demonstrates the moderating effect of organizational culture on the relationship between green product lifecycle practice and organizational performance. The X-axis represents green product lifecycle practice (categorized as low and high), while the Y-axis shows organizational performance (measured as the mean of Y). The plot shows two lines: one for low organizational culture (blue line) and one for high organizational culture (green line). Both lines have a positive slope, indicating that as green product lifecycle practice increases, organizational performance also improves. The green line (representing high organizational culture) has a steeper slope compared to the blue line (low organizational culture), suggesting that organizational culture positively moderates the relationship, with a stronger effect for firms with high organizational culture.

**Table 4.17 Summary of Hypotheses Test Results**

<b>Hypotheses</b>	<b><math>\beta</math> and P values</b>	<b>Decision rule</b>
H <sub>01</sub> : Green product selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County	$\beta_1=0.165$ , $p=0.002<0.05$	Rejected the null hypothesis
H <sub>02</sub> : Green supplier selection practice has no significant effect on organizational performance of manufacturing firms in Nairobi County	$\beta_2=0.226$ , $p=0.001<0.05$	Rejected the null hypothesis
H <sub>03</sub> : Green product lifecycle practice has no significant effect on organizational performance of manufacturing firms in Nairobi County	$\beta_3=0.306$ , $p=0.000<0.05$	Rejected the null hypothesis
H <sub>04</sub> : Organizational culture has no significant effect on organizational performance of manufacturing firms in Nairobi County	$\beta_4=0.074$ , $p=0.047<0.05$	Rejected the null hypothesis
H <sub>05a</sub> : Organizational culture has no moderating effect on the relationship between green product selection practice and organizational performance of manufacturing firms in Nairobi County.	$\beta_{5a}=-.048$ , $p=0.004<0.05$	Rejected the null hypothesis
H <sub>05b</sub> : Organizational culture has no moderating effect on the relationship between green supplier selection practice and organizational performance of manufacturing firms in Nairobi County	$\beta_{5b}=.035$ , $p=0.036<0.05$	Rejected the null hypothesis
H <sub>05c</sub> : Organizational culture has no moderating effect on the relationship between green product lifecycle practice and organizational performance of	$\beta_{5c}=-.084$ , $p=0.036<0.05$	Rejected the null hypothesis

## **4.11 Discussions of the Findings**

### **4.11.1 Green product selection practice on organizational performance of manufacturing firms.**

The study findings indicate that green product selection practice and organizational performance of manufacturing firms in Nairobi County had a positive moderate and statistically significant correlation. The results of the study suggest the positive moderate and statistically significant correlation between the practices regarding green product selection and the organizational performance of the manufacturing firms in Nairobi County. This implies that companies that have a keen interest in the environment when choosing its products, like, high energy-efficient products, less toxic products and products using recyclable materials, will have better performance results. These findings agreed with Chukwuka and Eboh, (2018) revealed that green business initiatives had significant and positive effect on the selected manufacturing firm's productivity.

Additionally, results showed that the green product selection practice had a positive linear effect on organizational performance of manufacturing firms in Nairobi County. This implies that the more the companies embrace the green product selection, the better they perform in the organization in consistent and proportional fashion respectively. The implication of this finding indicates that incorporation of environmentally alerted criteria in procurement decisions is a strategic intervention in attaining green growth and competitiveness. Results also indicates that Hypothesis H<sub>01</sub> rejected the null hypothesis, meaning green product selection does have a significant positive effect on organizational performance in Nairobi County.

Study findings reveals that the respondent agreed that the availability of products with a high percentage of recycled materials significantly influences our company's selection process. Further the study findings agreed with Martinho, Pires, Portela and Fonseca, (2015) suggest that while many consumers express concern for sustainable packaging, their purchasing decisions are often driven more by price and other product attributes than by environmental considerations. This indicated a complex relationship between consumer attitudes towards sustainability and actual buying behavior, emphasizing the need for better education and awareness regarding sustainable practices.

Also, when selecting products, their company prioritizes options with high energy efficiency ratings (low energy consumption). These agreed with Dinçer, Yüksel and Martinez, (2019) indicate that this comprehensive framework allows for a multidimensional evaluation of policy effectiveness, emphasizing the importance of aligning strategies with stakeholder needs and addressing uncertainties in decision-making.

Additionally, they also agreed that company strongly considers the reduced toxicity of materials and potential health effects during product selection. Kolotzek, Helbig, Thorenz, Reller and Tuma, (2018) indicate that the model effectively integrates multiple dimensions of sustainability into the decision-making process for raw material sourcing. The study also reveals that company prioritizes sourcing products from local suppliers who practice sustainable production methods. The findings are consistent with Villena and Gioia, (2018) investigates the sustainability challenges posed by lower-tier suppliers in supply networks, particularly focusing on the risks they present to multinational corporations (MNCs). The study reveals that many lower-tier suppliers

tend to address environmental and labor issues passively, making them some of the riskiest links in the supply chain.

Further, Third-party certifications for recycled content, energy efficiency, and reduced toxicity heavily influence our green product selection. According to Darnall, Ji and Vázquez-Brust, (2018) indicated that third-party certifications are essential for ensuring the authenticity of claims regarding recycled materials, as they provide credible validation that helps consumers and businesses differentiate between genuinely sustainable products and those that may be misleadingly marketed.

#### **4.11.2 Green supplier selection practice on organizational performance of manufacturing firms in Nairobi County.**

The study findings indicate that there was a moderate, positive and statistically significant correlation between green supplier selection practice and organizational performance of manufacturing firms in Nairobi County. The study findings concur with Sahoo and Vijayvargy, (2021) found that except for internal environmental management and green purchasing, all other GSCM dimensions are found to significantly effect at least one of the performance dimensions, either directly or indirectly.

Also, results reveal that green supplier selection has a positive effect on organizational performance of manufacturing firms in Nairobi County. The study results agree with Lee and Wu, (2023) noted that a direct relationship was observed between GSS and environmental performance. This direct relationship is positively mediated by behavior and outcome controls. Further, Hypothesis H<sub>02</sub> was rejected (null hypothesis), confirming that green supplier selection significantly influences organizational performance in Nairobi County.

Findings also reveal that when selecting energy suppliers, their firm prioritizes those offering renewable energy sources (solar, wind). The study findings agreed with Wang, Wang, Wei and Li, (2018) indicated that renewable energy sources like solar and wind not only help mitigate climate change by reducing greenhouse gas emissions but also contribute to energy independence and economic stability.

However, the finding also indicated that their firm actively sought out waste management suppliers with strong recycling and waste minimization practices. The study done by Kazancoglu, Kazancoglu and Sagnak, (2018) indicated that selecting suppliers who focus on recycling and minimizing waste not only enhances environmental performance but also contributes to cost savings and resource efficiency.

Study findings also reveals that their firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies. Villena and Gioia, (2018) companies that prioritize suppliers with robust emissions reduction strategies can enhance their overall sustainability and mitigate risks associated with environmental regulations.

Additionally, the respondent agreed that in the selection process, my firm gives preference to suppliers that utilize recycled materials in their products or packaging. Mudgal, Pagone and Salonitis, (2024) life cycle assessment, as well as life cycle costing, are used for assessing the environmental and financial effect of the use of such materials. Findings also reveals that majority of the respondent agreed that firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain. Solnørdal and Foss, (2018) engage directly with smaller manufacturers to promote energy-efficient practices, which not only lowers energy consumption but also enhances social welfare.

#### **4.11.3 Green product lifecycle practice on organizational performance of manufacturing firms.**

The study established that there exist a moderate, positive and statistically correlation between green product lifecycle practice and organizational performance of manufacturing firms in Nairobi County. The study findings agreed with Zhang and Wei, (2021) that the product life cycle is a contextual factor in the effects of charismatic leadership on environmental performance to support the strategy of product; SMEs' charismatic leadership helps share visions among stakeholders for promoting environmental performance and sustainable development; and environmental performance ultimately improves financial performance for sustainability.

Also, the study results found that there was a positive and statistically significant relationship between green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County. These agreed with Wanjohi, (2016) indicated that firms adopted green to sooth external expectations and not to improve efficiency and hence performance. Researchers have shown that internal motives encourage firms to exploit a management practice as an “organizational resource” to improve operations due to the precise application of explicit, rational, and proven rules. In contrast, external motives drive firms to seek legitimacy. Results also reveal that hypothesis H<sub>03</sub> was rejected the null hypothesis, meaning green product lifecycle practices significantly effect organizational performance.

Majority of the respondent agreed that the firm actively sought ways to minimize waste generation throughout the product lifecycle. These findings agreed with Chen, Palma and Reyes, (2019) companies that adopt lean manufacturing principles can significantly lower waste levels by optimizing production processes and minimizing excess

inventory. Findings also reveals that the firm have a defined strategy for managing products at the end of their useful life and also, they agreed that the firm utilize e-procurement systems to source environmentally friendly materials and resources. These findings agreed with Maina, (2023) revealed that implementing e-procurement strategies, including e-ordering, e-tendering, e-invoicing, e-sourcing, e-payment, and e-cataloguing, resulted in positive results in terms of sustainable procurement performance. These results encompassed advantages in terms of competitive positioning, decreased operational expenses, environmental sustainability, and employee retention.

However, majority of the respondent also agreed that the firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products. Chibaro, Chikwere, Kanyepe and Govere, (2024) indicated that collaboration with recyclers and dismantlers is crucial for effective end-of-life management, as it helps companies ensure that materials are recycled properly and reduces waste sent to landfills. Finally, the study results reveal that minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County. Samad, Nilashi, Almulihi, Alrizq, Alghamdi, Mohd and Azhar, (2021) found that implementing circular supply chain practices positively influences the performance of manufacturing firms, with a notable correlation between waste minimization and cost reduction.

#### **4.11.4 Organizational Culture and organizational performance of manufacturing firms**

The study findings indicate that hypothesis H<sub>04</sub> organizational culture has a positive significant effect on organizational performance of manufacturing firms in Nairobi

County. These findings agreed with Al-Tit, (2017) confirm that both OC and SCM practices significantly predict OP. The current study is significant in reliably testing the relationship between SCM practices and OP; however, it is necessary to consider cultural assumptions, values and beliefs as the effect of OC on OP is greater than the effect of SCM practices.

The study results reveal that their organization has a clear set of values. Also, they agreed that employees are encouraged to be innovative and take risks. The study done by Fang, Fombelle and Bolton, (2021) indicated that having a well-defined set of values is crucial for fostering a strong organizational identity and promoting ethical behavior among employees.

Also, the study reveals that there is a strong sense of teamwork and collaboration in our organization. Yang, Nguyen and Le, (2018) show that organizations with strong collaborative cultures experience higher levels of creativity, innovation, and employee satisfaction. However, they also agreed that their strong culture of using environmentally friendly inputs.

#### **4.11.5 Moderating effect of organizational culture on the relationship between green product selection practice and organizational performance**

Hypothesis H<sub>04a</sub> stated that organizational culture has no moderating effect on the relationship between green product selection practice and organizational performance of manufacturing firms in Nairobi County. The study findings indicate that there was a negative moderating effect of organizational culture on the relationship between green product selection and organizational performance. These findings concur with the study done by Akuma, Akude, Kwaning and Asiama, (2025) organizational culture has an

insignificant moderating effect on the relationship among green internal marketing as well as financial performance.

The study findings also agreed with Dai, Chan and Yee, (2018) suggest that customer and competitor pressures have direct effects on environmental strategy proactivity. In addition, flexibility and control orientations play different roles in the relationships between these two market pressures and firms' environmental strategy proactivity.

#### **4.11.6 Moderating effect of organizational culture on the relationship between green supplier selection practice and organizational performance**

Hypothesis H<sub>04b</sub> stated that organizational culture has no moderating effect on the relationship between green supplier selection practice and organizational performance of manufacturing firms in Nairobi County. The study results indicated that there was a positive moderating effect of organizational culture on green supplier selection and organizational performance. The null hypothesis was rejected hence confirming that organizational culture significantly moderates the relationship between green supplier selection and organizational performance.

The study findings agreed with Chu, Wang and Lai, (2019) customer pressure is an important driver of green innovation amongst 3PL providers. Flexibility-oriented organizational culture strengthens the effect of this driving force, while control-oriented organizational culture weakens this force. Green innovation significantly contributes to financial performance and flexibility orientation strengthens this contribution, while control orientation weakens it.

Further, the study results also agreed with Fok, Morgan, Zee and Mock, (2023) revealed a positive and significant effect of organizational culture and Total Quality Management Practices on green practices and sustainability performance.

#### **4.11.7 Moderating effect of organizational culture on the relationship between green product lifecycle practice and organizational performance**

Hypothesis H<sub>04c</sub> stated that organizational culture has no moderating effect on the relationship between green product lifecycle practice and organizational performance of manufacturing firms in Nairobi County. The study findings indicate that there was a negative moderating effect of organizational culture on the relationship between green product lifecycle practices and organizational performance and the study rejected the null hypothesis, meaning that organizational culture has a significant moderating effect on the relationship between green product lifecycle practices and organizational performance.

The study findings are consistent with the study done by Roespinoedji, Saudi, Hardika and Rashid, (2019) confirm that green product innovation, green process innovation and competitive advantage have positive and significant influenced by green organizational culture. Anning-Dorson, (2017) suggest that though product innovation has a positive effect on firm performance, high market demand dampens and negate this effect. However, a service firm's ability to build an innovative culture, that supports strategy implementation, assuages this negative effect and restores the positive relationship between product innovation and firm performance, even in the face of environmental coercion.

## **CHAPTER FIVE**

### **DISCUSSIONS, SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Overview**

This chapter gives the discussions of the findings, summary of the findings, conclusions of the study, theoretical implications of the study, policy implications of the study, practical implication of the study, managerial implications of the study, recommendations and suggestions for future studies.

#### **5.2 Summary of the Study Findings**

The general objective of the study was to establish the moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms in Nairobi County. Sustainable green procurement practices had three constructs (green product selection practice, green supplier selection practice and green product lifecycle practice) on the organizational performance of manufacturing firms in Nairobi County and the moderator organization culture was introduced in the relationship between dependent and independent variable.

The study findings indicate that green product selection practice, green supplier selection practice and green product lifecycle practice significantly enhance organizational performance of manufacturing firms in Nairobi County. The study findings also indicate that green product selection practice had a positive linear effect on organizational performance of manufacturing firms in Nairobi County ( $\beta_1=0.165$ ,  $p=0.002$ ) and also green supplier selection has a positive effect on organizational performance of manufacturing firms in Nairobi County ( $\beta_2=0.226$ ,  $p=0.001$ ).

Additionally, findings also indicate that there was a positive and statistically significant relationship between green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County ( $\beta_3=0.306$ ,  $p=0.000$ ).

### **5.3 Conclusion of the study**

The study concludes that green product selection practices play a crucial role in enhancing organizational performance among manufacturing firms. By prioritizing products made with recycled materials, high energy efficiency, and reduced toxicity, firms align their procurement decisions with sustainability goals, which directly influences product quality and cost-effectiveness. Emphasizing products that meet these green criteria also allows companies to meet the increasing consumer demand for environmentally friendly options, potentially boosting market competitiveness. This approach reflects an alignment between consumer preferences and sustainable practices, highlighting the importance of responsible sourcing as a strategic advantage in today's market.

The study further concludes that green supplier selection practices significantly benefit organizational performance. By choosing suppliers who offer renewable energy sources, implement strong waste management practices, and have effective pollution control measures, firms contribute to their environmental goals while benefiting from improved efficiency and cost savings. Collaborating with suppliers that prioritize waste minimization and emissions control not only strengthens a company's environmental profile but also helps mitigate risks associated with environmental regulations. Moreover, working with such suppliers enables firms to operate more sustainably, bolstering their reputation and reinforcing accountability across the supply chain.

The study also concludes that green product lifecycle practices contribute substantially to sustainable performance and operational cost reduction. Firms that actively work to minimize waste throughout the product lifecycle, manage products responsibly at the end of their useful life, and employ e-procurement systems for environmentally friendly sourcing enhance both resource efficiency and cost-effectiveness. Collaborations with partners, such as recyclers and dismantlers, further facilitate responsible disposal of products, reinforcing the company's commitment to sustainability. This holistic approach to managing products from sourcing to disposal reflects a commitment to circular economy principles, demonstrating that responsible lifecycle management can provide long-term financial and environmental benefits.

Finally, the study concludes that a strong organizational culture grounded in values of innovation, teamwork and environmental responsibility significantly effects organizational performance. Such a culture encourages employees to engage in sustainable practices and fosters collaboration, which supports the organization's overall commitment to sustainability. When employees are encouraged to innovate and actively participate in environmentally responsible behaviours, they contribute to a shared organizational identity centered on ethical practices. This supportive culture not only strengthens internal cohesion but also promotes a positive public image, reinforcing the organization's commitment to sustainable development. Through these cultural values, organizations can better navigate the challenges of implementing green practices, ultimately achieving both sustainable and efficient operations.

#### **5.4 Theoretical Implications of the Study**

This study contributes significantly to the theoretical discourse on sustainable organizational performance by integrating green supply chain practices with

organizational culture as a moderator. The hierarchical moderated regression analysis confirms that organizational culture plays a critical role in shaping the effectiveness of green product selection, green supplier selection, and green product lifecycle practices on organizational performance. These findings align with Ecological Modernization Theory, which posits that firms can achieve economic growth while addressing environmental challenges through innovation and cultural adaptation.

Furthermore, the results substantiate Stakeholder Theory, highlighting that firms' responsiveness to environmental concerns and stakeholder expectations through green practices is enhanced when supported by a conducive organizational culture. The moderation effects suggest that cultural alignment intensifies or weakens the relationship between green practices and performance, offering nuanced insights beyond the direct effects emphasized in previous research.

The study also supports the Theory of Performance, by demonstrating that green practices coupled with a strong organizational culture synergistically improve performance outcomes. The negative moderating effects in certain cases (e.g., green product selection and lifecycle practices) suggest complexities in how culture interacts with specific practices, indicating that organizational culture must be carefully managed to optimize performance benefits from sustainability initiatives.

### **5.5 Policy Implications of the Study**

The study's findings underscore the need for policymakers to promote not only green practices but also the cultivation of supportive organizational cultures within manufacturing firms. Regulatory frameworks and incentives should encourage firms to adopt comprehensive environmental strategies that integrate green product selection, supplier selection, and lifecycle management.

Policies could be designed to incentivize cultural change programs aimed at embedding sustainability values within organizations, thereby enhancing the effectiveness of green practices. Moreover, standards and certifications for green practices could incorporate organizational culture metrics, ensuring firms develop internal capacities that amplify environmental initiatives.

The demonstrated moderating role of organizational culture calls for tailored policy interventions that address firm-specific cultural contexts rather than a one-size-fits-all approach. By supporting organizational culture development alongside environmental compliance, policies can foster sustainable competitiveness and improve overall industrial performance.

### **5.6 Practical Implications of the Study**

For manufacturing firms in Nairobi County and beyond, this study highlights the critical importance of aligning organizational culture with green supply chain practices to maximize performance benefits. Managers should prioritize cultural assessments and interventions that foster environmental awareness, shared values, and sustainability-oriented behaviors among employees.

Practically, firms should implement training programs, leadership development, and communication strategies that reinforce green values, thereby enhancing the positive effect of green product selection and supplier practices. The mixed moderating effects indicate that some cultural dimensions may hinder certain practices, suggesting that cultural transformation must be strategic and adaptive.

Additionally, supplier development programs should integrate cultural fit assessments to ensure alignment in sustainability goals, further boosting firm performance. The study equips practitioners with evidence that investing in both green operational

practices and cultural transformation is essential for achieving long-term competitive advantage.

### **5.7 Managerial Implications of the Study**

The research findings provide important information to managers in manufacturing companies who aim at promoting the performance of the organization in terms of sustainable green procurement practices. To begin with, the managers should be able to appreciate the fact that selection of green products, selection of green suppliers and product lifecycle activities are not only positively environmentally; rather, they are also strategically connected with enhanced performance of firms. Managers should add the sustainability requirements to procurement policies and decision-making systems to establish a strong basis of long-term running effectiveness, client satisfaction, and reputation.

Second, the study captures the need to develop a favourable organizational culture that supports the achievement of sustainability objectives. The management must be the model of organization values of environmental responsibility, innovation and teamwork. This involves the establishment of clear sustainability goals, training of the staff as well as promotion of engagement of active employees in green programs. The underlying culture that encourages such initiatives would see to it that any sustainable practice is not just a procedural practice but rather something that is welcomed at the organizational level.

Thirdly, the managers should realize that organizational culture may either function as a multiplier and or a blocker of green practices on performance. An example is that a flexible and innovation driven culture can increase the efficiency of supplier selection and a rigid or wrong culture can snuff out the effects of green product lifecycle practice.

This will require periodic culture auditing and malleable management processes to make the cultural factors supportive of the integration of sustainability.

Finally, managers are required to be holistic i.e. they align sustainability objectives to performance measurement systems. This implies addressing green KPIs (Key Performance Indicators) when reviewing performance, evaluating procurements and when conducting strategic plans. This does not only institutionalize the sustainability in the organizational fabric, but it makes the green procurement performance accountable and constantly improved. It is through such focused managerial gambits that the firms are able to attain competitive advantage sustainability, and meet environmental and stakeholder requirements.

### **5.8 Recommendations of the Study**

Based on the study findings, the following recommendations are proposed to improve the adoption and effectiveness of sustainable green procurement practices, strengthen organizational culture, and enhance the performance of manufacturing firms in Nairobi County:

Manufacturing firms should adopt clear green product selection guidelines that prioritize environmentally friendly raw materials, recyclable products, and energy-efficient technologies. Management should invest in supplier evaluation tools that assess product life-cycle effects and compliance with environmental standards such as ISO 14001. This will promote product quality, reduce waste, and enhance overall organizational performance.

Firms should integrate sustainability criteria into supplier evaluation and contracting processes. Procurement managers should collaborate with suppliers who demonstrate adherence to environmental, social, and governance (ESG) standards. Establishing long-term partnerships with such suppliers will ensure consistent supply of sustainable materials, foster innovation, and strengthen the firm's competitiveness in local and international markets.

Manufacturing firms should institutionalize green lifecycle management practices that consider environmental effects from product design to disposal. This involves adopting cleaner production technologies, waste recycling, and energy-efficient operations. Firms should also monitor and evaluate lifecycle performance indicators to ensure continuous improvement and compliance with national environmental policies.

Organizational leaders should promote a culture of sustainability by embedding environmental values, teamwork, and innovation in daily operations. This can be achieved through continuous employee training, internal awareness campaigns, and recognition programs that reward sustainable behavior. A strong sustainability-oriented culture will reinforce employee commitment, facilitate the adoption of green procurement practices, and enhance overall organizational performance.

Manufacturing firms should align their procurement and production strategies with national policies such as the Kenya Vision 2030, the Green Economy Strategy and Implementation Plan (GESIP), and the National Industrialization Policy Framework (2022–2032). Compliance with these frameworks will improve resource efficiency, attract green investments, and enhance the firms' environmental reputation.

The study recommends that industry associations such as the Kenya Association of Manufacturers (KAM) collaborate with government agencies and academic institutions to provide capacity-building programs on sustainable procurement and environmental management. Knowledge sharing platforms should be created to enable firms to exchange best practices, innovations, and lessons learned in implementing green procurement.

Firms should recognize organizational culture as a key moderating factor that influences the success of sustainability initiatives. Management should align cultural values with procurement policies and ensure that sustainability objectives are reflected in corporate mission statements, leadership practices, and employee performance evaluations.

### **5.9 Suggestions for Further Studies**

Future research could explore:

- i. Investigate which specific aspects or dimensions of organizational culture (innovation orientation, risk tolerance, leadership style) most strongly moderate the relationship between green practices and performance.
- ii. Explore potential mediators (employee engagement, innovation capability) in the relationship between green practices, culture, and organizational performance.
- iii. Further study the reasons behind the negative moderating effects of organizational culture observed in green product selection and lifecycle practices to develop strategies to mitigate these effects.

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**APPENDICES****APPENDIX I : LETTER OF INTRODUCTION**

**Diana Mutai,**  
**University of Eldoret**

To: Whom it may concern

Dear Sir/Madam,

**RE: ASSISTANCE TO FILL ACADEMIC SURVEY QUESTIONNAIRE-**

I am a master's student at the University of Eldoret, conducting academic research titled '**moderating effect of organizational culture on the relationship between sustainable green procurement practices and organizational performance of manufacturing firms in Nairobi County**'. The findings will help the manufacturing firms to understand and appreciate the moderating effect of organizational culture, on sustainable green procurement practices and organizational performance. I humbly request your assistance in filling in the attached questionnaire.

Your participation in this research survey is greatly appreciated and your confidentiality and anonymity are guaranteed. Information to be gathered from this survey will only be used for data collection and during the analysis of the results; you will not be individually identified with your questionnaire or response. All collected data will be aggregated and grouped.

Regards,

**Diana Mutai,**

## APPENDIX II : QUESTIONNAIRE

The section consist of six sections. Section A contains demographic information, while section B-F contains questions related to specific objectives

### Section A: Biographical Data

1. Gender (Tick where applicable)
  - a) Male
  - b) Female
2. What is your age bracket (Tick where applicable)
  - a) Between 18-30 years
  - b) Between 31-40 years
  - c) Over 40 years
3. For how long have you worked in this firm? (Tick where applicable)
  - a) Below 5 Years
  - b) Between 5-10 Years
  - c) Between 10-15 Years
  - d) Above 16 Years
4. What is your level of education? (Tick where applicable)
  - a) PHD
  - b) Masters
  - c) Degree
  - d) Diploma
  - e) Certificate

### Section B: Green Product Selection Practice

Using the following scale, what is your level of agreement on the following statement on influence of green product selection practice on organizational performance of manufacturing firms in Nairobi County”

(1=Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree)

	Statement	1	2	3	4	5
1	The availability of products with a high percentage of recycled materials significantly influences our company's selection process.					
2	When selecting products, our company prioritizes options with high energy efficiency ratings (low energy consumption).					
3	Our company strongly considers the reduced toxicity of materials and potential health effects during product selection.					
4	Our company prioritizes sourcing products from local suppliers who practice sustainable production methods.					
5	Third-party certifications for recycled content, energy efficiency, and reduced toxicity heavily influence our green product selection.					

### Section C: Green Supplier Selection Practice

Using the following scale, what is your level of agreement on the following statement on influence of green supplier selection practice on organizational performance of manufacturing firms in Nairobi County.

(1=Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree)

	Statement	1	2	3	4	5
1	When selecting energy suppliers, my firm prioritizes those offering renewable energy sources (solar, wind).					
2	My firm actively sought out waste management suppliers with strong recycling and waste minimization practices.					
3	My firm considers the pollution control capabilities of potential suppliers, including their emissions reduction strategies.					
4	In the selection process, my firm gives preference to suppliers that utilize recycled materials in their products or packaging.					
5	My firm collaborates with potential suppliers to identify opportunities for reducing energy consumption throughout the supply chain.					

### Section D: Green Product Lifecycle Practice

Using the following scale, what is your level of agreement on the following statement on influence of green product lifecycle practice on organizational performance of manufacturing firms in Nairobi County.

(1=Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree)

	Statement	5	4	3	2	1
1	The firm actively sought ways to minimize waste generation throughout the product lifecycle					
2	The firm have a defined strategy for managing products at the end of their useful life					
3	The firm utilize e-procurement systems to source environmentally friendly materials and resources					
4	The firm collaborate with partners (recyclers, dismantlers) to facilitate responsible end-of-life management of their products					
5	Minimizing waste throughout the product lifecycle leads to significant cost savings for manufacturing firms in Nairobi County					

### Section E: Organizational Culture

Using the following scale, what is your level of agreement on the following statement on organizational culture.

(1=Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree)

	Statement	5	4	3	2	1
1	Our organization has a clear set of values.					
2	Employees are encouraged to be innovative and take risks.					
3	There is a strong sense of teamwork and collaboration in our organization.					
4	Employees feel valued and respected by their managers.					
5	There strong culture of using environmentally friendly inputs					

### Section F: Performance of manufacturing firms


Using the following scale, what is your level of agreement on the following statement on “Performance of manufacturing firms?”

(1=Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree)

	Statement	5	4	3	2	1
1	Improved efficiency in production processes has a strong positive effect on overall organizational performance.					
2	To be highly competitive in the market, manufacturing firms have prioritize reducing production costs.					
3	A well-educated workforce significantly contributes to improved quality control and higher product quality in Nairobi					
4	Compared to other factors, reducing costs has the greatest positive effect on the overall performance of manufacturing firms in Nairobi County.					
5	There is a positive correlation between employee skill level (through quality education) and production efficiency in Nairobi County manufacturing firms.					

### APPENDIX III : UNIVERSITY LETTER

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**University of Eldoret**  
base of knowledge and innovation

**OFFICE OF THE DEPUTY VICE CHANCELLOR (ASA)**  
**SCHOOL OF BUSINESS, ECONOMICS AND MANAGEMENT SCIENCES**  
**DEPARTMENT OF BUSINESS MANAGEMENT**

---

DATE: 14<sup>TH</sup> FEBRUARY, 2025

REF: UOE/B/BBM/ ATT/032

TO WHOM IT MAY CONCERN


Dear Sir/Madam,

**RE: DATA COLLECTION- MISS DIANA MUTAI SBUS/BBM/M/009/22**


The bearer of this letter is a postgraduate student in the Department of Business Management. The student is currently undertaking Research, collecting data for the proposal titled *"Moderating Effect of Organization Culture on Sustainable Green Procurement Practices and Performance of Manufacturing Firms in Nairobi County"*

Any assistance accorded to her will be highly appreciated.


Thank you

  
 HOD  
 Business Management  
 Dept.  
 UNIVERSITY OF ELDORET


**DR. EMMANUEL TANUI**  
 HEAD, DEPARTMENT OF BUSINESS MANAGEMENT

University of Eldoret is ISO 9001:2015 Certified
 

APPENDIX IV: NACOSTI LETTER


  
**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**
  
 Date of Issue: 11/March/2025


**RESEARCH LICENSE**




**This is to Certify that Miss. DIANA Jelagat MUTAI of University of Eldoret, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: MODERATING EFFECT OF ORGANIZATION CULTURE ON SUSTAINABLE GREEN PROCUREMENT PRACTICES AND PERFORMANCE OF MANUFACTURING FIRMS IN NAIROBI COUNTY for the period ending : 11/March/2026.**

License No: NACOSTI/P/25/416578

Applicant Identification Number: 594504


  
 Director General
   
**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**

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 Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

**CONDITIONS OF THE RESEARCH LICENSE**

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to.
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way:
  - i. Endanger national security
  - ii. Adversely affect the lives of Kenyans
  - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
  - iv. Result in exploitation of intellectual property rights of communities in Kenya
  - v. Adversely affect the environment
  - vi. Adversely affect the rights of communities
  - vii. Endanger public safety and national cohesion
  - viii. Plagiarize someone else's work
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4. Neither the license nor any rights thereunder are transferable.
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14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and  
 Innovation (NACOSTI),  
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## APPENDIX V: SPSS RESULTS

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.738 <sup>a</sup>	.545	.538	.60881	.545	75.789	3	190	.000
2	.744 <sup>b</sup>	.554	.545	.60407	.009	3.991	1	189	.047
3	.757 <sup>c</sup>	.573	.562	.59272	.019	8.306	1	188	.004
4	.764 <sup>d</sup>	.583	.570	.58734	.010	4.463	1	187	.036
5	.770 <sup>e</sup>	.593	.577	.58194	.010	4.483	1	186	.036

a. Predictors: (Constant), GPL, GPS, GSS

b. Predictors: (Constant), GPL, GPS, GSS, Z

c. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS

d. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS, MGSS

e. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS, MGSS, MGPL

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	84.273	3	28.091	75.789	.000 <sup>b</sup>
	Residual	70.423	190	.371		
	Total	154.696	193			
2	Regression	85.730	4	21.432	58.735	.000 <sup>c</sup>
	Residual	68.967	189	.365		
	Total	154.696	193			
3	Regression	88.648	5	17.730	50.465	.000 <sup>d</sup>
	Residual	66.048	188	.351		
	Total	154.696	193			

4	Regression	90.188	6	15.031	43.573	.000 <sup>e</sup>
	Residual	64.509	187	.345		
	Total	154.696	193			
5	Regression	91.706	7	13.101	38.684	.000 <sup>f</sup>
	Residual	62.991	186	.339		
	Total	154.696	193			
a. Dependent Variable: Y						
b. Predictors: (Constant), GPL, GPS, GSS						
c. Predictors: (Constant), GPL, GPS, GSS, Z						
d. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS						
e. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS, MGSS						
f. Predictors: (Constant), GPL, GPS, GSS, Z, MGPS, MGSS, MGPL						

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.930	.116		8.017	.000
	GPS	.165	.051	.215	3.220	.002
	GSS	.226	.067	.272	3.372	.001
	GPL	.306	.067	.345	4.584	.000
2	(Constant)	.766	.141		5.416	.000
	GPS	.179	.051	.234	3.495	.001
	GSS	.196	.068	.235	2.876	.004
	GPL	.307	.066	.346	4.633	.000
	Z	.074	.037	.101	1.998	.047
3	(Constant)	.483	.170		2.841	.005
	GPS	.295	.064	.385	4.582	.000
	GSS	.223	.068	.268	3.305	.001
	GPL	.288	.065	.325	4.412	.000
	Z	.188	.054	.255	3.498	.001
4	MGPS	-.048	.017	-.268	-2.882	.004
	(Constant)	.710	.200		3.553	.000
	GPS	.280	.064	.366	4.366	.000
	GSS	.175	.071	.211	2.484	.014
	GPL	.246	.068	.277	3.626	.000
	Z	.112	.064	.152	1.743	.083
	MGPS	-.050	.017	-.279	-3.023	.003
	MGSS	.035	.017	.201	2.113	.036

	(Constant)	.359	.258		1.391	.166
	GPS	.236	.067	.309	3.536	.001
	GSS	.148	.071	.178	2.086	.038
	GPL	.470	.126	.530	3.746	.000
5	Z	.243	.089	.329	2.737	.007
	MGPS	-.036	.018	-.200	-2.019	.045
	MGSS	.049	.018	.280	2.760	.006
	MGPL	-.084	.040	-.417	-2.117	.036

a. Dependent Variable: Y

## APPENDIX VI: SIMILARITY REPORT



### University of Eldoret Certificate of Plagiarism Check for Thesis

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Submitted By	titustoo@uoeld.ac.ke
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