GREEN ENTREPRENEURIAL ORIENTATIONS AND PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN THE PUBLIC TRANSPORT SECTOR IN NAIROBI METROPOLIS, KENYA

BY

ARNOLD SOITA WEKESA WASIKE

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SEPTEMBER, 2025

DECLARATION

I, the undersigned, declare that this thesis is my original work and that it has not been presented in any other university or institution for academic credit.

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This thesis has been submitted for examination with our approval as university supervisors.

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ABSTRACT

Investors in the public transport sector in Nairobi incur high maintenance costs due to the petroleum products used by their vehicles and this has had a negative effect on the financial performance of the SMEs. This study sought to establish the influence of green entrepreneurship orientation on the performance of public transport SMEs in Nairobi Metropolis, Kenya. The study specifically sought to: determine the influence of green innovativeness, green risk taking, green proactiveness and competitive aggressiveness on the performance of public transport SMEs in Nairobi Metropolis. The moderating role of government policy on the relationship was also determined. The study was anchored on disruptive innovation theory, risk compensation theory, proactive work theory, theory of competitive advantage and systems theory. Descriptive survey research design was adopted and the target population comprised of 334 investors in Super Metro and Metro Trans Saccos, and financial managers and route managers working in the Super Metro and Metro Trans Saccos in Nairobi Metropolis. The stratified sampling technique, simple random sampling technique and purposive sampling technique were used in this study. Primary data was collected using a structured questionnaire and its validity and reliability was checked. Secondary data was also gathered from financial annual reports that included performance, particularly total assets, return on equity, and return on assets from 2019 to 2024, using a data collection form. The findings showed that green innovativeness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.685**). The regression results indicated that green innovativeness showed a strong positive and significant relationship with the performance ($\beta = 0.806$, $t=6.974$, $p = 0.000$). In addition, the correlation results showed that green risk taking had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.473**). The findings revealed that green risk taking had a positive but insignificant relationship with the performance of SMEs in the public transport sector in Nairobi Metropolis ($\beta = 0.224$, $t=2.389$, $p = 0.018$). The study also found that green innovativeness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.458**). This study found that green proactiveness has a positive and significant impact ($\beta = 0.223$, $t=3.532$, $p = 0.000$). The correlation results also showed that competitive aggressiveness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.657**). This study found that competitive aggressiveness had a negative and insignificant relationship with the performance of SMEs in the public transport sector in Nairobi Metropolis ($\beta = -0.355$, $t=-2.288$, $p = 0.024$). This study further found that government policy shows a strong positive and significant moderating effect on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis ($\beta = 0.779$, $t=5.925$, $p = 0.000$). The study recommends that the management should provide trainings for its managers to enhance their managerial innovation. It is also recommended that the management should put in place monitoring systems to reduce technological hazards. Another recommendation is that more green services should be introduced by the SMEs in the public transport sector as they use renewable energy. The study also recommends that the management should embark on the use of digital marketing activities so as to increase the visibility of their green buses and green services to enhance performance.

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OPERATIONAL DEFINITION OF TERMS

Competitive Aggressiveness: The propensity to engage in a sustained, diverse, or unique series of actions to challenge rivals and enhance their relative competitive position. In this study it includes price cutting, quality services and marketing activities.

Government Policy: The process or series of actions taken by the government to solve a particular societal issue that was originally recognized. In this study it includes government regulations.

Green Entrepreneurial Orientation –An organization's tendency to innovate, take risks and act proactively in seizing potential opportunities that lead to increased financial, social, and environmental performance through the provision of environmentally friendly products and services. In this study they included green innovativeness, green risk taking, green proactiveness and competitive aggressiveness.

Green Innovativeness: The creation, development, and adoption of technologies, practices, and products that have a positive impact on the environment. In this study they included product innovation, managerial innovation and process innovation.

Green Proactiveness: The launching of new green products or services ahead of competitors and occupying the market to gain first-mover advantage. In this study it included launching new products, launching new services and launching new green technology

Green Risk Taking: Willingness to undertaken green initiatives that involve risk in order to achieve a goal. In this study it included technological risks, compliance risks and operational risks.

Performance – the actual output of an organization as measured against its intended goals and objectives (Tahir, 2020). In this study it included financial performance and non-financial performance.

ACRONYMS AND ABBREVIATIONS

AVE	Average Explained Variance
EVs	Electric Vehicles
GDP	Gross Domestic Product
GE	Green Entrepreneurship
GEO	Green Entrepreneurial Orientation
GHG	Greenhouse Gases
NACOSTI	National Commission for Science, Technology and Innovation
NTSA	National Transport and Safety Authority
R&D	Research and Development
SASRA	Sacco Societies Regulatory Authority and
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
VIF	Value Inflated Factor
TV	Tolerance Value

CHAPTER ONE

1.0 INTRODUCTION TO THE STUDY

This chapter introduces the study to be conducted, particularly highlighting the study background, statement of the problem, objectives of the study, research questions, significance of the study, study scope, the theoretical framework and also the conceptual framework.

1.1 Background to the Study

Small and medium enterprises (SMEs) are undeniably the backbone of a country's economy, contributing significantly to economic prosperity and social well-being (Gherghina et al., 2020). These enterprises play a crucial role in fostering innovation and introducing new ideas into the market, thereby enhancing economic diversity and productivity (Endris & Kassegn, 2022). As the journey to sustainable transportation has reached a point of no return, SMEs cannot be left behind. Green entrepreneurship (GE) is a concept that is not only interested in short-term profit, but also consists of the green market in terms of the strategic choice to survive and develop by relying on green market trends, green consumers, and distinct ethical characteristics (Tuncer & Korchagina, 2024). Therefore, green entrepreneurship prioritizes long-term periodicity and policy dependence, by focusing on valuing the ecological environment, economy, and society at the same time. The skills and environmental concerns thus highlight the antecedent of green entrepreneurship activities (Li et al., 2022).

Green entrepreneurial orientation (GEO) is a new concept that aims to improve production processes and environmentally friendly products in order to solve economic, social, and environmental problems within the context of green entrepreneurship (Anin et

al., 2024). It has been defined as the extent to which organizations' entrepreneurial efforts integrate ecologically sustainable decisions and actions to improve their environmental performance (Muangmee et al., 2021). Businesses can more readily adopt and apply ecologically friendly practices when they have a green entrepreneurial focus (Karimi & Nabavi Chashmi, 2019). GEO is an internal strategy approach that has a propensity to seize chances by initiating green initiatives, such as launching environmentally friendly goods and services. The green entrepreneurial theory and entrepreneurship orientation theory served as the foundation for the development of the GEO concept (Wang et al., 2023).

In general, GEO describes an organization's propensity to innovate, take chances, and take proactive measures to grasp possible opportunities that result in improved financial, social, and environmental performance by offering eco-friendly goods and services (Silva et al., 2021). This comprises an organization's capacity to recognize and convert environmentally friendly business opportunities while accounting for expenses, risks, and uncertainty (Ameer & Khan, 2023).

1.1.1 Green Entrepreneurial Orientation and Performance of SMEs

GEO provides financial advantages through lower resource and energy costs when used as a dynamic capacity. To achieve this, businesses adopting GEO are more likely to rearrange internal and external resources in order to take advantage of possible green possibilities and capture values. This provides a competitive advantage in the market (Pratono et al., 2019). GEO has multiple dimensions including green innovativeness which is the ability to develop new products and processes that are environmentally friendly, green risk-taking which is the tendency to take risks in the pursuit of

environmental goals, green proactiveness which is the tendency to be proactive in developing and implementing environmental strategies, environmental orientation which is a focus on environmental issues and social orientation which is a focus on social issues (Muangmee et al., 2021).

Globally, according to the International Energy Agency report (2024), global sales of electric buses reached about 50,000 units in 2023, representing three percent of total bus sales, with 60% of those sales occurring in China (Mineikis, 2024). As posited by Qin et al. (2024), GEO enhances business performance and thus the need for managers to strategically cultivate a strong green GEO within their organization. It is also prudent for managers to recognize that the environmental stewardship is not just a moral imperative but also a pathway to enhanced business performance. In Jordan, Majali et al. (2022) established that GEO helped SMEs to detect capabilities, seek opportunities, and renovate activities in an environmentally friendly way in an endeavor to boost performance. In Europe, Figiel and Badar (2025) noted that the relationship between GEO and performance was not always significant, and the impact could be negligible, specifically when the firms had a low commitment to environmental strategies and had a limited strategic emphasis on sustainable practices.

Regionally, a study in sub-Saharan Africa by Anin et al. (2024) noted that the benefits of GEO are more salient when channeled through green purchasing, particularly under great levels of green supplier and customer integration. The study also noted that GEO did not have a positive effect financial performance of SMEs. In Tunisia, Bassem (2023) posited that green entrepreneurial orientation aspects such as green products, green technologies and green research and development enhanced the performance of small and medium

enterprises (SMEs). In South Africa, Fatoki (2019) postulated that Green Entrepreneurial Orientation was capable of significantly boosting firm performance. Therefore, understanding firm level factors in line with GEO could impact sustainability initiatives and also boost productivity.

In Kenya, Ngunga (2023) noted that lean green practices by entrepreneurs' influences SMEs performance. The study also noted that adoption of green strategies enables an organization to save time and cost thus boosting their performance. Jepngetich et al. (2024) highlighted that GEO adoption by SMEs could inform better marketing and innovation strategies thus enhancing business performance. Ochieng (2019) also noted that GEO played a significant role in promoting green innovative products, which also led to the performance of SMEs. The study also posited that a green entrepreneurial orientation developed dynamic capabilities, which helped enterprises to gain the competencies required to cope with the changing business environment immediately.

The potential of SMEs can be harnessed to address the challenges that hinder Kenya's progress towards achieving sustainability in the transport sector. In addition to adopting eco-friendly means of transportation for their goods and services, SMEs play a vital role in investing in businesses that contribute to Kenya's green transportation efforts, such as establishing battery charging stations for electric vehicles (EVs) (Mineikis, 2024). According to the World Energy Investment 2024 report by the International Energy Agency, Kenya has made tremendous progress in adopting battery electric vehicles in 2023 as part of green entrepreneurship initiatives. Kenya aims at encouraging entrepreneurs to adopt the purchase of electronic motorbikes and vehicles as it enables them to save more, although the adoption remains slow. In the matatu sector, the adoption

of EVs has been slowed down by the inability of the SMEs to establish infrastructures like charging stations. Currently, charging infrastructures are concentrated in major cities and towns, thus disadvantaging rural areas (Mineikis, 2024). Encouraging the adoption of these green innovations by entrepreneurs in the transport sector can therefore enable them to reduce their maintenance costs leading to better performance.

Empowering SMEs to venture into this area can increase the number of e-buses and e-bikes in the country. As such the adoption of green entrepreneurial orientation by the SMEs in the transport sector through green innovations, green proactiveness, green risk-taking and competitive aggressiveness should be encouraged in the Kenyan transport sector for the country to reduce green gas emissions. The draft National e-Mobility Policy by the Ministry of Roads and Transport identifies inadequate charging infrastructure, high capital costs for setting up charging infrastructure, high upfront costs of EVs, high electricity costs for commercial charging, and limited electricity network reach in the country as challenges slowing down the adoption of green entrepreneurship in the transport sector (Ministry of Road & Transport, 2024).

1.1.2 Organizational Performance

According to Tahir (2020), performance means the actual output of an organization as measured against its intended goals and objectives. Many organizations have attempted to manage their performance using the balanced scorecard methodology where performance is tracked and measured in multiple dimensions such as financial performance, customer service, social responsibility and employee stewardship. According to Ullah and Danish (2020), financial performance is measured through return on investment, return on sales, profit, cash flow, return on equity and earnings per share. On the other hand, non-

financial performance is measured through market share, new product introduction, innovativeness, technological efficiency, market effectiveness and product quality.

According to George, et al. (2019), at organizational level, organizations integrate a formal assessment of strategic planning in its measurement. Therefore, in defining performance, managers should reflect on all strategic choices, time frame, degree of heterogeneity in the environment, resources and the stakeholders. Further, there are various ways how organizational performance can be measured. This include as a measure of survival and growth, as a measure of good fit with environment and as a measure for relevancy. Organizational performance can also be measured through operational performance, financial performance and shareholder performance. Operational performance includes an evaluation of its marketing, customer satisfaction, product quality, and competitive advantage. It also reviews market share strengths and company sales numbers. Financial performance on the other hand incudes an organization's finances including revenue and profit margins. It determines a company's liquidity, investments, return on assets, and cash flow. Shareholder return performance is an evaluation of the shareholder's profit over a period of time. It assesses the growth of an investor's company shares during that pre-determined period (Xanthopoulou et al., 2022).

According to available literature, various authors have conceptualized organizational performance differently. Tamynomiebi, et. al. (2018) look at organizational performance in terms of profitability, efficiency and timeliness while Ibrahim and Daniel (2019) look at productivity. In addition, Onyemaechi et al. (2020) look at organizational performance in terms of service delivery. Hamann and Schiemann (2021) indicate that organizational

performance has dimensions: profitability, liquidity, growth, and stock market performance. The current study conceptualized organizational performance in terms of financial performance (total assets, return on assets and return on equity) and non-financial performance (market share, operational efficiency, carbon footprint and customer satisfaction).

1.1.3 Government Policy

Government policies are the actions taken or not taken by governments in addressing societal issues, influenced by ideas, institutions, and interests within the political arena. Government policies are usually influenced by a variety of factors such as public opinion, economic conditions, new scientific findings, technological change, interest groups, business lobbying, and political activity (Adeniran et al., 2023). They include principles, guidelines, or rules established by the government to guide decision making and action on specific issues. Government policies can therefore cover social, economic and environmental issues. It is considered as an essential tool for governments to achieve their goals and objectives, and plays a critical role in shaping the functioning and well-being of societies. (Chen, 2022).

It is essential for the government to establish innovative and competitive public policies to support a rapid change of entrepreneurial orientation, and transform policies into action (Karnsomdee, 2021). This is because they ensure compliance with laws and regulations, give guidance for decision making, and streamline internal processes in organizations. Therefore, polices provide a structured framework, offering clarity on acceptance behaviours and guiding day to day operations. They also establish consistency, promote compliance, and ensure that everyone within an industry is on the same page. However,

challenges brought about by a complicated regulatory regime, unfriendly customs and trade regulations, tight monetary and credit policies, corruption and excessive tax regimes, workforce and labour regulations could have a negative impact on performance (Mwasiaji, 2019). This study conceptualized government policy under the dimension of government regulations.

1.1.4 Transport Sector in Nairobi Metropolis

The transport sector in Nairobi Metropolis and other parts of the country comprises of the road, rail and aviation subsectors. Each subsector is distinct, fully established and operating independently. Kenya's transport sector accounts for 8.3% of its total gross domestic product (GDP). Over the period 2002-2022, the transport sector grew at an average annual rate of 13.3% compared to 11.8 % for the overall economy. The growth was mainly due to substantial increase in investments in transport infrastructure and services. The public transport system is privately operated, with the road transport network served by matatus (minibuses), taxis (traditional and ride hailing services), bodabodas (motorcycles) and tuktuks (three-wheelers). Kenya has acknowledged the importance of addressing climate change. Road sub-sector accounts for over 76% freight and 80% traffic (GIZ, 2021).

A signatory of the Paris Agreement, Kenya enacted its Climate Change Act in 2016. The act highlights the importance of mainstreaming climate change across all sectors. The draft National e-Mobility Policy by the Ministry of Roads and Transport proposes the establishment of low-interest loan programs to provide financial assistance to businesses and organizations investing in EVs and calls for government collaboration with financial institutions to develop affordable e-mobility financing products. If actualized, this can be

a significant boost for SMEs which are key to accelerating the green transportation effort (Ministry of Road & Transport, 2024). In an endeavor to encourage green entrepreneurship in the transport sector, Kenya has several SMEs manufacturing EV bikes and vehicles (Mineikis, 2024).

The National Climate Change Action Plan (2018-2022) identified climate change measures for the transport sector. These include plans for decarbonizing the transport sector; developing an affordable, safe and efficient public transport; reducing fuel consumption and fuel overhead costs; climate-proofing transportation infrastructure; promoting an enabling technology for the sector and introducing an enabling policy measure (GIZ, 2021). This can be achieved through the adoption of green entrepreneurship orientation in the transport sector. This study therefore sought to investigate how green entrepreneurship orientation could be adopted by the SMEs in the transport sector in Nairobi metropolis to enhance their performance while at the same time taking care of the environment.

1.2 Statement of the Problem

Despite the transport sector in Kenya being among the biggest contributors to the economy, the high operational costs affect the performance of the SMEs operating in the sector. This has resulted to inadequate and lack of proper maintenance of the vehicles and motorcycles used in the road transport sector. The transport sector is the largest consumer of petroleum products in Nairobi metropolis and hence a major contributor to greenhouse gases (GHG) emissions. In 2015, the sector accounted for about 67% of Kenya's energy-related CO2 emissions and 11.3% of Kenya's total GHG emissions for fuel consumption in civil aviation, road transport and rail (GIZ, 2021). Nairobi metropolis has the highest

number of vehicles operating in the public transport. The draft National e-Mobility Policy by the Ministry of Roads and Transport identifies high capital costs for setting up charging infrastructure in Nairobi as challenges slowing down the adoption of green entrepreneurship in the transport sector (Mineikis, 2024). In addition, investors in the public transport sector in Nairobi incur high maintenance costs due to the petroleum products used by their vehicles. This has had a negative effect on their financial performance of the SMEs (Kangogo et al., 2024). The financial performance of Matatu Saccos in Nairobi metropolis is highly variable, with some struggling with capital adequacy, loan defaults, and liquidity issues (Mutua, 2024). In addition, the financial standing of some matatu saccos has been due to not fully being compliant with regulations (Mbithi & Kariuki, 2024). As per the Sacco supervision annual report 2024, the public transport sector contributed 3.6% to Kenya's gross domestic profit which is a decrease from 4.6% in 2023.

Various studies had been conducted on the influence of green entrepreneurship orientation and organizational performance. Bassem (2023) conducted a study on GEO and performance of family businesses in Tunisia by specifically looking at the dimensions of green products, green R&D and Green technologies. The study which used Chi-square tests established that GEO enhances performance. Poi (2023) also conducted a study on the relationship between GEO and organizational performance. The study was carried out in Agro-allied SMEs in Nigeria and used cross-sectional research design to establish that there was a positive relationship. Ullah and Danish (2020) also conducted a study in Pakistan and looked at the dimensions of product and process innovation. The study established that there was a significant relationship between GEO and SMEs

performance. Habib et al. (2024) in Bangladesh focused on the GEO constructs of environmental, economic and social. The study which used structural equation modeling established that there was a positive relationship between GEO and organizational performance.

These studies highlighted various gaps that could be filled by the current study. One of the gaps noted was the scarcity of studies on GEO and SMEs performance in Nairobi metropolis transport sector. The current study filled this contextual and geographical gap as it was conducted in the public transport sector in Nairobi metropolis. Another gap was that studies had been undertaken looking at various parameters of green entrepreneurial orientation. The current study filled this conceptual gap by looking at green innovation, green risk-taking, green proactiveness and competitive aggressiveness.

1.3 Research Objectives

1.3.1 General Objective

The broad objective of the study was to establish the influence of green entrepreneurship orientation on the performance of public transport SMEs in Nairobi Metropolis, Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were:

(i) To determine the influence of green innovativeness on the performance of public transport SMEs in Nairobi Metropolis, Kenya

(ii) To establish the influence of green risk taking on the performance of public transport SMEs in Nairobi Metropolis, Kenya

(iii) To assess the influence of green proactiveness on the performance of public transport SMEs in Nairobi Metropolis, Kenya

(iv) To assess the influence of competitive aggressiveness on the performance of public transport SMEs in Nairobi Metropolis, Kenya

(v) To determine the moderating effect of government policy on the relationship between green entrepreneurial orientation and performance of public transport SMEs in Nairobi Metropolis, Kenya

1.4 Research Hypotheses

H_o1 Green innovativeness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya

H_o2 Green risk taking has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya

H_o3 Green proactiveness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya

H_o4 Competitive aggressiveness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya

H_o5 Government policy has no statistically significant moderating influence on the relationship between green entrepreneurial orientations and the performance of public transport SMEs in Nairobi Metropolis, Kenya

1.5 Significance of the Study

This study could be significant to the SMEs registered under the matatu saccos operating in Nairobi metropolis as they would be able to get insights on how the adoption of GEO can enhance their performance. In addition, the study findings and recommendations would also be beneficial to the matatu saccos that have registered the vehicles in the

Nairobi metropolis as they would be able to review their policies to encourage the adoption of GEO by the investors.

The findings could also be significant to the Ministry of Roads and Transport as they would be able to review policies on the public transport sector in the country to encourage the adoption of GEO so as to encourage environmental sustainability. This study could serve as a reference point for future scholars and researchers interested in expanding knowledge on the influence of GEO on organizational performance.

1.6 Scope and Delimitation of the Study

The content scope of this research was to look into the influence of green entrepreneurship orientation on the performance of public transport SMEs in Nairobi Metropolis, Kenya. The study's conceptual scope was to determine the influence of green innovativeness, green risk taking, green proactiveness, competitive aggressiveness as well as the moderating role of government policy on the performance of public transport SMEs in Nairobi Metropolis, Kenya. The institutional focus of this study was public transport SMEs while the geographical scope was Kenya. Data was gathered from both primary and secondary sources. The primary data was collected from the investors of Super Metro Sacco and Metro Trans Sacco, financial managers and route managers in Nairobi metropolis. The unit of analysis was the Super Metro and Metro Trans Saccos while the unit of observation was the investors in the two saccos, financial managers and route managers. Secondary data was gathered from the financial reports of the public transport SMEs in Nairobi Metropolis from 2020-2024. The time scope for this study was eight months.

1.7 Theoretical Framework

This research was anchored on various theories. The first theory was disruptive innovation theory which was proposed by Christensen (1995) which describes products/services taking root by disrupting an existing market or creating a new one. The theory was related to the green innovativeness. The second theory was the risk compensation theory introduced by Peltzman (1975) which states that people tend to take more risks when they feel safer or more protected. The theory was related to the green risk taking variable. The third theory was proactive work theory introduced by Rachmand (2022) which states that proactivity involves actions based on forward thinking, planning and measured actions to achieve set goals. The theory was related to the green proactiveness variable. The fourth theory was the theory of competitive advantage introduced by Porter (1985) to suggest that businesses should pursue policies that create high-quality goods to sell at high pierces in the market. The theory was related to the competitive aggressiveness variable. The fifth theory was systems theory which was introduced by Bertalanffy in 1940s to highlight a way to address the increasing complexity of world's problems. The theory was related to the government policy variable.

1.8 Conceptual Framework

This study hypothesized that four independent variables, namely green innovativeness, green risk-taking, green proactiveness and competitive aggressiveness, influence the dependent variable – performance of SMEs, and how government policy moderates the relationship between the independent variable and the dependent variable as shown in Figure 1.1 below.

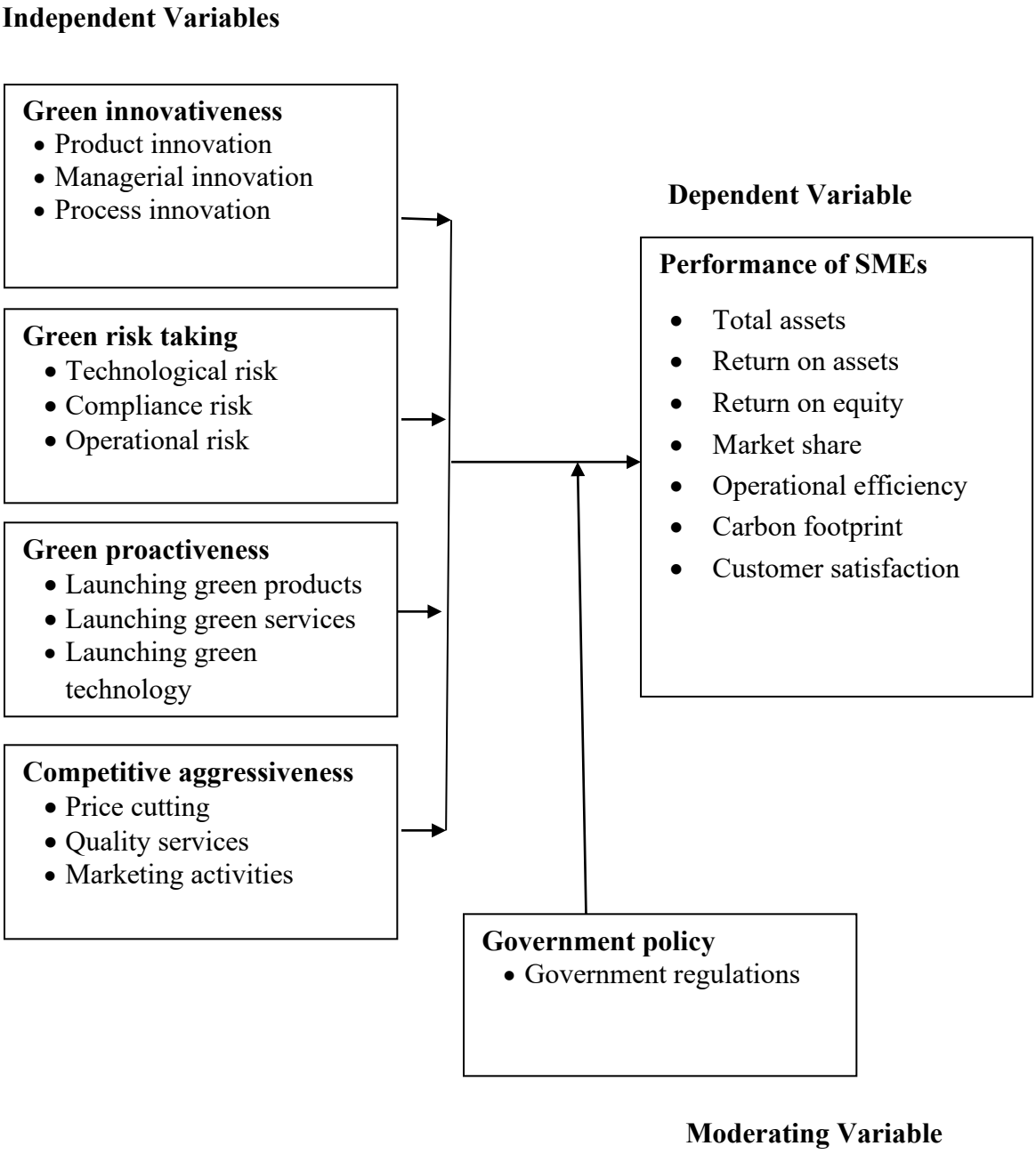

Figure 1.1: Conceptual Framework

Figure 1.1 above showed that green entrepreneurship orientation under the dimensions of green innovativeness, green risk-taking and green proactiveness could influence the performance of public sector SMEs in Nairobi Metropolis in Kenya. Through green innovativeness, the management of the SMEs would be able to determine the products to

innovate, how to be more innovative in their managerial decisions and the process innovations for enhanced financial and non-financial performance. The conceptual framework also showed how the public sector SMEs through the adoption of green risk taking would be able to take more technological risks, compliance risks and operational risks so as to boost their financial and non-financial performance. By adopting green proactiveness, the public sector SMEs would be able to launch green products, green services and green technology which would be useful in their operations and this would in turn translate to increased financial and non-financial performance. In addition, through competitive aggressiveness, the SMEs could pursue price cutting measures, offer quality services and aggressively market their services to boost their financial and non-financial performance. Further, the government policy which lays down the government regulations regulating the public transport would adhere to by the public sector SMEs as they adopt GEO to enhance their financial and non-financial performance.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews theories relating to the study objectives by highlighting their key assumptions, significant arguments, their importance in this study and also criticizing. The chapter also reviews existing empirical studies on the relationship between green entrepreneurial orientations and performance of public sector SMEs from developed and developing countries. The chapter ends with a research gaps which were noted based on the reviewed theories and studies.

2.1 Theoretical Review

2.1.1 Disruptive Innovation Theory

The disruptive innovation theory was proposed by Christensen (1995). The theory describes a concept, product, or service that creates a new value network by disrupting an existing market or creating a new one. According to Christensen (1995) the key assumptions of the theory is that new innovations often start by targeting under-deserved market segments with seemingly inferior products, gradually improving to disrupt the established market leaders by offering a simpler, more affordable solution that eventually captures a larger market share, often by creating new customer needs or value propositions not addressed by existing players. Therefore, disruptive innovation theory is about low-end market entry, initial inferiority, value proposition shift, market evolution and incumbent resistance.

In the late 1990s, the automotive sector began to embrace a perspective of constructive disruptive technology through the work of O'Ryan. This entailed the use of current off-

the shelf technology being integrated with newer innovation to create an unfair advantage. This was meant to improve the current method of manufacturing, yet disruptively impact the whole of the business case model, resulting in a significant reduction of waste, energy, materials, labour or legal costs to the user (Schatt, 2017).

Disruptive innovations typically enter the market by addressing the needs of neglected customers, which is considered inferior in terms of features or performance compared to existing products in the initiation stages. However, the disruptive innovation gradually improves its capabilities while still maintaining its core value proposition, which may be different from the established players (Christensen & Raynor, 2003). This way the improvement in the innovativeness may lead to the product moving up and eventually capturing market share from established companies. Established companies often resist disruptive innovations due to their focus on sustaining innovations that cater to their existing customer base, potentially hindering their ability to respond effectively (Lile et al., 2024).

This theory was relevant in this study as it explained how public transport SMEs could adopt disruptive innovation through green innovativeness. This could be achieved through product innovation by coming up with products that offer more affordable solutions and also through service innovation in the industry players so as to capture the market share. In addition, through process innovation, public transport SMEs could be able to make their services more accessible to their customers and this would be able to address the neglected needs of customers thus capture a bigger market.

The disruptive innovation theory has been critiqued for oversimplifying the strategic choices and actions that both incumbents and challengers can take in response to potential

disruptions. Therefore, categorizing innovations strictly as sustaining or disruptive fails to capture the breadth and diversity of innovation (Kumaraswamy et al., 2018). The theory has also been noted to over-relied on historical case studies to generate significant disagreement. Disruptive innovation theory also has a narrow focus on technology and market factors. This critique concerns a predominant focus on technological attributes and market factors which has the potential to obscure other critical elements such as firm-level factors, socio-political factors and institutional factors. Therefore, the theory fails to delve deep into the complexity of firm level-responses (Saadatmand & Daim, 2019).

Another critique has been that the theory neglects high-end disruption where a new product or service is introduced at a high price point and initially targets the upper market before cascading downward thus limiting its applicability to a range of innovation scenarios. The theory has also been criticized for its overemphasis on individual firms as opposed to broader innovation ecosystems as primary unit of analysis (Kumaraswamy et al., 2018).

2.1.2 Risk Taking Theory

The risk-taking theory was introduced by Cantillon and Mill and later rectified by Marshal in 1890. The theory states that entrepreneurs should have the inclination to take moderate risk and the ability to bear that risk. The theory also posits that every society possesses some people who are willing to take risks and challenges and these people have the change to be the entrepreneurs. Therefore, the role of entrepreneurs plays a role in assuming the risks involved in production by bringing together the factors of capital, land and labour to create new ventures and exploit market opportunities, essentially acting on uncertain forecasts of supply and demand to drive economic growth (Marshall, 1920).

Risk taking theory also emphasizes that entrepreneurs as primary risk-takers are responsible for making decisions based on potential market changes and uncertainties, potentially facing losses if their predictions are incorrect. The theory also notes that entrepreneurs possess the ability to anticipate market trends and implement innovative strategies which inherently involve risk taking based on foresight and innovation (Marshall et al., 1995). The idea states that organization is a critical component of production, with the entrepreneur serving as the catalyst for the coordination of labor, capital, and land (Ajupov et al., 2019).

The risk-taking theory was relevant to this study because it showed how entrepreneurs who run public transportation SMEs should take calculated risks based on market trends and expectations in order to put creative ideas for improved performance into practice. Under green entrepreneurial orientations, the risks could include technology risks, compliance risks, and operational risks that take into account labor and capital considerations in order to take advantage of market possibilities and enhance organizational performance in the public transportation sector.

The risk-taking hypothesis has come under fire for having an overly simplistic approach to making decisions. This is due to the fact that risk taking theory ignores the influence of emotions, heuristics, and biases in real-world decision-making and instead posits a perfectly rational approach in which people carefully consider prospective risks and rewards before making a decision. Additionally, the idea has come under fire for ignoring situational and contextual elements. This is because the theory might not sufficiently take into consideration how a situation's context—which includes societal conventions, cultural influences, and individual experiences—can have a big impact on risk-taking

behavior. Additionally, the theory is criticized for its inability to measure risk because risk perceptions differ among people and circumstances, making it challenging to determine a person's propensity for taking risks (Boyer & Byrnes, 2016).

Its limited application to complex circumstances has also drawn criticism. This is due to the fact that it is not entirely applicable to intricate real-world situations where risks are interrelated and unpredictable, necessitating the employment of more sophisticated decision-making techniques. Because incentive structures intended to promote risk-taking in commercial contexts can occasionally result in managers taking excessive risks, which could be detrimental to the organization, risk-taking theory has also been criticized due to agency concerns. It's possible that not enough attention has been paid to the cognitive capacities, motivations, and personality features of each individual that affect risk-taking behavior (Hoskisson et al., 2017).

2.1.3 Proactive Work Theory

Rachmand (2022) established the proactive work theory. The theory's basic idea is that proactive behavior entails taking planned, forward-thinking, and deliberate steps to accomplish predetermined objectives. According to the theory, proactive work is a strategy in which people take the initiative to enhance and optimize work procedures, foresee issues, and look for new chances before they become pressing requirements. The idea behind the proactive work theory is the growing need for efficiency and innovation in a variety of sectors. This is due to the fact that successful businesses are frequently those that are able to predict shifts in the market and adjust before their rivals. This phenomenon emphasizes how crucial proactive attitudes and actions are to attaining sustainability and a competitive edge (Rachmand, 2022).

Proactive work theory's guiding ideas include anticipating opportunities and possible issues and creating plans to deal with them. This calls for proactive measures, data-driven decision-making, long-term planning, and information gathering. These guidelines stress how crucial teamwork and efficient communication are to putting preventative measures into action. The frequency of individual initiatives, the degree of planning and preparation, and the accomplishment of long-term objectives are the main markers of proactive work theory (Rachmand, 2022).

The theory was pertinent to this study because it demonstrated how SMEs in the public transportation sector might use green proactiveness to spot possibilities and possible issues in the sector and provide green services, technology, and products to improve organizational performance. In order to take proactive measures for better organizational performance, the entrepreneurs who own public sector SMEs could plan for the long term, obtain sufficient information about green products, services, and technology that they could use, and make data-driven decisions. This made the theory pertinent as well.

It has been said that the proactive work paradigm disregards organizational limitations. This is due to the fact that the theory occasionally ignores the constraints imposed by an organization's culture, regulations, and structure, which may result in circumstances in which proactive actions are either discouraged or not encouraged. Another critique of the idea is that overly proactive behavior might cause conflict among coworkers, particularly if people take the initiative without seeking input from others or interfere with established procedures without a valid reason (Pratama et al., 2023).

Additionally, the theory is critiqued for failing to sufficiently take into consideration circumstances in which proactive conduct is motivated by maladaptive motives such as

the desire to undermine others, power, or self-promotion. Another criticism of the proactive work paradigm is its lack of complexity in measuring proactivity. This is due to the fact that assessing proactive activity can be difficult, and some studies might not account for the whole spectrum of proactive behaviors, including some that could have unfavorable effects (Crant & Chen, 2024).

2.1.4 Theory of Competitive Advantage

Porter introduced the theory of competitive advantage in 1985. According to the thesis, companies ought to implement policies that produce high-quality products that the market will buy at premium pricing. The fundamental idea behind the theory of competitive advantage is that a business can outperform its rivals in terms of value for customers, which boosts sales and profits. According to Porter (2017), the three main tactics of the theory are market segmentation, differentiation, and cost leadership. While differentiation is about developing distinctive product features or brand perception that customers value and are ready to pay more for, cost leadership is about becoming the industry's lowest-cost producer, enabling lower costs while preserving profitability. Market segmentation on the other hand is about a narrower scope and is a cross between cost leadership and differentiation. Segmentation targets finding specific segments of the market which are not otherwise tapped by larger firms. (Porter, 1985)

According to Porter (1985), competitive advantage occurs when an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors. These attributes can include access to natural resources. New technologies can be included as part of the product or to assist making it.

The theory of competitive advantage was relevant in this study because it highlighted the importance of public sector SMEs through competitive aggressiveness striving to gain competitive advantage providing by superior value to customers compared to its competitors while still remaining profitable. In order to outperform their rivals and improve organizational performance, public sector SMEs should take into account a number of tactics, including lowering prices, offering high-quality services, and engaging in aggressive marketing campaigns.

The theory has drawn criticism for analyzing competitive forces in a too straightforward manner, possibly ignoring subtleties and complexity within markets and sectors. A company's competitive advantage can be swiftly undermined by rapidly shifting market dynamics and technology improvements, which the theory is said to be unable to sufficiently account for due to its static character (Isabelle et al., 2020).

Another critique is that it might be difficult to keep a competitive edge, particularly in markets with fierce competition where rivals are always coming up with new ideas and ways to adapt. The emphasis on trade-offs in the notion of competitive advantage has also drawn criticism. This is due to the fact that businesses may overlook chances for hybrid strategies that incorporate aspects of both cost leadership and distinctiveness when they place too much attention on choosing between the two (Goyal, 2020).

The theory has also come under fire for its scant attention to innovation, which undervalues the significance of ongoing invention as a major source of sustained competitive advantage. Critics have pointed out that there isn't enough solid empirical data to back up the framework's applicability in every circumstance. Additionally, there

are implementation issues because it can be challenging in reality, especially for businesses that operate in dynamic and complicated environments (Gratton, 2024).

2.1.5 Systems Theory

The systems theory was introduced by Bertalanffy in 1940s. The theory highlights a way to address the increasing complexity of worlds problems. It is a theory of interacting processes and the way they influence each other over time to permit the continuity of some larger whole. The theory takes the position that the whole is more than the sum of its parts. Therefore, a system cannot be fully understood by identifying each of its component's parts (Bertalanffy, 1968). The basic elements of the systems model are output, process, input, and feedback. Process represents the operations that occur to transform the inputs to the desired outputs and inputs represent the basic resources that will be transformed into the output. Feedback on the other hand is the element of control (Bertalanffy, 1972).

Systems theory assumes that it is through the interactions of the numerous smaller systems that the complexity of the overall system emerges. Every system has causal boundaries, is influenced by its context, defined by its structure, function and role, and expressed through its relations with other systems (Buckley & Bertalanffy, 1968). The goals of the systems theory are to model a system's dynamics, constraints, conditions, and relations, and to elucidate principles such as purpose, measure, methods and tools that can be discerned and applied to other systems at every level of nesting, and in a wide range for achieving optimized equifinality. In essence, systems theory is about developing broadly applicable concepts and principles, as opposed to concepts and principles specific to one domain of knowledge (Bertalanffy, 1972).

The theory was pertinent to this study because it highlighted how public transport SMEs operate in a larger system that was defined by the government. Therefore, government regulations determine the sub systems in the transport sector and how they operate thus adhering to the government policy was crucial for the public transport SMEs as they adopt green entrepreneurial orientations so as to enhance their performance.

The systems theory has been critiqued because while it allows the whole to be more than the sum of its parts, it does not provide specific guidance to managers. Their role is left somewhat nebulous and severely generalized. The theory has exploded the one-way approach but it does not construct a viable alternative in its place (Johnson, 2019). Another critique of the systems theory is that it may not always be sufficient to explain an individual's present circumstances. It is also difficult to translate its findings into actionable solutions, particularly at the cultural and policy levels. The theory has also been critiqued for its complexity because while it is useful in analyzing complex systems, it can also be challenging to apply, particularly when there are a large number of system components or when the system is constantly changing (Skyttner, 2006).

2.2 Empirical Review

2.2.1 Influence of Green Innovativeness on Organizational Performance

Ahmed et al. (2023) assessed the influence of green innovativeness on organizational performance in the textile industry of Pakistan. The study focused on the dimensions of green products and green process. The study adopted structural equation modeling. The findings showed that green innovation practices enhanced organizational performance. While this study adopted structural equation modeling, the current study adopted regression analysis and this highlighted a methodological gap. In addition, while this

study was conducted in the textile industry, the current study was conducted in the transport sector and this highlighted a contextual gap. While this study was conducted in Pakistan, the current study was conducted in Kenya and this highlighted a geographical gap.

Akhter (2024) explored the link between green innovativeness and organizational performance in the pharmaceutical sector of Pakistan. The study specifically focused on green marketing and administrative innovations. The study adopted cross-sectional research design. The results showed that there was a significant relationship between green innovativeness capabilities and organizational performance. The study also noted that acquiring such competencies enhances the positioning of a business, decreases costs and helps in dealing with challenges in the environment making it possible for firms to capitalize growth prospects. While the study was conducted in the pharmaceutical sector, the current study was conducted in the transport sector and this highlighted a contextual gap. Further, while this study focused on green marketing and administrative innovations, the current study focused on product innovation and process innovation and this highlighted a conceptual gap.

In Saudi Arabia, Baeshen et al. (2021) conducted a study on the relationship between green innovativeness and SME performance. The study specifically focused on green absorptive capacity, sustainable human capital and organization support. The study adopted structural equation modeling. The results highlighted that there was a positive relationship between green innovativeness and organizational performance. In order to create environmentally friendly goods and services, the survey also observed that companies were embracing and implementing more sustainable production techniques. A

geographical gap was brought to light by the fact that the present study was carried out in Kenya, whereas this one was carried out in Saudi Arabia. Furthermore, a conceptual difference was revealed by the current study's concentration on product, managerial, and process innovation, whereas this study concentrated on green absorptive capacity, sustainable human capital, and organization support.

German et al. (2023) investigated how organizational performance in the Philippine auto sector was impacted by green innovativeness. The study especially examined market demand, competitive and governmental pressure, employee behavior, and corporate social responsibility as drivers of green innovation. For data analysis, the study used structural equation modeling. The findings showed that a firm's competitiveness and organizational performance are significantly impacted by the adoption of green innovative initiatives. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whereas this one was carried out in the Philippines. Additionally, a methodological gap was revealed because the current study used regression analysis, whereas this study used structural equation modeling.

A study on how green innovativeness affects organizational performance in Malaysia's manufacturing sector was carried out by Jayaraman et al. in 2023. The primary factors influencing green innovation in a firm were suppliers, personnel, government requirements, and customer pressures, according to the study. For data analysis, the study employed structural equation modeling. The results demonstrated a positive correlation between organizational performance and green innovativeness. While this study focused on the key determinants of green innovativeness, the current study focused on the dimensions of product innovation, managerial innovation and process innovation and this

highlighted a conceptual gap. Further, while this study was conducted in the manufacturing sector, the current study was conducted in the transport sector and this highlighted a contextual gap. While this study adopted structural equation modeling, the current study adopted regression analysis and this highlighted a methodological gap.

In China, Liu et al. (2024) investigated the influence of green innovativeness on organizational performance of A-Share listed companies. The study reviewed existing literature from 2010-2021. The findings indicated that green innovativeness leads to a significant improvement in organizational performance. Another finding was that green technology innovations can improve product quality and adaptability, and reduce operating costs which tends to improve the performance. While this study was conducted in China, the current study was conducted in Kenya and this highlighted a geographical gap. In addition, while this study reviewed existing literature, the current study collected primary data and this highlighted a methodological gap.

The impact of green innovativeness on organizational performance in medium-sized manufacturing enterprises was investigated by Opazo-Basaex et al. (2024) in Spain. According to the study, implementing green technologies has improved organizational performance by allowing businesses to cut down on wasteful resource consumption, manufacturing costs, and time. This has led to an increase in productivity and conservation of resources. According to the study's findings, organizational performance and green innovativeness were positively correlated. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whereas this one was carried out in Spain. Furthermore, there was a contextual difference because the current

study was carried out in the transportation sector, whereas this one was carried out in the industrial sector.

Qiang and Yang (2023) conducted a thorough analysis of Chinese literature in an effort to ascertain the impact of green innovativeness on organizational performance. Innovation in green product, process, and management was the study's primary focus. According to the study, green innovation was a key component of an organization's strategy that significantly impacted performance. It was also noted that green innovation could aid businesses to adjust environmental changes and enhance performance. Green management innovation could also enable enterprises to align with national environment policies while process innovation enhanced the production efficiency and resource utilization. The study also found that green product innovation improved the quality and design of existing products or introduced new products to minimize the product's adverse effect on the environment. While this study reviewed existing literature, the current study collected primary data and this highlighted a methodological gap. In addition, while this study was conducted in China, the current study was conducted in Kenya and this highlighted a geographical gap.

Wang et al. (2021) conducted a study in Pakistan on the effects of green innovativeness on organizational performance in the manufacturing and services firms. The study specifically focused on the dimensions of green product and green process. The study adopted convenient random sampling to sample the respondents. The study established that there was a positive and significant relationship between green innovativeness and organizational performance. While this study was conducted in manufacturing and services firms, the current study was conducted in public transport SMEs and this

highlighted a contextual gap. Further, while this study adopted convenient sampling, the current study adopted stratified sampling and this highlighted a methodological gap.

In Ghana, Marfo et al. (2024) examined the effect of green innovativeness on organizational performance in the hotel industry. The study used structural equation modeling to analyze the data. The outcome showed that green innovation positively and significantly influences the performance. The findings also highlighted green leadership's, crucial role in promoting sustainability and organizational performance. While this study was conducted in the hotel industry, the current study was conducted in the transport sector and this highlighted a contextual gap. Further, while this study used structural equation modeling for data analysis, the current study used regression analysis and this highlighted a methodological gap.

Omonijo and Zhang (2024) investigated the relationship between green innovation strategies and performance in African nations. The study reviewed existing literature. The results showed that green innovativeness had a significant influence on organizational performance. The study also noted that green innovation was all about improving products or process in terms of pollution-prevention, particularly on the materials product development or design or the extent to which environmentally friendly innovation influences organizational performance. While this study was conducted in several African countries, the current study was only conducted in Kenya and this highlighted a geographical gap. In addition, while this study reviewed existing literature, the current study collected primary data and this highlighted a methodological gap.

Oluwajimade and Olanrewaju (2023) investigated the effect of green innovation tools on performance of selected pharmaceutical in Nigeria. The study specifically focused on

green products and green processes. A descriptive survey research design was used in the study. The findings revealed that green innovation tools had a positive and significant effect on organizational performance. The study recommended that the pharmaceutical firms need invest in research and development to develop new green technologies and products as this could help them to remain competitive in the industry while also contributing to the development of sustainable practices. While this study was conducted in the pharmaceutical industry, the current study was conducted in the transport sector and this highlighted a contextual gap.

Tugli (2023) assessed the correlation between green innovativeness and organizational performance in SMEs located in Ghana. The study specifically focused on green processes and used structural equation modeling for data analysis. The findings of the study indicated that there was no statistically significant relationship between green process innovation and performance. While this study used structural equation modeling for data analysis, the current study used regression analysis and this highlighted a methodological gap.

In Kenya, Muketha et al. (2024) explored the influence of green innovativeness on organizational performance in the floricultural firms. The study specifically focused on product, process and service dimensions. The researcher adopted the census method structural equation modelling to verify the hypothesis. The study revealed that product, process and service innovation significantly influenced performance. The study recommended that firms should adopt green innovation by ensuring that the processes adopted and the inputs used are eco-friendly as this could boost performance. While this

study was conducted in the floricultural firms, the current study was conducted in public transport SMEs and this highlighted a contextual gap.

Nzomo et al. (2023) investigated the link between green innovativeness and organizational performance in the manufacturing sector. The study adopted explanatory and descriptive research designs. The study found that there was a positive relationship between green innovativeness and organizational performance. The study suggested that the management should ensure that they automate most of the processes and train their employees so as to make use of tacit knowledge for enhanced performance. While this study was conducted in the manufacturing sector, the current study was conducted in the transport sector and this highlighted a contextual gap. Further, while this study adopted explanatory and descriptive research design, the current study only adopted descriptive research design and this highlighted a methodological gap.

Obiso et al. (2023) sought to find out the link between green innovativeness and organizational performance in oil and gas sector. The study specifically focused on green distribution dimension. The study findings showed that green distribution had a positive and significant influence on firm performance. The study recommended that private oil and gas marketing firms should adopt green distribution to improve their economic, environmental and social performance. While this study focused on green distribution dimension, the current study focused on product innovation, managerial innovation and process innovation and this highlighted a conceptual gap.

The impact of green innovation on the organizational performance of industrial companies in Mombasa County was investigated by Otundo (2019). The green production dimension was the study's primary focus. The research design used in this

study was descriptive. The organizational performance components of the businesses that had embraced green manufacturing concepts performed better. According to the study, the most widely used green production technique was the utilization of recyclable resources. A conceptual gap was revealed since the current study concentrated on product, managerial, and process innovation, whereas this study concentrated on green production.

2.2.2 Influence of Green Risk Taking on Organizational Performance

Ciocoiu et al. (2024) evaluated how MSMEs' performance was affected by taking green risks. Existing literature was reviewed in the study. The results demonstrated a positive correlation between organizational performance and green risk taking. According to the study, companies that depend too much on risk management may lose out on new chances that could hinder their ability to innovate and execute. Although this study examined previous research, it also gathered primary data, which revealed a methodological flaw.

A study on the impact of green risk-taking on organizational performance in Chinese A-listed enterprises was carried out by Deng et al. (2023). After reviewing the literature, the study concluded that businesses with poor performance and little research and development were more likely to take risks. Although this study examined previous research, it also gathered primary data, which revealed a methodological flaw. A geographical disparity was also brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in China.

Heena and Bedi (2022) investigated the connection between corporate performance and green risk-taking in India. They modified a cross-sectional design. The study found that a

firm's risk-taking inclination affects its performance. The study also discovered that as companies expand, they encounter a variety of hazards related to finances, competition, new rules, and technology, all of which have an effect on the company's performance. A geographical disparity was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in India. Furthermore, a methodological gap was shown since the current study used a descriptive research methodology, whereas this study used a cross-sectional research design. While this study focused on the dimensions of finance, competition, latest technology and policies, the current study focused on compliance risk and operational risk and this highlighted a conceptual gap.

Soane and Aufegger (2024) examined the body of research on the connection between organizational performance and green risk-taking in the UK. The study noted that the capability to vary risk-taking was an important aspect of performance in organizations where behavioral adjustments were required to suit changing objectives. The study also noted that risk-taking was central to organizational activities and was especially valuable when adjusted in response to objectives. While this study reviewed existing literature, the current study collected primary data and this highlighted a methodological gap.

In Pakistan, Ullah and Danish (2020) conducted a study on the relationship between green risk taking and organizational performance in SMEs. The study adopted causal and cross-sectional research design. The study established that the risk-taking behavior of entrepreneur showed the willingness of the entrepreneur to implement those projects which had chances of failure. The study also found that there was a positive relationship between risk taking and organizational performance. While this study was conducted in Pakistan, the current study was conducted in Kenya and this highlighted a geographical

gap. Additionally, a methodological gap was shown since the current study used a descriptive research design, whereas this study used a causal and cross-sectional research design.

The impact of green risk-taking on organizational performance in China was examined by Qin et al. (2024). A survey method was used in the study, and structural equation modeling was used to test the hypotheses. According to the findings, companies are beginning to understand that adopting green technologies could give them a competitive edge, improve their brand, and enable them to enter new markets. The study also discovered that a company's overall success is enhanced by its image of green entrepreneurship. The study highlighted the strategic importance of managers fostering a robust green risk-taking culture within their companies. A methodological flaw was revealed when the current investigation used regression analysis instead of structural equation modeling. A geographical disparity was also brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in China.

Yan et al. (2021) looked at the connection between organizational success and green risk-taking in China's energy-intensive listed enterprises. Existing literature was reviewed in the study. The results showed that the level of risk taking negatively affects firm performance. The study also noted that the level of risk taking together with other factors such as government research and development subsidy determine the organizational performance. While this study was conducted in energy-intensive listed companies, the current study was conducted in public transport sector and this highlighted a contextual gap. In addition, while this study was conducted in China, the current study was conducted in Kenya and this highlighted a geographical gap.

In Poland, Zhang and Xing (2023) investigated the impact of risk taking on organizational performance of SMEs. The study adopted a quantitative research approach. The findings of the study showed that the relationship between risk taking and organizational performance is positive and significant. While this study was conducted in Poland, the current study was conducted in Kenya and this highlighted a geographical gap.

In Nigeria, Achaku et al. (2022) conducted a study on the relationship between green risk taking and organizational performance in SMEs. The study established that fundamental idea of green entrepreneurship is enterprise practices that involved risk-taking that were harmless to the host community, environment, workers, and consumers. The study also found that most entrepreneurs and business owners today attempted to go beyond sustainable development. It was also established that the entrepreneur makes sure that today's actions have no adverse effects on the environment and, where feasible, returns to an earlier time when there was no risk. The study concluded that green risk taking and organizational performance significantly impact competitive edge. While this study was conducted in Nigeria, the current study was conducted in Kenya and this highlighted a geographical gap.

In Tunisia, Bassem (2023) investigated the influence of green risk taking and organizational performance of SMEs in different sectors. The study adopted structural equation modeling for data analysis. The study established that green risk taking could have both positive and negative effects on the performance of an organization based on how it was undertaken. A methodological flaw was revealed when the current investigation employed regression analysis instead of structural equation modeling. A

contextual gap was also revealed by the fact that, although this study was undertaken in several sectors, it was limited to the public transportation sector.

Fatoki (2019) examined how green risk-taking affected the performance of hospitality companies in South Africa. The study employed a causal research design and a quantitative research approach, and data analysis was conducted using structural equation modeling. The findings showed a strong correlation between financial achievement and taking green risks. Although this study was carried out in the hospitality industry, a contextual gap was brought to light by the fact that the current study was carried out in the public transportation industry.

Kivuitu (2021) investigated how the organizational performance of SMEs registered to operate in Nairobi City County, Kenya, was affected by taking green risks. The study used correlation analysis for data analysis. The findings showed that risk taking when applied as a strategy may propel SMES in Kenya to an economic growth and it can help firm owners make right choice and allocate resources wisely. The results also showed that firms were often willing to invest in high-risk ventures. Another finding was that the firm would produce positive results thanks to proper preparation and prior analysis of risk. The study concluded that risk taking was essential for a company's market share to be maintained or for it to achieve aggressive business growth. While this study adopted correlation analysis, the current study used regression analysis and this highlighted a methodological gap.

Similarly, Marwah (2023) examined the effects of green risk taking on organizational performance of SMEs. The study design used was a survey that was both descriptive and explanatory. According to the report, a company can become a market leader by taking

measured risks that result in innovative initiatives in uncharted markets. The study also showed that taking risks can lead to diversity, which can help the company deal with ambiguities and seize new opportunities. According to the study's findings, enterprise performance and risk-taking were statistically significantly correlated. A methodological gap was revealed since the current study only used a descriptive research design, whereas this study used both descriptive and explanatory survey research designs.

2.2.3 Influence of Green Proactiveness on Organizational Performance

The impact of green proactiveness on organizational performance was investigated by Ahmed et al. (2021) in China, India, Pakistan, Bangladesh, the United Arab Emirates, and Vietnam. The study used modeling based on structural equations. According to the study, an organization's competitive advantage was increased by implementing a proactive environmental plan. The current study was carried out in Kenya, which revealed a geographical gap even though it was undertaken in several different countries. Furthermore, a methodological gap was revealed since the current study used regression analysis, whereas this study used structural equation modeling.

Do and Nguyen (2020) evaluated how green proactiveness affected organizational performance in Vietnam. Proactive environmental strategies were more common in larger businesses and in service industries, according to structural equation modeling. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in Vietnam. Furthermore, a methodological gap was revealed since the current study used regression analysis, whereas this study used structural equation modeling.

A study by Dhyanasaridewi et al. (2024) investigated the effects of proactive sustainability initiatives on the performance of non-financial companies listed between 2018 and 2022 on the Indonesia Stock Exchange. The hypotheses under investigation were tested using multiple regression analysis. The results showed that a proactive approach to sustainability improved business success. The current study was carried out in the public transportation sector, which revealed a contextual gap, whereas the previous study was carried out in enterprises that were listed on the stock exchange.

In Bangladesh, Hossain et al. (2022) sought to explain the effect of green proactive innovation on manufacturing firms' performance. The study specifically focused on the dimensions of proactive innovation, technology and new market searching. Qualitative face-to-face, in-depth interviews were conducted with the respondents. The research results revealed that green proactive innovation had a meaningful explanation of firm performance. While this study focused on the dimensions of proactive innovation, technology and new market searching, the current study focused on launching green products, launching green services and launching green technology and this highlighted a conceptual gap. In addition, while this study was conducted in the manufacturing sector, the current study was conducted in the public transport sector and this highlighted a contextual gap.

In Malaysia, Pertheban et al. (2023) study examined the relationship between proactive resilience strategies and the performance of SMEs in the manufacturing sector. A quantitative research design is adopted. The findings of this study suggested that proactive resilience strategies may have a significant influence on organizational performance of SMEs. While the study was conducted in the manufacturing sector, the

current study was conducted in public transport sector and this highlighted a contextual gap. In addition, while this study was conducted in Malaysia, the current study was conducted in Kenya and this highlighted a geographical gap.

Qing et al. (2022) examined the influence of proactiveness on organizational performance of companies listed in the stock exchange in China. The study specifically focused on the dimensions of proactive green process innovation and proactive green product innovation. The study used panel data from 2010 to 2020. It was found that proactive green process innovation has a significant positive effect on both short-term and long-term corporate financial performance. However, it did not improve short-term corporate financial performance. The study suggested that firms should adopt more supportive proactive green technology innovation practices in order to improve their financial performance.

Zhang & Li (2021) conducted a study on the link between green proactiveness and performance of agricultural ventures in China. The used structural equation modeling. The findings showed that although green proactiveness had an influence on environmental performance, it did not significantly influence financial performance. While this study was conducted in agricultural ventures, the current study was conducted in public transports SMEs and this highlighted a contextual gap. In addition, while this study was conducted in China, the current study was conducted in Kenya and this highlighted a geographical gap.

In Ghana, Adomako et al. (2020) explored the influence of proactive environmental strategy on firm performance using data collected from SMEs. The results suggested that the impact of green proactiveness on firm performance was more pronounced in firms

that did not pursue bottom of the pyramid orientation but not significant for firms pursuing the bottom of the pyramid orientation. Besides, the findings showed that the influence of green proactiveness on firm performance was amplified for firms adopting imitation orientation but not significant for non-imitation-oriented firms. While this study focused proactive strategies, the current study focused on launching green products, launching green services and launching green technology and this highlighted a conceptual gap. Furthermore, a geographical disparity was shown because the current study was carried out in Kenya, whereas this one was carried out in Ghana.

In Botswana, Khwae (2024) assessed the impact of green proactiveness on SMEs performance. Information from SMEs was gathered using a survey research design, and data analysis was done using the structural equation modeling technique. The study found that SMEs' performance was significantly impacted by proactiveness. The study came to the conclusion that this assessment helped decision makers improve their company procedures, which in turn affected how well they performed. A methodological flaw was revealed when the current study used regression analysis even though it used structural equation modeling and survey research design.

Kiguru et al. (2024) looked into how proactiveness affected the success of SMEs engaged in textile production in Kenya. Regression analysis was used in the study. The findings demonstrated a strong correlation between performance and proactiveness. The study also found that proactive companies had better performance indicators because they were more responsive to the market, promoted an innovative culture, and participated in strategic networking. According to the report, increasing proactiveness could involve funding staff training, making financial assistance more accessible, and encouraging

networking possibilities. There is a contextual gap because the current study was conducted in public transport SMEs, whereas this study was conducted in textile-based manufacturing SMEs.

Muhayimana et al. (2023) investigated how proactiveness affected the success of family-owned manufacturing businesses in Rwanda. To determine the link between the variables, multiple linear regression analysis was used. According to the study's findings, family-owned manufacturing enterprises' performance was significantly impacted by proactiveness. The results of the study also showed that proactiveness and successor training increase a company's productivity and competitiveness in the market, which promotes long-term survival. There is a contextual gap because the current study was conducted in public transit SMEs, whereas this study was conducted in family-owned manufacturing enterprises.

Ogundare and Merwe (2024) investigated the relationship between SMEs' performance and proactive competitive advantage in Nigeria. The research design was quantitative. The findings showed that proactiveness had significant effects on SMEs' performance. The study recommended that SME owners and managers should consider proactiveness more seriously, as this factor ultimately boost their performance. While this study adopted quantitative research design, the current study adopted descriptive research design and this highlighted a methodological gap.

Bii et al. (2024) explored the effect of proactiveness and performance of star rated hotels. The study specifically focused on the dimensions of recognition of opportunities, responding to new customer needs and first mover. The research design used in this study was explanatory. From the findings proactiveness has a positive and significant effect on

performance. While this study was conducted in the hospitality sector, the current study was conducted in public transport SMEs and this highlighted a contextual gap. In addition, while this study focused *on* the dimensions of recognition of opportunities, responding to new customer needs and first mover, the current study focused on launching green products, launching green services and launching green technology and this highlighted a conceptual gap.

Mburu et al. (2021) carried out a study on the link between green proactiveness and family-owned enterprises. Descriptive research design was adopted. Results of the study revealed positive and significant relationship between proactiveness and performance of family-owned enterprises. The study also noted that a proactive firm takes the initiative to venture into new markets, exploiting them and becoming the market leader in that market place. Another finding was that a proactive firm takes the initiative to shape the environment to its advantage in terms of technology and innovation, competition, customers, processes. While this study was conducted in family-owned manufacturing companies, the current study was conducted in public transport SMEs and this highlighted a contextual gap.

2.2.4 Influence of Competitive Aggressiveness on Organizational Performance

Al-Harthi et al. (2023) evaluated literature on competitive aggressiveness and organizational performance in the oil and gas sector of the Gulf Cooperation Council region. The study found that an accurate understanding of the interplay between these factors can empower managers to make finely-tuned strategic decisions, achieve sustainable competitive advantage and optimally adapt to dynamic and unforeseen environments. The study also revealed that an accurate understanding of the interplay

between these factors can empower managers to make finely-tuned strategic decisions, achieve sustainable competitive advantage and optimally adapt to dynamic and unforeseen environments. Although this study examined previous research, it also gathered primary data, which revealed a methodological flaw. Furthermore, a contextual gap was identified because the current study was carried out in the public transportation sector, whereas the previous study was carried out in the oil and gas sector.

Civelek (2022) investigated how competitive aggressiveness affected SMEs' organizational effectiveness in Turkey. A survey research design was used for the investigation. The results demonstrated that SMEs' competitive aggressiveness is unaffected by their size or age. Additionally, the study discovered that competition-related actions were frequently hostile and targeted toward rivals. Organizations were known to use price reductions to introduce new goods or services, according to another report. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in Turkey.

The impact of competitive aggression on organizational performance in Indonesia's private institutions was investigated by Panjaitan et al. (2021). The study found that competitive aggressiveness and performance were positively impacted by knowledge development and innovativeness. Additionally, the study discovered that business performance was significantly impacted by competitive aggression. This study revealed a contextual gap because it was carried out in the public transportation industry, whereas this one was carried out in private universities. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in Indonesia.

Weinzinner et al. (2023) reviewed existing literature to examine the extent to which competitive aggressiveness impacts firm performance in large and small firms in 74 industries. The study used a two-sample design. The study found that the relationship between competitive aggressiveness and firm-level performance was stronger in small firms compared to large firms. While this study reviewed existing literature, the current study collected primary data and this highlighted a methodological gap.

In Ghana, Amarteifio and Agbeblewu (2020) sought to find out the link between competitive aggressiveness and organizational performance. The study employed explanatory survey design. The study found that managers exhibited low levels of competitive aggressiveness. It was also established that to improve the financial performance of their businesses, key decision makers must be more competitively and comparatively aggressive by intensifying efforts to outperform their competitors. While this study adopted explanatory survey design for analysis, the current study adopted descriptive research design and this highlighted a methodological gap.

Nnaemek et al. (2021) investigated the relationship between competitive aggressiveness and organizational performance of SMEs in Nigeria. The study specifically focused on rival awareness and action capability dimensions. Survey research design was adopted for the study. The study established that there was a significant positive relationship between competitive aggressiveness and organizational performance. The study recommended among others that SMEs should make efforts to understand or become aware of their rivals or competitors, activities and offerings. While this study adopted survey research design, the current study adopted descriptive research design and this highlighted a methodological gap. In addition, while this study focused on the dimensions of rival

awareness and action capability, the current study focused on price cutting, quality services and marketing activities and this highlighted a conceptual gap.

Similarly, Usoroh (2021) examined the effect of competitive aggressiveness and organizational performance of selected registered SMEs. This study adopted a survey research design. The study found that competitive aggressiveness positively but insignificantly affect performance. The study recommended that SME owners and managers should compete aggressively to gain sustainable advantage and grow their firm. A methodological gap was revealed when the current study used a descriptive research design instead of the survey research strategy used in this investigation. Furthermore, a geographical gap was revealed because the current study was carried out in Kenya, whereas this one was carried out in Nigeria.

Shayo (2020) looked on how Tanzanian tourism companies performed in relation to competitive aggression. Structural equation modeling was employed in the investigation. The results demonstrated that, irrespective of the organizational structure a firm chooses, competitive aggression was advantageous to all kinds of businesses. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in Tanzania. Furthermore, a methodological gap was identified since the current study utilized a descriptive research approach, whereas this study used structural equation modeling.

Kariuki and Mungai (2024) investigated how competitive aggressiveness affected SMEs' performance in Kenya. The study used correlation analysis and a descriptive research design. The study established that competitive aggressiveness has a significant effect on performance of SMEs. From the findings, the study recommended that SME managers

should give priority to competitive aggressiveness. While this study used correlation analysis, the current study used regression analysis and this highlighted a methodological gap.

Bii et al. 2023 sought to find out the relationship between competitive aggressiveness and organizational performance in star rated hotels in North Rift Region. The study found that competitive aggressive organizations were more likely to improve their competitive positions, market share, and increase their performance if they transform themselves and evolve with the times. While this study was conducted in the hotel industry, the current study was conducted in the public transport sector and this highlighted a contextual gap.

Eshiwani et al. (2024) investigated the influence of competitive aggressiveness on the growth of public transport enterprises. The study employed a descriptive-correlational research design. Results indicated a significant positive effect of competitive aggressiveness on enterprise growth and performance. The study concluded that low levels of competitive aggressiveness among public transport entrepreneurs limit sectoral growth. The study recommended fostering a more aggressive competitive approach to support enterprise expansion within this critical sector. While this study adopted a descriptive-correlational research design, the current study employed descriptive research design and this highlighted a methodological gap.

2.2.5 Moderating Role of Government Policy on the Relationship between Green Entrepreneurial Orientation and Organizational Performance

Kyal et al. (2021) sought to find out the moderating role of government policy on the relationship between entrepreneurial orientation and MSME performance. For data analysis, the study employed structural equation modeling. The findings showed that the

association between organizational performance and entrepreneurial orientation is moderated by government policy. A methodological flaw was revealed when the current investigation employed regression analysis instead of structural equation modeling.

An investigation of how government policies affect the relationship between entrepreneurial inclinations and SME success in Sri Lanka was carried out by Prasannath et al. (2024). Existing literature was reviewed in the study. The study discovered that the association between performance and entrepreneurial inclination was moderated by government policy. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whereas this one was carried out in Sri Lanka. Furthermore, this study identified a methodological gap by gathering primary data even though it evaluated previous research.

Taneo et al. (2023) investigated the moderating effect of governmental policies on the association between organizational performance and entrepreneurial attitude in Indonesia. The study found that the association between organizational performance and entrepreneurial attitude is strengthened by government policies involving marketing, credit, and training. Furthermore, a geographical gap was brought to light by the fact that the current study was carried out in Kenya, whereas the previous study was carried out in Indonesia. A conceptual gap was revealed by the current study's concentration on laws, whereas this study concentrated on the aspects of marketing, credit, and training.

The moderating effect of government policy on the association between entrepreneurial tendencies and SME performance in Pakistan was investigated by Yaseen et al. (2024). Structural equation modeling was employed in the investigation. The results demonstrated that the association between entrepreneurial tendencies and performance is

moderated by government incentives and legislation. A methodological flaw was revealed when the current investigation employed regression analysis instead of structural equation modeling. Furthermore, a geographical gap was brought to light by the fact that the current study was carried out in Kenya, whereas the previous study was carried out in Pakistan.

Adelakun and Westhuizen (2021) looked into how government policies in South Africa affected the relationship between the performance of entrepreneurs from different towns, cities, and settlements and their entrepreneurial orientation. The study used modeling based on structural equations. The results demonstrated that the association between entrepreneurial orientation and performance was moderated by government policies. A methodological flaw was revealed when the current investigation employed regression analysis instead of structural equation modeling.

Chidiebere et al. (2019) investigated the moderating effect of the government policy framework in Nigeria on the association between women entrepreneurs' performance and their entrepreneurial attitude. A cross-sectional survey design was used in the study. Data analysis and hypothesis testing were conducted using Spearman's rank correlation. The study found that the association between performance and entrepreneurial inclination is moderated by the framework of government policy. According to the report, the government ought to create regulations that will encourage constructive involvement in business endeavors. The current study employed a descriptive research methodology, which revealed a methodological gap, whereas this study used a cross-sectional survey design. Furthermore, there was a contextual difference because the current study

concentrated on SMEs in public transportation, whereas this study concentrated on women entrepreneurs.

Zaato et al. (2022) looked into how government support programs in Ghana affected the relationship between performance and entrepreneurial orientation. The study used modeling based on structural equations. The study found that the relationship between entrepreneurial orientation and performance was significantly impacted by government support policies as an external resource. A methodological flaw was revealed when the current investigation employed regression analysis instead of structural equation modeling. Furthermore, a geographical disparity was shown because the current study was carried out in Kenya, whereas this one was carried out in Ghana.

The moderating effect of government policy on the link between entrepreneurial oriented factors and the performance of SMEs in Nigeria was also investigated by Zubair and Olaolu (2021). A survey research design was used for the investigation. The study found that the association between entrepreneurial orientation traits and performance appeared to be moderated by government policies. A geographical gap was brought to light by the fact that the present study was carried out in Kenya, whilst this one was carried out in Nigeria. Furthermore, a methodological gap was revealed since the current study utilized a descriptive research methodology, whereas this study employed a survey research design.

The goal of Owenga et al.'s (2024) study was to ascertain how government policies and regulations affected the association between entrepreneurial orientation and performance in the hospitality sector. The study found that the association between performance and entrepreneurial orientation was enhanced by government policies and regulations.

Although the hotel business was the focus of this study, a contextual gap was brought to light by the current study's focus on public transportation SMEs.

The goal of Moseti et al. (2020) was to ascertain how government policy affected the association between entrepreneurial orientation and microfinance sector performance. According to the study, the connection between performance and entrepreneurial inclination was strongly affected by government policy. Although the microfinance sector was the focus of this study, a contextual gap was brought to light by the current study's focus on SMEs in public transportation.

2.3 Research Gap

An examination of empirical studies revealed conceptual, contextual, geographical and methodological gaps. According to the conceptual gaps highlighted in the examined literature, various gaps were noted. The researched literature revealed the following conceptual gaps regarding the green innovativeness variable: Jayaraman et al. (2023) focused on customer pressures, government regulations and suppliers; Akhter (2024) focused on green marketing and administrative innovations; Baeshen et al. (2021) focused on green absorptive capacity, sustainable human capital and organizational support; while German et al. (2023) focused on market demand, government and competitor pressure These conceptual gaps were identified as a result of the current study's emphasis on product innovation, managerial innovation and process innovation.

The conceptual gaps were identified on green risk-taking variable. Ciocoiu et al. (2024) focused on risk sharing. These conceptual gaps were identified based on the fact that the current study focused on technological risk, compliance risk and operational risk.

The conceptual gaps were identified on green proactiveness variable. Qing et al. (2022) focused on proactive green and product; while Hossain et al. (2022) proactive innovation and new marketing search. These conceptual gaps were identified based on the fact that the current study focused on launching green products, launching green services and launching green technology.

The conceptual gaps were identified on competitive aggressiveness variable. Nnaemek et al. (2021) focused on rival awareness and action capability. These conceptual gaps were identified based on the fact that the current study focused on rival awareness and action capability.

Further, the literature reviewed showed a methodological gap as other studies had been done using different methodology like Ullah and Danish (2020) used causal and cross-sectional research design; Wang et al. (2021) used convenient sampling; Giang and Yang (2023) reviewed existing literature and Baeshen et al. (2021), Ahmed et al. (2021) used structural equation modeling. This showed the methodological gap based on the fact that the current study used a different methodology that is descriptive research design, used stratified sampling, simple random sampling and purposive sampling techniques, collected primary data and regression analysis.

In addition, various studies had been done in different sectors thus presenting a contextual gap: Marfo et al. (2024) carried out their study in the hotel industry; Obiso et al. (2023) carried out their study in the oil and gas sector; and Moseti et al. (2020) carried out their study in the banking sector. This highlighted a contextual gap as the current study was carried out in public transport SMEs.

The researcher also identified geographical gaps: Tugli (2023) in Ghana; Taneo et al. (2023) in Indonesia; Shayo (2020) in Tanzania; and Civelek (2022) in Turkey. The current study was therefore undertaken in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The research design and methodology employed in this study is discussed in this chapter. It is subdivided into the following sections: research design, target population, sample and sampling techniques, research instruments, data collection and analysis procedures, and ethical considerations.

3.1 Research Philosophy

This study adopted the positivist research philosophy which makes it possible to operationalize the independent and dependent variables (Crowthey & Lancaster, 2008). Positivism also uses techniques that emphasizes measuring and counting, use of questionnaires to establish probable relationships that exist among the identified variables (Creswell, 2014). The researcher therefore employed positivism research philosophy as the study findings was quantitative thus allowed the researcher to employ a logical research approach to examine the relationship between green entrepreneurship orientation (green innovation, green risk-taking, green pro-activeness and competitive aggressiveness) and performance of SMEs in Nairobi metropolis, Kenya. The positivism research philosophy also enabled the researcher to examine the moderating effect of government policy the relationship between GEO variables and performance variable.

3.2 Research Design

This study adopted descriptive research design as it enabled the researcher to answer the questions what, who, where, how and when of a current situation (Neuman, 2003). This enabled the researcher to conduct the study as a descriptive survey using quantitative

method of research to find out how green entrepreneurial orientation influences the performance SMEs in the transport sector in Nairobi metropolis, Kenya. Descriptive research design also ensured that the researcher did not control or manipulate any variables unlike other methods like experimental research. It also enabled the researcher to gather information on various variables at the individual level at a given point in time as descriptive research method is carried out through cross-sectional studies. This research design was therefore be adopted because it enabled the researcher to collect discrete numerical data from the population in order to provide factual descriptive information (Asio, 2021).

3.3 Target Population

According to Singh (2020) target populations refers to the actual number of a society or a group to generalize the findings of an executed investigation. The unit of analysis comprised of the registered saccos in the public road transport sector in Nairobi metropolis. The unit of observation were 334 route managers and financial managers working in the Super Metro and Metro Trans Saccos in Nairobi Metropolis as well as the investors in the two organizations. Table 3.1 presented the distribution of the target population.

Table 3.1: Distribution of the Target Population

Category	Target Population
Investors	278
Finance Managers	2
Route Managers	54
Total	**334**

Source : Super Metro and Metro Trans Sacco Records, 2025

3.4 Sample and Sampling Procedures

A sample is a subset of the target population that a researcher chooses to participate in a study using a predetermined selection technique. To allow the researcher to generalize the findings of the research sample to the entire population, the sample must be representative of the population (Bryman, 2016). Sampling is a strategy for selecting specific individuals or a subset of the population to draw statistical conclusions from an estimate the characteristics of the full population. To conduct a research on the entire population may be confounding hence it is only practical to draw sample size from target population by a study. Therefore, the study used Yamane formula (1967) to calculate the sample size as shown below.

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

Where

N =represent size of the population.

n = represent the size of the sample

e = precision level (at 0.95 confidence interval, e=0.05)

N=334

n~181.5 hence this was approximated at 182 sample size. The sample size for the study was therefore be 182 respondents. The distribution of the sample size was shown in Table 3.2.

Table 3.2: Sample Size Distribution

Category	Target Population	Actual Sample Size	Percentage (%)
Investors	278	151	33.3
Finance Managers	2	2	33.3
Route Managers	54	29	33.3
Total	**334**	**182**	**100**

Source: Author, 2025

As the authorities engaged in green entrepreneurial orientation in the public transportation SMEs are divided into various levels, this study employed a stratified random sample technique. These consisted of route managers, finance managers, and investors. In order to choose individual respondents for the investor and route management strata, the researcher employed a basic random sampling technique from each stratum. The researcher chose a sample from each stratum, which represented all of the public transportation SMEs in Nairobi Metropolis that were registered under the Super Metro and Metro Trans Saccos. A purposive sample of finance managers was chosen.

3.5 Description of Research Instruments

The researcher collected primary data and secondary data. Primary data from respondents was collected using a structured questionnaire. The use of a questionnaire offered a fast, efficient and inexpensive means of gathering data from the sample. It also enabled the researcher to analyse the data quickly using statistical tools, quantify the responses, and visualize the findings (Kuphanga, 2024). The questionnaire was subdivided into sections based on the study objectives The first section included questions about demographic information of the respondents, while the second section included questions about green innovativeness. The third segment included questions about green risk taking while the

fourth section included questions about green proactiveness. The fifth section included question about competitive aggressiveness while the sixth section contained questions on government policy.

Using a data collecting form, the study was also extracted secondary data from the public transport SMEs registered under Super Metro and Metro Trans Saccos in Nairobi Metropolis yearly reports covering profit margins, return on assets and return on equity from 2019 to 2024 to the assess financial performance as the public transport sector is regulated by the Sacco Societies Regulatory Authority (SASRA) and National Transport and Safety Authority (NTSA).

3.5.1 Validity of Research Instruments

Validity refers to the degree to which an instrument accurately assesses the specific construct it is intended to measure, with a particular focus on how the questions in a questionnaire effectively meet the research objectives (Lohr, 2010). The scales for the research variables in this study were developed using prior theory and literature from other studies. This was used to evaluate the construct validity so as to guarantee that the indicators and measurements are meticulously formulated using pertinent pre-existing knowledge. In addition, experts including researcher's supervisors who were both academic experts in entrepreneurship were engaged in the validity exercise. Therefore, in order to evaluate the credibility and relevance of the measurement methodologies and items for assessing the variables, the researcher sought the supervisors' input on their appropriateness.

The researcher also employed factor analysis to measure both discriminant and convergent validities based on the Average Explained Variance (AVE). By calculating

the square root of AVE and the correlation of latent constructs, two metrics were used to assess discriminant validity. Obtaining the validity measurement model requires that each construct's correlation values be smaller than the square root of AVE (Alarco & Sanchez, 2015). The researcher ensured that the elements belonging to different constructs did not meet at the same construct. This was because according to Bagozzi and Baumgartner (1994), convergent validity is attained when the AVE is at least 0.4.

3.5.2 Reliability of Research Instruments

Drost (2011) defines dependability as the degree to which measurements are reproducible when different people perform the measurement on different days, under different conditions, and ostensibly using different methods to measure the construct. In order to assure its dependability, the data collection form was utilized to obtain information on the subject from the public transport SMEs for 2017 and 2018. The data collection process and the accuracy of the data on the variables being researched was evaluated. Modifications were made to correct all of the instrument's shortcomings. The questionnaire on the other hand was submitted to pilot test with 10 investors, financial managers and route managers working in the public transport SMEs registered under City Shuttle and Embassava Saccos in Nairobi Metropolis. This was in line with Hertzog (2008) who suggested that a minimum of 10 to 15 participants per group is needed for a pilot study. Cronbach's alpha was determined using the collected data to assess dependability. The Alpha has a range of 0.7, with values ranging from zero (no internal consistency) to one (complete internal consistency) (George & Mallery, 2003). Table 3.3 presented the reliability results.

Table 3.3: Reliability Results

Variable	No. of items	Cronbach Alpha
Green innovativeness	6	0.9531
Green risk taking	6	0.9843
Green proactiveness	6	0.8762
Competitive aggressiveness	6	0.8927
Government policy	2	0.9025
Performance	4	0.9291

Source: Research data (2025)

The cronbach alpha range was more than 0.7 thus the questionnaire was fit to collect data for the study.

3.6 Data Collection Procedures

The researcher obtained an introduction letter from the Graduate Studies Department at the Catholic University of Eastern Africa before beginning data collecting. The researcher also applied to the National Commission for Science, Technology, and Innovation for research permission (NACOSTI). In addition, the researcher sought authorization from Super Metro and Metro Trans Saccos in Nairobi Metropolis to collect data.

Following approval, the researcher administered the questionnaires to the respondents using drop and pick method. The respondents were allowed one week to complete the questionnaire and the researcher collected them the offices. The researcher used the data collection form to extract pertinent information from financial reports in order to get secondary data.

3.7 Description of Data Analysis Procedures

The interpretation of data acquired via the use of analytical and logical reasoning to uncover patterns, correlations, or trends is known as data analysis (Humble, 2020). The acquired data was cleansed and reviewed for completeness, accuracy, and uniformity.

Thereafter, the data was coded and examined. The data was analyzed using the Statistical Package for Social Sciences (SPSS version 27) by the researcher. This study used both descriptive statistics and inferential statistics. Descriptive statistics summarized the characteristics of the data by using mean and standard deviation and frequency distribution which was then be presented using pie charts, frequency tables and graphs. Inferential statistics in form of multiple regression analysis and correlation analysis were used. Regression analysis was used to enable the researcher make predictions on the relationship between green entrepreneurial orientation and performance of public transport SMEs in Nairobi Metropolis. Correlation analysis was used to measure the strength of the linear relationship between the independent variables and the dependent variable.

The model to be used in the simple regression analysis was as follows:

$Y= \alpha+ \beta_1X_1 + \beta_2X_2 + \beta_3X_3 +\beta_4X_4 +e$

Where

Y	-	Performance of public transport SMEs
α	-	Constant of Proportionality
X_1	-	Green innovativeness
X_2	-	Green risk taking
X_3	-	Green proactiveness
X_4	-	Competitive aggressiveness
β_1. β_2. β_3.β_4 β_5	-	Coefficients
e	-	Error term

The moderation equation is as follows:

$Y= ax + bm +cxm +e$

Y	-	Performance of public transport SMEs

a - main effect of x

b - main effect of m

c - interaction between x and m

e - Error term

3.8 Diagnostic Tests

3.8.1 Normality Test

A normality test is necessary to ascertain whether the collected data is normally distributed (Moore & McCabe, 2014). The study used the Kolmogorov-Smirnov statistical test which is used to determine if a sample of data comes from a specific distribution, often a normal distribution. The test compares the cumulative distribution of the sample data with the cumulative distribution function of the hypothesized distribution. It also provides a p-value which represents the probability of observing a test statistic as extreme as, or more extreme than, the one calculated from the data, assuming the null hypothesis is true (Ghasemi & Zahediasl, 2012).

3.8.2 Multicollinearity Test

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated and it affects calculations regarding individual predictors (Hair et al., 2010). The study therefore examined if there was a collinearity problem within the data. Value Inflated Factor (VIF) and Tolerance Value (TV) was used to detect the collinearity problem. VIF in all predictors should be less than ten (10) and TVs should be greater than 0.1 to indicate that there was no collinearity problem among the variables (Williams, 2015).

3.8.3 Heteroscedasticity Test

Heteroscedasticity occurs when the variance of errors is not the same across all levels of independent variables. Heteroscedasticity has an effect on the results (Tabachnick & Fidell, 2001). Generally, heteroscedasticity can lead to the distortion of results by weakening the accuracy of estimates. The Breusch-Pagan test was used to state whether there is a problem of heteroscedasticity or not.

CHAPTER FOUR

4.0 DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the study findings on green entrepreneurial orientations and performance of SMEs in the public transport sector. The results are also discussed for each study objective in relation to the reviewed theories and empirical studies. The chapter is divided into various sub-sections: response rate, respondent's demographic information, descriptive statistics and inferential statistics.

4.2 Response Rate

The sample size comprised of 181 investors, finance managers and route managers of SMEs in the public transport sector in Nairobi Metropolis, Kenya. The study only managed to collect data from 140 respondents. This represented 77% response rate which is considered an appropriate sample size as stipulated by Sharma (2021) who posits that in case total population is not greater than 1000, a sample of 10% can be applied.

4.3 Demographic Information of the Respondents

The study was interested in the demographic information of the respondents such as gender, age and educational level. The results are presented in the sub-sections.

4.3.1 Gender of the Respondents

The study requested the respondents to indicate their gender and data obtained was statistically analyzed and presented in Figure 4.1.

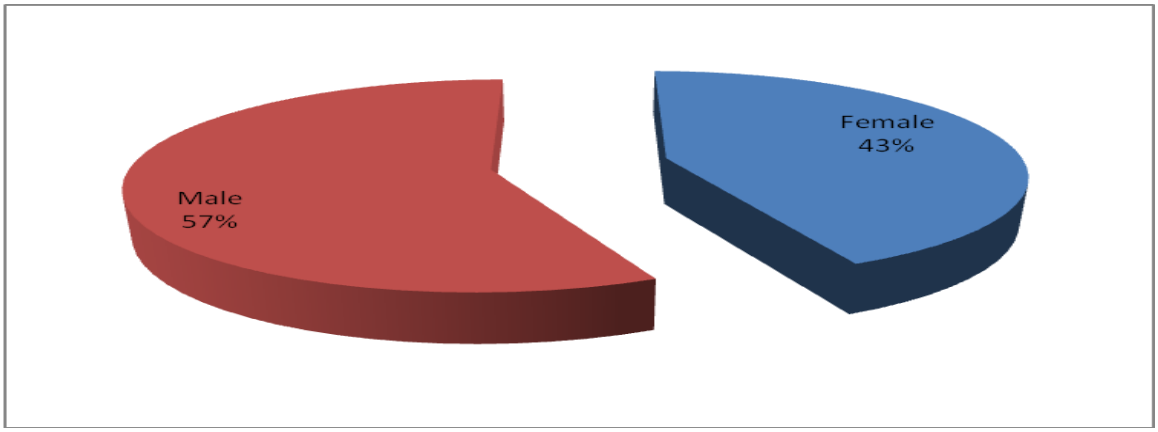

Figure 4.1: Gender of the Respondents

Source: Research data, 2025

The results in Figure 4.1 showed that majority of the respondents 80(57%) of the respondents were male while the remaining 60(43%) were female. This shows that more male investors and employees were engaged in the public transport SMES in Nairobi Metropolis thus more male were attracted to be entrepreneurs in the sector. According to Amaya et al. (2020), gender is important in decision making and preferences for uptake of interventions. As such, the gender of the respondents could aid the researcher to understand their preferences on GEO to enhance public transport SME performance.

4.3.2 Age of the Respondents

The study sought to determine the age of the respondents and the results are presented in Figure 4.2.

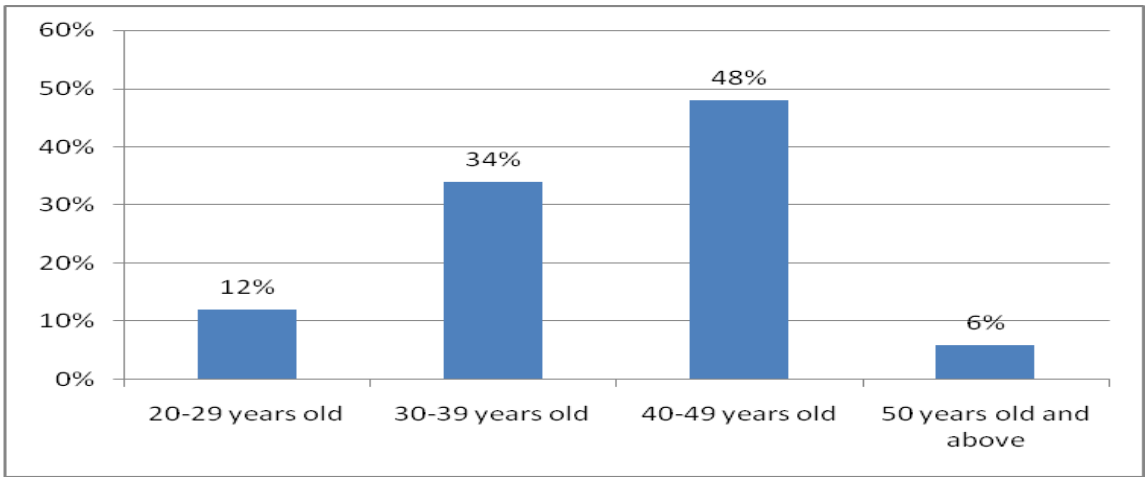

Figure 4.2: Age of the Respondents
Source: Research data, 2025

Figure 4.2 shows that majority of the respondents 67(48%) indicated that they were between 40-49 years old while 48(34%) of the respondents indicated that they were between 30-39 years old. In addition, 16(12%) of the respondents indicated that they were between 20-29 years old while the remaining 9(6%) of the respondents indicated that they were 50 years old and above. This is an indication that the public transport sector in Nairobi Metropolis had investors and employees from different age groups for enhanced performance. According to Sandberg (2016), age can significantly influence how individuals perceive and reach to different situations. In this study, it assisted the researcher in understanding how respondents from different age groups perceive the influence of GEO on performance.

4.3.3 Educational Level of the Respondents

The study investigated the education level of the respondents and the results of the statistically analyzed data are presented in Figure 4.3.

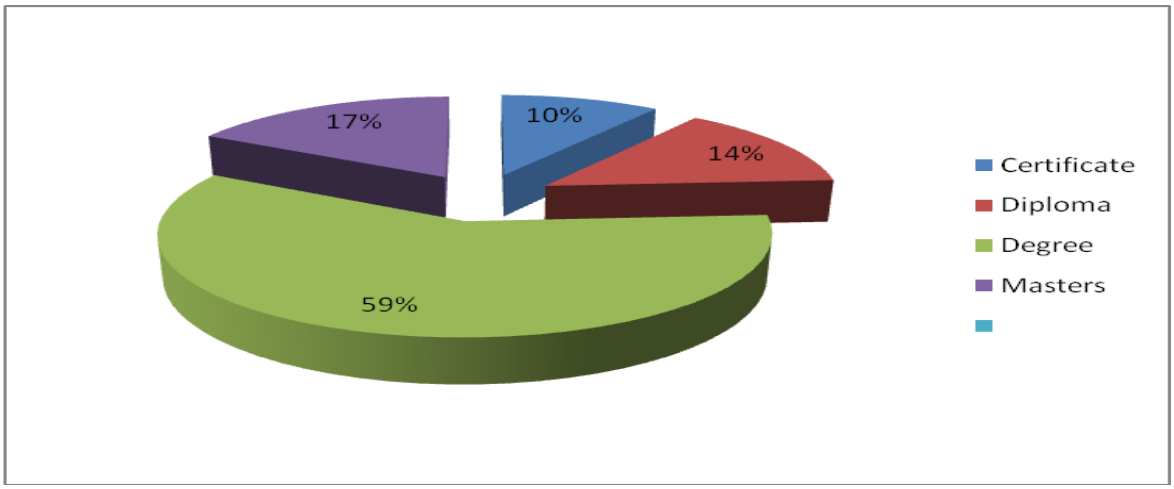

Figure 4.3: Educational Level of the Respondents

Source: Research data, 2025

Figure 4.3 shows that most of the respondents 82(59%) indicated that their highest educational level was a bachelors degree; 24(17%) masters degree; 20(14%) diploma and 14(10%) certificate. This showed that the investors and employees in the public transport SMES in Nairobi Metropolis were those employed in the small and medium enterprises in Kenya were qualified to understand how green entrepreneurial orientations influence the performance of SMEs in the sector. According to Scheider (2022) the information on the educational level of respondents significantly influences their understanding of research topic, ability to provide accurate responses, and overall interpretation of the research findings. In this study, the education level was meant to ensure that respondents would provide accurate responses.

4.4 Descriptive Analysis of Study Variables

Descriptive analysis as per the study objectives was conducted and the results are presented in the following sub-sections.

4.4.1 Influence of Green Innovativeness on Performance of SMEs in the Public Transport Sector

The first objective of the study was to determine the influence of green innovativeness on the performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.1.

Table 4.1: Influence of Green Innovativeness on Performance of SMES in the Public Transport Sector

Items	Mean	S.D
The management ensures that new bus designs incorporated into the product are environment friendly	4.30	0.911
The new bus changes are tailored to focus on customer experience	4.11	1.032
The managers have an innovative mindset when formulating business strategy	3.99	1.147
Managers have created a work environment that encourages employee creativity	2.47	1.589
Unnecessary costs within the production process have been identified and eliminated	3.39	1.544
Work processes have been automated to enhance efficiency	4.01	1.187
Composite Mean	**3.71**	

Source: Research data, 2025

Table 4.1 shows that the respondents indicated that the management ensures that new bus designs incorporated into the product are environmental friendly to a high extent as shown by a means score=4.30 (standard deviation=0.911). The respondents also showed that the new bus changes were tailored to focus on customer experience to a high extent with a mean score of 4.11 (standard deviation=1.032). On the other hand, the respondents indicated that there was moderation in the managers having an innovative mindset when formulating business strategy with a mean score of 3.99 (standard deviation=1.147).

However, the creation of a work environment that encourages employee creativity by the managers to done to a low extent with a mean score of 2.47 (standard deviation=1.589). The respondents further indicated that unnecessary costs within the production process had been identified to a moderate extent with a mean score of 3.39 (standard deviation=1.544). Finally, the respondents indicated that work processes had been automated to enhance efficiency to a high extent with a mean score of 4.01 (standard deviation=1.187).

A composite mean of 3.71 was an indication that green innovativeness had been adopted in moderation by the SMES in the public transport sector in Nairobi Metropolis. However, aspects of new bus designs incorporated being environment friendly, tailor making the new buses to focus on customer experience and the automation of work process seemed to be highly adopted. There greatest concern was on the creation of a work environment to boost employee creativity which was poorly adopted by the managers. The aspects of having an innovative mindset by the managers, and identification of unnecessary costs was moderately adopted and if effectively handled could boost the performance of SMEs in the public transport sector in Nairobi metropolis.

The results are in tandem with those of Liu et al. (2024) who established that green technology innovations can improve product quality and adaptability, and reduce operating costs which tends to improve the performance. They are also supported by those of Opazo-Basaex et al. (2024) who found that adopting green innovations enabled firms to reduce the overuse of resources, production costs and time, which in turn increased productivity and resource conservation. Qiang and Yang (2023) further noted that green innovation could aid businesses to adjust environmental changes and enhance

performance. It also improved the quality and design of existing products or introduced new products to minimize the product's adverse effect on the environment. The findings are also corroborated by those of Akhter (2024) which noted that acquiring such competencies enhances the positioning of a business, decreases costs and helps in dealing with challenges in the environment making it possible for firms to capitalize growth prospects. Baeshen et al. (2021) also noted that businesses were adopting and incorporating more sustainable manufacturing methods to produce environmental products and services.

4.4.2 Influence of Green Risk Taking on Performance of SMEs in the Public Transport Sector

The second objective of the study was to establish the influence of green risk taking on the performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.2.

Table 4.2: Influence of Green Risk Taking on Performance of SMEs in the Public Transport Sector

Items	Mean	S.D
System failure risks are monitored to avoid operational disruptions	4.12	0.940
Any technology that is becoming obsolete is continuously monitored to prevent any technological risks	3.79	1.063
The business ensures that they comply with industry regulations to avoid compliance risks	3.81	1.123
Business activities comply with industry safety standards to avert product liability issues	4.02	1.007
Employees have been trained to enhance competence to minimize operational risks	3.47	1.178

Adequate controls have been put in place to avoid service disruptions	3.75	1.047
Composite mean	**3.83**	

Source: Research data, 2025

Table 4.2 showed that the respondents were highly satisfied with how system failure risks were monitored to avoid operational disruptions as shown with a mean score of 4.12 (standard deviation=0.940). The results also showed that there was moderation in the continuous monitoring of technology to ensure it does not present technological risks for being obsolete with a mean score of 3.79 (standard deviation=1.063). The respondents also indicated that the organization complied with industry regulations to avoid compliance risks in moderation with a mean score of 3.81 (standard deviation=1.123). However, the business activities complied with industry safety standards to avert product liability issues to a high extent as indicated by a mean score of 4.02 (standard deviation=1.007). The respondents also indicated that employees had been moderately trained to enhance competence to minimize operational risks as indicated by a mean score of 3.47 (standard deviation=1.178). In addition, adequate controls had been moderately put in place to avoid disruptions as indicated by respondents with a mean score of 3.75 (standard deviation=1.047).

A composite mean of 3.83 is an indication that green risk taking was practiced by the SMEs in the public transport sector to a moderate extent. This is based on the aspects of technological risks, compliance risks, operational risks and controls have been taken care of in moderation.

The findings are in line with those of Kivuitu (2021) which showed that firms were often willing to invest in high-risk ventures. The findings are also in agreement with those of Ciocoiu et al. (2024) which noted that organizations that become overly reliant on risk

management may be more likely to miss out on new opportunities that limit innovation and performance. In addition, Heena and Bedi (2022) found that as businesses grow, the organization faces numerous kinds of risks such as latest technology and their new policies which influence performance. The findings are also in tandem with those of Soane and Aufegger (2024) who noted that the capability to vary risk-taking was an important aspect of performance in organizations. In addition, Yan et al. (2021) study showed that the level of risk taking negatively affects firm performance.

4.4.3 Influence of Green Proactiveness on Performance of SMEs in the Public Transport Sector

The third objective of the study was to assess the influence of green proactiveness on the performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.3.

Table 4.3: Influence of Green Proactiveness on Performance of SMEs in the Public Transport Sector

Items	Mean	S.D
Launched buses have boosted the trust of customers on green products as they have low environmental impact	3.31	0.960
Launched buses are energy efficient thus cost effective	4.08	0.937
The launch of green services offered enhances renewable energy utilization	3.67	1.042
The use of cashless services encourages customer participation in green initiatives	4.30	0.911
The launch of green technology has ensured energy consumption is low	3.70	0.871
The launch of green technology has ensured that pollution has been reduced as they produce low emissions	3.81	0.918
Composite mean	**3.81**	

Source: Research data, 2025

Table 4.3 shows that the respondents indicated that launched buses had boosted the trust of customers on green products as they had low environment impact to a moderate extent as shown by a mean score of 3.31 (standard deviation=0.960). The respondents also indicated that launched buses were energy efficient thus cost effective to a high extent as shown by a mean score of 4.08 (standard deviation=0.937). In addition, the respondents indicated that the launch of green services offered enhanced renewable energy utilization to a moderate extent with a mean score of 3.67 (standard deviation=1.042). However, the use of cashless services encouraged customer participation in green initiatives was practiced to a high extent as indicated by a mean score of 4.30 (standard deviation=0.911). The respondents also indicated that the launch of green technology had ensured energy consumption was low to a moderate extent as shown by a mean score of 3.70 (standard deviation=0.871). Further, the respondents indicated that the launch of green technology had ensured that pollution had been reduced as they produced low emissions in moderation as shown by a mean score of 3.81 (standard deviation=0.918).

A composite mean of 3.81 shows that green proactiveness was moderately adopted in the SMEs in the public transport sector as the trust of customers on green products, launch of green services to enhance renewable energy utilization, launch of green technology to reduce energy consumption and pollution was adopted in moderation. Therefore, only the aspects of launch of energy efficient buses and use of cashless services were satisfactory.

The findings are in line with those of Qing et al. (2022) which established that adopting more supportive proactive green technology innovation practices improves their financial performance. They are also supported by those of Adomako et al. (2020) which showed

that the influence of green proactiveness on firm performance was amplified for firms adopting imitation orientation. Additionally, proactiveness helped decision makers improve their business procedures, which in turn affected their performance, according to Khwae (2024). The results of Kiguru et al. (2024), who proposed that proactiveness should involve funding staff training, making financial assistance more accessible, and encouraging networking opportunities for improved performance, also reflect the findings. Additionally, the results of Muhayimana et al. (2023) showed that a combination of being proactive and teaching successors increases a company's productivity and competitiveness in the market, which ultimately contributes to its long-term survival. The research also supports that of Mburu et al. (2021), who pointed out that a proactive company takes the initiative to enter new markets, capitalizes on them, and establishes itself as the industry leader. Mburu et al. also found that a proactive firm takes the initiative to shape the environment to its advantage in terms of technology and innovation, competition, customers, processes.

4.4.4 Influence of Competitive Aggressiveness on Performance of SMEs in the Public Transport Sector

The fourth objective of the study was to assess the influence of competitive aggressiveness on the performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.4.

Table 4.4: Influence of Competitive Aggressiveness on Performance of SMEs in the Public Transport Sector

Items	Mean	S.D
The price set is sensitive to customers as it is pocket friendly	4.02	1.007
The organization offers promotional pricing to attract new customers	3.81	1.123
Services offered to customers are reliable	4.30	0.911
Services offered are usually in response to customer needs	4.01	1.187
Aggressive marketing is undertaken for brand awareness among customers	3.31	0.960
The organization utilizes digital marketing activities to reach wider audiences	2.47	1.589
Composite mean	**3.65**	

Source: Research data, 2025

Table 4.4 showed that the respondents indicated that the price set was sensitive to customers as it was pocket friendly to a high extent as shown by a mean score of 4.02 (standard deviation=1.007). The respondents also indicated that the organization offered promotional pricing to attract new customers in moderation as shown by a mean score of 3.81 (standard deviation=1.123). In addition, the respondents indicated that services offered to customers were reliable to a high extent as shown by a mean score of 4.30 (standard deviation=0.911). The respondents also indicated that services offered were usually in response to customer needs as shown by a mean score of 4.01 (standard deviation=1.187). Further, the respondents indicated that aggressive marketing was undertaken moderately for brand awareness among customers as shown by a mean score of 3.31 (standard deviation=0.960). However, utilization of digital marketing activities to reach wider audiences was poorly done as shown by a mean score of 2.47 (standard deviation=1.589).

The composite mean of 3.65 indicated that there was moderation on the influence of competitive aggressiveness on performance of SMEs in the public transport sector.

However, pricing, reliable services to customers and being responsive to customer needs was highly adopted by the SMES. Dissatisfaction was noted on the use of digital marketing services which could lead to the knowledge of their services to a wider audience.

The findings are in tandem with those of Civelek (2022) who established that organizations had a reputation of using price reduction for new product or service introduction. They are also in line with those of Al-Harthi et al. (2023), who discovered that managers can make well-informed strategic decisions, gain a sustainable competitive edge, and best adjust to unpredictable and changing environments if they have a thorough understanding of how these factors interact. Amarteifio and Agbeblewu's (2020) findings, which showed that managers showed low levels of competitive aggressiveness, corroborate the findings. Their study also found that key decision makers need to be more competitive and somewhat aggressive by stepping up their attempts to beat their rivals in order to boost the financial performance of their companies. Furthermore, Eshiwani et al. (2024) discovered that sectoral expansion is constrained by public transportation entrepreneurs' low levels of competitive aggression.

4.4.5 Moderating Role of Government Policy

The fifth objective of the study was to determine the moderating role of government policy on the relationship between green entrepreneurial orientation and performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.5.

Table 4.5: Moderating Role of Government Policy

Items	Mean	S.D
The government provides a framework for financial incentives to encourage investment in green technology for better performance	4.08	0.937
The government provides subsidies to encourage the adoption of green technology for better performance	3.93	0.972
Composite mean	**3.95**	

Source: Research data, 2025

Table 4.5 showed that the provision of a framework for financial incentives by the government to encourage investment in green technology was to a high extent with a mean score of 4.08 (standard deviation=0.937). The respondents however indicated that the provision of subsidies to encourage the adoption of green technology was to a moderate extent with a mean score of 3.93 (standard deviation=0.972). A composite mean of 3.95 indicated that there was moderation on the provision of subsidies on green technology adoption but a framework on the same had been satisfactorily been put in place.

The findings are corroborated by those of Yaseen et al. (2024) who established that government policies and incentives moderate the relationship between entrepreneurial orientations on performance. The findings are also in tandem with those of Chidiebere et al. (2019) noted that government policy framework moderates the relationship between entrepreneurial orientation and the performance. In addition, Zaato et al. (2022) established that government support policies as an external resource had a significant influence on the relationship between entrepreneurial orientation and the performance.

4.4.6 Performance of SMEs in the Public Transport Sector

The study sought to find out the performance of public transport SMEs in Nairobi Metropolis, Kenya. A five-point Likert scale was employed, with 1 indicating very low

extent, 2 indicating to low extent, 3 indicating to a moderate extent, 4 indicating to a high extent, and 5 indicating very high extent. Data was collected and statistically analyzed and the results are presented in Table 4.6.

Table 4.6: Performance of SMEs in the Public Transport Sector

Items	Mean	S.D
The organization has increased its market share in the industry	4.14	0.819
The organization has experienced more operational efficiency	4.01	1.042
The organization has been able to reduce its carbon footprint	3.78	1.060
The organization has been able to enhance customer satisfaction	3.99	1.147
Composite mean	**3.95**	

Source: Research data, 2025

Table 4.6 shows that the organization's market share in the industry had increased to a high extent as indicated by a mean score=4.14 (standard deviation=0.819). More operational efficiency was also noted to a high extent as indicated by a mean score of 4.10 (standard deviation=1.042). Additionally, the respondents also indicated that the organization had been able to reduce its carbon footprint in moderation with a mean score of 3.78 (standard deviation=1.060). The respondents also indicated that the organization had been able to enhance customer satisfaction to a moderate extent with a mean score of 3.99 (standard deviation=1.147).

A composite mean of 3.95 showed that there is moderation in the performance of SMEs in the public transport sector in Nairobi Metropolis. This is because despite an increase in market share and operational efficiency, the reduction of carbon foot print and customer satisfaction is still experienced in moderation. This could be attributed to the fact that different investors with different ideologies invest in the two SACCOs and may not be

cooperative in embracing the green entrepreneurial orientations for better performance.The findings are in agreement with those of Bassem (2023) green entrepreneurial orientation enhanced the performance of SMEs. The findings are also in line with those of Fatoki (2019) who postulated that Green Entrepreneurial Orientation was capable of significantly boosting firm performance

4.5 Diagnostic Tests

In linear regression, the underlying assumptions include lack of normality, lack of or little multicollinearity, homoscedasticity, and linear relationship. The confidence intervals, regression assumptions, and other scientific insights obtained from the regression model may be considered as misleading, inefficient or biased in case of violation, and hence the inferences derived cannot be applied on other data.

4.5.1 Normality Test

Kolmogorov-Smirnov test was employed to test normality of research data. The null hypothesis in Kolmogorov-Smirnov test indicates that research data are acquired from population that is normally distributed (Cooper & Schindler, 2006). Thus, p-value ought to be more than 0.05 (significant level) for the data to be normally distributed. The findings were presented in Table 4.7.

Table 4.7: Normality Test Results

Line	Asymp. Sig. (2-tailed)	Information
Green innovativeness	0.897	Normal
Green risk taking	0.801	Normal
Green proactiveness	0.872	Normal
Competitive aggressiveness	0.886	Normal
Government policy	0.848	Normal
Performance	0.839	Normal

Source: Research data (2025)

Table 4.7 showed that the results of asymp. sig. are above 0.05 and this explained normal research data distribution.

4.5.2 Multicollinearity Test

Multicollinearity was used to examine the probability of the independent variables (greater than or equal to 2) in multivariate regression model being significantly or highly correlated. The study also employed VIF to measure level of association among study variables. Table 4.8 Summarizes the findings.

Table 4.8: Multicollinearity Test Results

Line	VIF	Information
Green innovativeness	3.722	Free of multicollinearity
Green risk taking	2.408	Free of multicollinearity
Green proactiveness	3.543	Free of multicollinearity
Competitive aggressiveness	3.845	Free of multicollinearity

Source: Research data (2025)

According to Table 4.8, the VIF value was below 10 and this showed that the data in the study was free from multicollinearity symptoms.

4.5.3 Heteroscedasticity Test

The heteroscedasticity was computed using the Breusch-Pagan test and the results are depicted in Table 4.9.

Table 4.9: Heteroscedasticity Test Results

H_o: Constance Variance	
Chi2 (1)	0.687
Prob>chi2	0.5634

Source: Research data (2025)

According to Table 4.9, the value of significance 0.564 was more than 0.05 which explained the heteroscedasticity free research data.

4.6 Inferential Analysis of the Study Variables

4.1.6 Correlation of Independent Variables to Performance of SMEs in the Public Transport Sector

The coefficient correlation matrix for the green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis variables is shown in Table 4.10.

Table 4.10: Correlation Matrix of the Green Entrepreneurial Orientations Variables and Performance

		Green innovativeness	Green risk taking	Green proactiveness	Competitive aggressiveness	Performance
Green innovativeness	Pearson Correlation	1				
	Sig. (2-tailed)	.				
	N	140				
Green risk taking	Pearson Correlation	.685(**)	1			
	Sig. (2-tailed)	.000	.			
	N	140	140			
Green proactiveness	Pearson Correlation	.317(**)	.473(**)	1		
	Sig. (2-tailed)	.000	.000	.		
	N	140	140	140		
Competitive aggressiveness	Pearson Correlation	.875(**)	.837(**)	.458(**)	1	
	Sig. (2-tailed)	.000	.000	.000	.	

	N	140	140	140	140	
Performance	Pearson Correlation	.734(**)	.605(**)	.431(**)	.657(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	140	140	140	140	140

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

Source: Research data, 2025

The correlation matrix Table 4.10 revealed that there was a positive correlation between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. In terms of strength, green innovativeness (0.685**) had the highest strength, followed by competitiveness aggressiveness (0.657**), green risk taking (0.473**), and green proactiveness (0.458**) respectively.

All of the independent variables (green innovativeness 0.685**, green risk taking 0.473**, green proactiveness 0.458**, and competitiveness aggressiveness 0.657**) had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis, as shown in Table 4.10. As a result, the researcher came to the conclusion that there is a correlation between was a positive correlation between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. The results also showed that green innovativeness was the best predictor of performance of SMEs in the public transport sector while green proactiveness was the least.

4.6.1 Multiple Regression Analysis

The researcher used multiple regression analysis to establish the influence of green entrepreneurial orientations and performance of SMEs in the public transport sector. Table 4.11 shows the model summary.

Table 4.11: Model Summary between Green Entrepreneurial Orientations and Performance of SMEs in the Public Transport Sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.776a	0.602	0.590	0.52537

a. Predictors: (Constant), green innovativeness, green risk taking, green proactiveness, competitive aggressiveness

The results in Table 4.11 showed that the R-value of 0.776 highlighted that there a strong relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector. The R^2 value of 0.602 indicates that 60.2% of the variation in the performance can be explained by the green entrepreneurial orientations. This implies that the green entrepreneurial orientations significantly influence the performance of SMEs in the public transport sector in Nairobi Metropolis. The remaining 39.8% of the variation in the performance is attributed to other green entrepreneurial orientations not covered by this study. The adjusted R Square value of 0.590 provided a more accurate measure of the model's goodness of fit as the model is comparing different numbers of the independent variable.

Table 4.12 shows the ANOVA results between green entrepreneurial orientations and performance of SMEs in the public transport sector.

Table 4.12: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.338	4	14.085	51.028	.000[b]
	Residual	37.262	135	0.276		
	Total	93.600	139			

a. Dependent Variable: Performance of SMEs in public transport sector

b. Predictors: (Constant), green innovativeness, green risk taking, green proactiveness, competitive aggressiveness

The ANOVA results in Table 4.12 shows that green entrepreneurial orientations were significant in explaining the performance of SMES in the public transport sector in Nairobi Metropolis. The F-statistic of 51.028 is significantly higher than the critical value, indicating that the green entrepreneurial orientations are a strong predictor of the performance of SMES in the public transport sector in Nairobi Metropolis. The p-value of 0.000 is well below the predictable significance level of 0.05. This supports the conclusion that the green entrepreneurial orientations employed have a significant impact on the performance of SMES in the public transport sector in Nairobi Metropolis. These findings are supported by those of Qin et al. (2024), GEO had a positive influence on business performance.

Table 4.13 shows regression coefficient results.

Table 4.13: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	0.164	0.270		0.608	0.544
	Green innovativeness	0.774	0.111	0.806	6.974	0.000
	Green risk taking	0.252	0.105	0.224	2.389	0.018
	Green proactiveness	0.267	0.076	0.223	3.532	0.001

Competitive aggressiveness	-0.343	0.150	-0.355	-2.288	0.024

a. Dependent Variable: Performance of SMEs in the public transport sector

The model became;

Performance of SMEs in the public sector=0.164+0.774green innovativeness+0.252green risk taking+0.267green proactiveness-0.267competitive aggressiveness

The results in Table 4.13 showed that constant term is 0.164 with a p-value of 0.544, indicating that this baseline value is not statistically significant. These findings are supported by those of Figiel and Badar (2025) who noted that the relationship between GEO and performance was not always significant, and the impact could be negligible**.**

4.6.2 Hypotheses Testing

Table 4.13 revealed that among the predictors, green innovativeness showed a strong positive and significant relationship with the performance ($\beta = 0.806$, $t=6.974$, $p = 0.000$), suggesting that a unit change in green innovativeness leads to an increase of 0.806 units in the performance of SMEs in the public transport sector in Nairobi Metropolis. Therefore, the null hypothesis green innovativeness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya is rejected. The results are in agreement with those of Akhter (2024) which showed that there was a significant relationship between green innovativeness capabilities and organizational performance. The findings are also in line with those of Baeshen et al. (2021) which highlighted that there was a positive relationship between green innovativeness and organizational performance. According to a different study by

German et al. (2023), implementing new green initiatives has a favorable impact on corporate performance. Furthermore, the research conducted by Jayaraman et al. (2023) shown a positive correlation between organizational success and green innovativeness. The results are further corroborated by Wang et al. (2021), who found a strong and positive correlation between organizational success and green innovativeness.

Furthermore, there is a positive and significant effect of green proactiveness ($\beta = 0.223$, $t=3.532$, $p = 0.000$), meaning that a unit increase in green proactiveness results in a 0.223 unit improvement in the performance of SMEs in Nairobi Metropolis' public transportation sector. Thus, the null hypothesis “green proactiveness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya” is rejected. The findings are supported by those of Qing et al. (2022) which found that proactive green process innovation has a significant positive effect on organizational performance. The findings are also in agreement with those of Khwae (2024) who established that proactiveness had a significant impact on SMEs’ performance. The findings are also in tandem with those of Kiguru et al. (2024) which confirmed a significant relationship between proactiveness and performance. Ogundare and Merwe (2024) also noted that proactiveness had significant effects on SMEs' performance. The findings are however contradicted by those of Zhang & Li (2021) who established that green proactiveness did not significantly influence financial performance.

The results showed that green risk taking had a positive but insignificant relationship with the performance of SMEs in the public transport sector in Nairobi Metropolis ($\beta = 0.224$, $t=2.389$, $p = 0.018$), implying that a unit change in green risk taking leads to an increase of 0.224 in the performance of SMEs in the public transport sector in Nairobi Metropolis.

Thus the null hypothesis “green risk taking has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya” is rejected. This result implies that variations in green risk taking do not significantly affect the performance, suggesting that while green risk taking is a factor, it does not have a strong influence the performance of SMEs in the public transport sector. The findings are confirmed by those of Ullah and Danish (2020) who found that there was a positive relationship between risk taking and organizational performance. They are also supported by those of Ciocoiu et al. (2024) which showed that green risk taking had a positive relationship with organizational performance. According to a study by Bassem (2023), green risk taking could have both positive and negative effects on the performance of an organization based on how it was undertaken.

However, the findings showed that competitive aggressiveness had a negative and insignificant relationship with the performance of SMEs in the public transport sector in Nairobi Metropolis (β =-0.355, t=-2.288, p = 0.024), implying that a unit change in competitive aggressiveness leads to a decrease of -0.355 in the performance of SMEs in the public transport sector in Nairobi Metropolis. Thus the null hypothesis “competitive aggressiveness has no statistically significant influence on the performance of public transport SMEs in Nairobi Metropolis, Kenya” is accepted. This result implies that variations in competitive aggressiveness negatively and insignificantly affect the performance, suggesting that while competitive aggressiveness is a factor, it does not have a strong influence the performance of SMEs in the public transport sector. The findings are contradicted by those of Panjaitan et al. (2021) who found that the competitive aggressiveness had a significant effect on business performance. The

findings are further contradicted by those of Nnaemek et al. (2021) which established that there was a significant positive relationship between competitive aggressiveness and organizational performance.

Thus, while green innovativeness and green proactiveness are crucial for enhancing performance efforts, green risk taking and competitive aggressiveness did not lead to significant improvements in performance.

4.6.2 Moderating Role of Government Policy

The researcher used multiple regression analysis to establish the moderating role of government policy on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. Table 4.14 shows the model summary.

Table 4.14: Model Summary on the Moderating Role of Government Policy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.675a	0.579	0.442	0.59708

a. Predictors: (Constant), green innovativeness, green risk taking, green proactiveness, competitive aggressiveness, government policy

Table 4.14 illustrates the moderating role of government policy on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. The R-value of 0.761 suggests a strong positive moderating role of government policy on the relationship between the green entrepreneurial orientations and performance. The R Square value of 0.579 indicates that 57.9% of the variation in the performance can be explained by government policy. This implies that the government policy significantly moderates the relationship between

green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. The remaining 42.1% of the variation in the performance is attributed to other moderators not covered by this study.

Table 4.15 shows the ANOVA results for the moderating role of government policy.

Table 4.15: ANOVA Results of Moderating Role of Government Policy

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.745	4	14.686	41.195	.000[a]
	Residual	42.781	120	0.357		
	Total	101.525	124			

a. Dependent Variable: Performance of SMEs in the public transport sector

b. Predictors: (Constant), green innovativeness, green risk taking, green proactiveness, competitive aggressiveness, government policy

The ANOVA results in Table 4.15 showed that government policy was significant in explaining the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector. The F-statistic of 41.195 is significantly higher than the critical value, indicating that government policy is a strong moderator of the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis. The p-value of 0.000 is well below the conventional significance level of 0.05. This supports the conclusion that government policy has a significant moderating influence on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis.

Table 4.16 shows regression coefficient results.

Table 4.16: Regression Coefficients for the Moderating Role of Government Policy

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	1.999	0.349		5.220	0.000
	Government policy	0.004	0.001	0.779	5.925	0.000

a. Dependent Variable: Performance of SMES in the public transport sector

The results in Table 4.16 showed that constant term is 1.999 with a p-value of 0.000, indicating that this baseline value is statistically significant. Further government policy shows a strong positive and significant moderating effect on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis ($\beta = 0.779$, $t=5.925$, $p = 0.000$). Therefore, the null hypothesis "Government policy has no significant moderating influence on the relationship between green entrepreneurial orientations and the performance of public transport SMEs in Nairobi Metropolis, Kenya" was rejected. This suggests that a unit change in government policy leads to an increase of 0.779 in performance of SMEs in the public transport sector. The findings are in line with those of Kyal et al. (2021) which indicated that government policies moderate the relationship between entrepreneurial orientation and organizational performance. In addition, they are supported by those of Prasannath et al. (2024) who found that government policies had a moderating effect on the relationship between entrepreneurial orientation and performance.

According to the findings, the new order of the conceptual framework for the independent variables was: green innovativeness, green proactiveness, green risk taking and competitive aggressiveness.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary of the findings based on the research objectives. The chapter also discusses the study's conclusions based on the findings, as well as recommendations that the SMEs in the public transport sector in Nairobi Metropolis can adopt to improve their performance. The chapter also highlights areas for future studies.

5.2 Summary of Findings

5.2.1 Influence of Green Innovativeness on Performance of SMEs in the Public Transport Sector

The correlation results showed that green innovativeness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.685**). The regression results indicated that green innovativeness showed a strong positive and significant relationship with the performance ($\beta = 0.806$, $t=6.974$, $p = 0.000$). The respondents' mean score of 4.30 demonstrated that the management makes sure that new bus designs included into the product are highly environmentally friendly. With a mean score of 4.11, the respondents also demonstrated that the new bus modifications were specifically designed to prioritize the customer experience. However, with a mean score of 3.99, the respondents showed that managers' inventive mindsets when creating corporate strategies were moderate. However, with a mean score of 2.47, managers' efforts to create a work climate that fosters employee creativity were only partially successful. With a mean score of 3.39, the respondents also reported that excessive expenses in the production process had been detected to a modest extent. Lastly, with a

mean score of 4.01, the respondents said that work procedures have been automated to a high degree to increase efficiency.

5.2.2 Influence of Green Risk Taking on Performance of SMEs in the Public Transport Sector

The correlation results showed that green risk taking had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.473**). The findings revealed that green risk taking had a positive but insignificant relationship with the performance of SMEs in the public transport sector in Nairobi Metropolis ($\beta = 0.224$, $t=2.389$, $p = 0.018$). With a mean score of 4.12, the results also demonstrated that the respondents were quite happy with the way system failure risks were tracked to prevent operational disruptions. With a mean score of 3.79, the results also demonstrated that there was moderation in the ongoing monitoring of technology to make sure it does not create technological hazards for being obsolete. With a mean score of 3.81, the respondents also moderately stated that the company complied with industry laws to prevent compliance risks. Nonetheless, a mean score of 4.02 shows that the company's operations mostly avoided product liability issues by adhering to industry safety norms. With a mean score of 3.47, the respondents also said that staff members had received moderate training to improve their ability to reduce operational risks. Additionally, respondents with a mean score of 3.75 indicated that sufficient controls had been significantly implemented to prevent disruptions.

5.2.3 Influence of Green Proactiveness on Performance of SMEs in the Public Transport Sector

The correlation results showed that green innovativeness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.458**). This study found that green proactiveness has a positive and significant impact (β = 0.223, t=3.532, p = 0.000). With a mean score of 3.31, the respondents said that the introduction of buses had increased consumer faith in green products since they had a somewhat low environmental impact. With a mean score of 4.08, the respondents also said that launched buses were cost-effective to a large degree because they were energy-efficient. With a mean score of 3.67, the respondents also reported that the introduction of green services provided improved use of renewable energy to a moderate degree. However, a mean score of 4.30 showed that a significant degree of customer participation in green initiatives was promoted by the usage of cashless services. With a mean score of 3.70, the respondents also said that the introduction of green technology had moderately guaranteed low energy usage. Furthermore, as evidenced by a mean score of 3.81, the respondents said that the introduction of green technology had guaranteed that pollution had decreased because they created low emissions in moderation.

5.2.4 Influence of Competitive Aggressiveness on Performance of SMEs in the Public Transport Sector

The correlation results showed that competitive aggressiveness had a positive correlation with performance of SMEs in the public transport sector in Nairobi Metropolis (0.657**). This study found that competitive aggressiveness had a negative and insignificant relationship with the performance of SMEs in the public transport sector in Nairobi

Metropolis (β =-0.355, t=-2.288, p = 0.024). With a mean score of 4.02, the respondents said that the price set was sensitive to customers because it was very affordable. With a mean score of 3.81, the respondents also moderately stated that the company used promotional pricing to draw in new clients. Additionally, with a mean score of 4.30, the respondents felt that the services provided to clients were highly reliable. As evidenced by a mean score of 4.01, the respondents also stated that services were typically provided in accordance to client requests. Furthermore, with a mean score of 3.31, the respondents stated that aggressive marketing was modestly used to increase client brand awareness. However, a mean score of 2.47 indicates that the use of digital marketing activities to reach larger audiences was subpar.

5.2.5 Moderating Role of Government Policy on the Relationship between Green Entrepreneurial Orientations and Performance of SMEs in the Public Transport Sector

This study found that government policy shows a strong positive and significant moderating effect on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi metropolis (β = 0.779, t=5.925, p = 0.000). A mean score of 4.08 indicated that respondents also strongly agreed that the government should provide a framework for financial incentives to promote investment in green technologies. However, with a mean score of 3.93, the respondents felt that subsidies were provided to encourage the use of green technology to a considerable amount.

5.3 Conclusions

5.3.1 Influence of Green Innovativeness on Performance of SMEs in the Public Transport Sector

This study concludes that financing decisions had a positive and significant effect on performance of SMES in the public transport sector in Nairobi metropolis, thus the null hypothesis is rejected. The study also concludes that the designing of new buses which are environmentally friendly has been highly embraced as well as prioritization of customer experience during the modification of new buses. The study concludes that the automation of work procedures by the SMEs in the public transport sector in Nairobi metropolis has been highly done. The study further concludes that there is moderation in the creativity of managers when coming up with corporate strategies and also in the reduction of excessive expenses in the production process. It is also concluded that the managers' efforts to create a conducive work environment that promotes employee creativity is poor.

5.3.2 Influence of Green Risk Taking on Performance of SMEs in the Public Transport Sector

This study concludes that there was a positive insignificant relationship between green risk taking and performance of SMES in the public transport sector in Nairobi metropolis, thus the null hypothesis is rejected. It is also concluded that tracking of systems to ensure there are no failure risks is highly adopted as well as company's operations mostly avoided product liability issues by adhering to industry safety norms. The study also concludes that there is moderation in the prevention of technological risks due to inadequate monitoring of technological hazards. Another conclusion is that the

organization's compliance with industry laws to prevent compliance risks is adopted in moderation. The study further concludes that there is moderation in the training of employees to reduce operational risks. It is also concluded that there is moderation in putting in place sufficient controls to prevent operational disruptions.

5.3.3 Influence of Green Proactiveness on Performance of SMEs in the Public Transport Sector

This study concludes that there was a positive relationship between green proactiveness and performance of SMES in the public transport sector in Nairobi metropolis, thus the null hypothesis is rejected. The study also concludes that the launch of cost-effective buses had largely enhanced energy efficiency and has also significantly increased the participation of customers in green initiatives through the usage of cashless services. It is also concluded that there is moderation on the consumer's trust in green products due to the introduction of buses with low environmental impact. The study further concludes that the introduction of green services has moderately improved the use of renewable energy. Another conclusion is that there is moderation in low energy usage through the introduction of green technology by the SMEs as well as in the reduction of pollution through low emissions.

5.3.4 Influence of Competitive Aggressiveness on Performance of SMEs in the Public Transport Sector

This study concludes that there was a negative relationship between competitive aggressiveness managing risks and performance of SMES in the public transport sector in Nairobi metropolis, thus the null hypothesis is accepted. The study also concludes that the pricing of the SMEs is highly sensitive to customers due to its affordability and the

services provided to clients were highly reliable. It is also concluded that the provision of services is highly done in accordance with to the clients requests while promotional pricing to draw new clients is moderately embraced. Another conclusion is that aggressive marketing is modestly done to increase customer brand awareness while the use of digital marketing activities is poorly done.

5.3.5 Moderating Role of Government Policy on the Relationship between Green Entrepreneurial Orientations and Performance of SMEs in the Public Transport Sector

This study concluded that government policy positively and significantly moderated the relationship between green entrepreneurial orientations and performance of SMES in the public transport sector in Nairobi metropolis, thus the null hypothesis is rejected. The study also concludes that the provision of a framework for financial incentives to promote investment in green technologies has been highly adopted. It is also concluded that there is moderation in the subsidies provided by the government to encourage the use of green technology.

5.4 Recommendations

Based on the conclusions, this study recommends that under green innovativeness, the management should provide trainings for its managers to enhance their managerial innovation. This could enable them to be more creative when coming up with corporate strategies on green technology. It is also recommended that to reduce excessive expenses in the production process, the management of the SMEs in the public transport sector should fully embrace process innovation. Another recommendation is that the

management should create a conducive work environment for employees as this could promote their creativity for enhanced performance.

It is also recommended that under green risk taking, the management should put in place monitoring systems to reduce technological hazards. This can be achieved by frequent upgrading of technologies to avoid the use of obsolete technology. The study also recommends that the SMEs in the public transport sector should avoid compliance risks by adhering to the industry laws. This could prevent the interference of services offered to customers. Another recommendation is that in order to reduce operational risks, employees should be constantly trained on the green technologies that have been adopted. The study further recommends that to prevent operational disruptions, the management should upgrade their green technology to ensure that sufficient controls have been put in place.

This study recommends that under green proactiveness, the management should continue introducing new buses that have incorporated green technology as it has low environmental impact. It is also recommended that more green services should be introduced by the SMEs in the public transport sector as they use renewable energy. Another recommendation is that the introduction of green technology by the SMEs should be enhanced as it could lead to the reduction of pollution through low emissions.

It is also recommended that under competitive aggressiveness, the SMEs in the public transport sector should fully embrace promotional pricing as it could attract more customers to use their green buses. The study also recommends that the management should aggressively market the green products (buses) and green services they are using so as to increase customer brand awareness. Another recommendation is that the

management should embark on the use of digital marketing activities so as to increase the visibility of their green buses and green services to enhance performance.

It is recommended that under government policy, the management should lobby for the provision of more subsidies for the public transport SMEs that have embraced green technology. This could motivate other SMEs in the sector to adopt green technology.

It is recommended that to encourage the adoption of green entrepreneurial orientations in the transport sector, the government should provide funds for the scalable manufacturing of electric vehicles by ensuring more flexible factories are constructed to rapidly increase the supply.

5.5 Suggestions for Further Studies

1. The study only focused on the dimensions of green innovativeness, green risk taking, green proactiveness and competitive aggressiveness. It is suggested that future studies should focus on other dimensions of green entrepreneurial orientations.
2. In addition, the study was conducted among public transport SMEs in Nairobi metropolis. It is therefore recommended that similar studies should be carried out in other counties in Kenya to compare results.
3. As this study was conducted in the public transport sector, it is recommended that future studies could be conducted in the private transport sector for comparison purposes.

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APPENDICES

Appendix I: Questionnaire

Dear respondents,

I am a final year student from the Catholic University of Eastern Africa currently pursuing Master of Business Administration degree. As part of my coursework, I am required to conduct a research survey. The title of my research project is *"Green Entrepreneurial Orientations and Performance of Small and Medium Enterprises in the Public Transport Sector in Nairobi Metropolis, Kenya"*. I will be grateful if you could spend a few minutes of your time to complete the questionnaire. I assure that all information collected is strictly for academic purposes and will be kept confidential. Thank you for your kind assistance.

SECTION A: DEMOGRAPHIC INFORMATION

Please specify your answer by placing a **(√)** on the relevant answers provided. The following questions will be used only in determining our sample demographics.

1. Gender: [ ] Female [ ] Male

2. Age
[ ] 20-29 years old [ ] 30-39 years old
[ ] 40-49 years old [ ] 50 years old and above

3. Educational Level
[ ] Certificate [ ] Diploma [ ] Degree
[ ] Master [ ] PhD

SECTION B: GREEN INNOVATIVENESS AND PERFORMANCE OF SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements that relate to the influence of green innovativeness on performance of SMEs in the public transport sector in Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) The management ensures that new bus designs incorporated into the product are environment friendly					
b) The new bus changes are tailored to focus on customer experience					

c) The managers have an innovative mindset when formulating business strategy					
d) Managers have created a work environment that encourages employee creativity					
e) Unnecessary costs within the production process have been identified and eliminated					
f) Work processes have been automated to enhance efficiency					

SECTION C: GREEN RISK TAKING AND PERFORMANCE SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements on the influence of green risk taking on performance of SMEs in the public transport sector in Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) System failure risks are monitored to avoid operational and process disruptions					
b) Any technology that is becoming obsolete is continuously monitored to prevent any technological risks					
c) The business ensures that they comply with industry laws and regulations to avoid compliance risks					
d) Business activities comply with industry safety standards to avert product liability issues e					
e) Employees have been trained to enhance their competence and minimize misconduct so as to minimize operational risks					
f) Adequate controls have been put in place to avoid service disruptions					

SECTION D: GREEN PROACTIVENESS AND PERFORMANCE OF SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements on the influence of green proactiveness on performance of SMEs in the public transport sector in Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) Launched buses have boosted the trust of customers on green products as they have low environmental impact					
b) Launched buses are energy efficient thus cost effective					
c) The launch of green services offered enhance renewable energy utilization					
d) The use of cashless services encourages customer participation in green initiatives					
e) The launch of green technology has ensured energy consumption is low					
f) The launch of green technology has ensured that pollution has been reduced as they produce low emissions					

SECTION E: COMPETITIVE AGGRESSIVENESS AND PERFORMANCE SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements on the influence of competitive aggressiveness on performance of SMEs in the public transport sector in Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) The price set is sensitive to customers as it is pocket friendly					
b) The organization offers promotional pricing to attract new customers					
c) Services offered to customers are reliable					
d) Services offered are usually in response to customer needs					

e) Aggressive marketing is undertaken for brand awareness among customers					
f) The organization utilizes digital marketing activities to reach wider audiences					

SECTION F: MODERATING ROLE OF GOVERNMENT POLICY ON THE RELATIONSHIP BETWEEN GREEN ENTREPRENEURIAL ORIENTATIONS AND PERFORMANCE OF SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements on the moderating role of government policy on the relationship between green entrepreneurial orientations and performance of SMEs in the public transport sector in Nairobi Metropolis, Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) The government provides a framework for financial incentives to encourage investment in green technology for better performance					
b) The government provides subsidies to encourage the adoption of green technology for better performance					

SECTION G: PERFORMANCE OF SMES IN THE PUBLIC TRANSPORT SECTOR

What is your level of agreement to the following statements on the performance of SMEs in the public transport sector in Nairobi Metropolis, Kenya?

Key: 1 Very High Extent 2 High Extent 3 Moderate Extent
4 Low Extent 5 Very Low Extent

Statement	**1**	**2**	**3**	**4**	**5**
a) The organization has increased its market share in the industry					
b) The organization has experienced more operational efficiency					
c) The organization has been able to reduce its carbon footprint					

d) The organization has been able to enhance the customer satisfaction					

Appendix II: Secondary Data Template

A. TOTAL ASSETS

Year	Kshs.
2019	
2020	
2021	
2022	
2023	
2024	

B. RETURN ON ASSETS

Year	Kshs.
2019	
2020	
2021	
2022	
2023	
2024	

C. RETURN ON EQUITY

Year	Kshs.
2019	
2020	
2021	
2022	
2023	
2024	

Appendix III: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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Date of Issue: **20/June/2025**

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