ENTERPRISE RISK MANAGEMENT AND ORGANIZATIONAL SUSTAINABILITY WITHIN THE SUPPLY CHAIN INDUSTRY IN KENYA: A CASE OF KENYA MEDICAL SUPPLIES AUTHORITY

LINET ATIENO OCHIENG

AN APPLIED RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION DEGREE IN THE SCHOOL OF BUSINESS OF AFRICA NAZARENE UNIVERSITY

JUNE 2024

DECLARATION

I declare that this applied research project is my original work and has not been submitted to an examinations body or institution of higher learning for purposes of certification.

Name of student: Linet Atieno Ochieng 18S03DMBA010

Signed……… Date…20/06/2024……

SUPERVISOR'S DECLARATION

This applied research project is submitted for examination with my approval as the University Supervisor.

Supervisor's name: Dr. John Kamau

Sign: ……  ……...… Date: …20/06/2024

AFRICA Nazarene University,

Nairobi, Kenya

DEDICATION

I wish to dedicate this study to my father, Mr. Gordon Ochieng whose unwavering support has enabled me to come this far in my academic pursuit. The study is also dedicated to my late mother Mrs. Eliver Ochieng. Your living memory gave me the strength and courage to keep going despite the numerous social and economic odds that littered my way during the research journey.

ACKNOWLEDGEMENT

A number of persons merit my profound appreciations for being so supportive in this research process. First, I wish to be grateful to God for good health as well as the wealth to undertake this investigation. I also wish to thank the following for their involvement towards the conclusion of this proposal: My supervisor Dr. John Kamau who was always available for me whenever I needed him. I particularly appreciate his concern and for keeping me on my toes. The School of Business lecturers at Africa Nazarene University deserve gratitude, who generously shared their expertise and experience during the course. I am also deeply grateful to my examiners, peers and lecturers who offered insightful critiques throughout the course.

TABLE OF CONTENTS

DECLARATION ..... **ii**
DEDICATION ..... **iii**
ACKNOWLEDGEMENT ..... **iv**
TABLE OF CONTENTS ..... **v**
LIST OF TABLES ..... **x**
LIST OF FIGURES ..... **xii**
ABSTRACT ..... **xv**
DEFINITION OF TERMS ..... **xvi**
ABBREVIATIONS AND ACRONYMS ..... **xvii**
CHAPTER ONE: INTRODUCTION TO THE STUDY AND BACKGROUND **1**
1.1 Introduction 1
1.2 Background of the Study 1
1.2.1 Organizational Sustainability 2
1.2.2 Enterprise Risk Management 3
1.2.3 Supply Chain Industry in Kenya 6
1.2.4 Kenya Medical Supplies Authority 8
1.3 Statement of the Problem 9
1.4 Purpose of the Study 10
1.5 Objectives of the Study 10
1.6 Research Hypotheses 10
1.7 Significance of the Study 11
1.8 Scope of the Study 11
1.9 Delimitations of the Study 11
1.10 Limitations of the Study 12
1.11 Assumptions of the Study 12

1.12 Theoretical Framework 13

1.12.1 Contingency Theory 13

1.12.2 Agency Theory 14

1.12.3 Resource Based View Theory 16

1.13 Conceptual Framework 17

..... 17

CHAPTER TWO: LITERATURE REVIEW 18

2.1 Introduction 18

2.1.1 Risk Identification and Organizational Sustainability 18

2.1.2 Risk Assessment and Organizational Sustainability 21

2.1.3 Risk Response and Organizational Sustainability 23

2.1.4 Risk Monitoring and Review and Organizational Sustainability 25

2.2 Summary of Review of Literature and Research Gaps 27

CHAPTER THREE: RESEARCH METHODOLOGY 28

3.1 Introduction 28

3.2 Research Design 28

3.3 Research Site 28

3.4 Target Population 29

3.5 Study Sample 29

3.5.1 Sampling Procedure 29

3.5.2 Sample Size 30

3.6 Data Collection 31

3.6.1 Data Collection Instruments 31

3.6.2 Pilot Testing of Research Instruments 32

3.6.3 Instrument Reliability 32
3.6.4 Instrument Validity 33
3.6.5 Data Collection Procedures 33
3.7 Data Processing and Analysis 34
3.8 Testing of the Assumptions of Regression 35
3.8.1 Normality Tests 35
3.8.2 Multicollinearity Test 36
3.8.3 Test of Homogeneity Variance 36
3.9 Test of Hypotheses 37
3.10 Legal and Ethical Considerations 38
CHAPTER FOUR 39
DATA ANALYSIS AND FINDINGS 39
4.1 Introduction 39
4.2 Response Rate 39
4.3 Demographic Analysis 39
4.3.1 Gender Representation 40
4.3.2 Age of the Respondents 40
4.3.3 Highest Education Level 41
4.3.4 Years at KEMSA 41
4.4 Descriptive Statistics 42
4.4.1 Risk Identification 42
4.4.2 Risk Assessment 44
4.4.3 Risk Response 45
4.4.4 Risk Monitoring and Review 47

4.4.5 Organizational Sustainability 49
4.5 Inferential Statistics 51
4.5.1 Correlation Analysis 51
4.5.2 Regression Analysis 53
4.6 Hypothesis Testing 61
4.6.1 Risk Identification and Sustainability 62
4.6.2 Risk Assessment and Sustainability 62
4.6.3 Risk Response and Sustainability 62
4.6.4 Risk Monitoring and Review and Sustainability 63
CHAPTER FIVE 64
DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS 64
5.1 Introduction 64
5.2 Discussions 64
5.2.1 Risk Identification and Sustainability 65
5.2.2 Risk Assessment and Sustainability 66
5.2.3 Risk Response and Sustainability 67
5.2.4 Risk Monitoring and Review and Sustainability 68
5.3 Summary of Main Findings 69
5.4 Conclusions 71
5.5 Recommendations 72
5.6 Areas of Further Research 73
REFERENCES 74
APPENDICES 79
APPENDIX I: INTRODUCTION LETTER 79
APPENDIX II: RESEARCH QUESTIONNAIRE 80

APPENDIX III: RESEARCH AUTHORIZATION LETTER 85
APPENDIX IV: NACOSTI RESEARCH PERMIT..... 86
APPENDIX V: MAP OF NAIROBI COUNTY 87
APPENDIX VI: RESEARCH BUDGET 88
APPENDIX VII: WORK SCHEDULE 89

LIST OF TABLES

Figure 1.1: Relationship between Enterprise Risk Management and Organizational Sustainability..... 17

Table 3.1 Population Distribution..... 29

Table 3.2 Sample Size Distribution..... 31

Table 3.3 Reliability Results..... 33

Table 3.4 Test of Normality..... 35

Table 3.5: Test of Multicollinearity..... 36

Table 3.6: Heteroscedasticity Test..... 37

Table 3.7: Hypotheses Testing..... 38

Table 4.1: Response Rate..... 39

Table 4.2: Gender Distribution..... 40

Table 4.3: Respondents' Age Composition..... 40

Table 4.4: Distribution of Respondents by Highest Level of Education..... 41

Table 4.5: Years of Service in the Firm..... 41

Table 4.6: Descriptive Statistics on Risk Identification..... 43

Table 4.7: Descriptive Statistics for Risk Assessment..... 44

Table 4.8: Descriptive Statistics for Risk Response 46

Table 4.9: Descriptive Statistics for Risk Monitoring and Review 48

Table 4.10: Descriptive Statistics for Organizational Sustainability 49

Table 4.11: Correlation Analysis 52

Table 4.12: Model Fitness for Risk Identification and Sustainability 53

Table 4.13: ANOVA Results for Risk Identification and Sustainability..... 54

Table 4.14: Regression Coefficients for Risk Identification and Sustainability..... 54

Table 4.15: Model Fitness Results for Risk Assessment and Sustainability 55

Table 4.16: ANOVA Results for Risk Assessment and Sustainability 55

Table 4.17: Regression Coefficients for Risk Assessment and Sustainability 56

Table 4.18: Model Fitness Results for Risk Response and Sustainability..... 56

Table 4.19: ANOVA Results for Risk Response and Sustainability 57

Table 4.20: Regression Coefficients for Risk Response and Sustainability..... 57

Table 4.21: Model Fitness Results for Risk Monitoring and Review and Sustainability. 58

Table 4.22: ANOVA Results for Risk Monitoring and Review and Sustainability 58

Table 4.23: Regression Coefficients for Risk Monitoring and Review and Sustainability 59

Table 4.24: Overall Model Fitness..... 59

Table 4.25: ANOVA Results for the Overall Model 60

Table 4.26: Regression Coefficients for the Overall Model 60

LIST OF FIGURES

Figure 1.1: Relationship between Enterprise Risk Management and Organizational Sustainability..... 17

Table 3.1 Population Distribution..... 29

Table 3.2 Sample Size Distribution 31

Table 3.3 Reliability Results..... 33

Table 3.4 Test of Normality..... 35

Table 3.5: Test of Multicollinearity..... 36

Table 3.6: Heteroscedasticity Test..... 37

Table 3.7: Hypotheses Testing..... 38

Table 4.1: Response Rate..... 39

Table 4.2: Gender Distribution 40

Table 4.3: Respondents' Age Composition 40

Table 4.4: Distribution of Respondents by Highest Level of Education 41

Table 4.5: Years of Service in the Firm..... 41

Table 4.6: Descriptive Statistics on Risk Identification..... 43

Table 4.7: Descriptive Statistics for Risk Assessment..... 44

Table 4.8: Descriptive Statistics for Risk Response 46

Table 4.9: Descriptive Statistics for Risk Monitoring and Review 48

Table 4.10: Descriptive Statistics for Organizational Sustainability 49

Table 4.11: Correlation Analysis 52

Table 4.12: Model Fitness for Risk Identification and Sustainability 53

Table 4.13: ANOVA Results for Risk Identification and Sustainability..... 54

Table 4.14: Regression Coefficients for Risk Identification and Sustainability..... 54

Table 4.15: Model Fitness Results for Risk Assessment and Sustainability 55

Table 4.16: ANOVA Results for Risk Assessment and Sustainability 55

Table 4.17: Regression Coefficients for Risk Assessment and Sustainability 56

Table 4.18: Model Fitness Results for Risk Response and Sustainability..... 56

Table 4.19: ANOVA Results for Risk Response and Sustainability 57

Table 4.20: Regression Coefficients for Risk Response and Sustainability..... 57

Table 4.21: Model Fitness Results for Risk Monitoring and Review and Sustainability. 58

Table 4.22: ANOVA Results for Risk Monitoring and Review and Sustainability 58

Table 4.23: Regression Coefficients for Risk Monitoring and Review and Sustainability 59

Table 4.24: Overall Model Fitness..... 59

Table 4.25: ANOVA Results for the Overall Model 60

Table 4.26: Regression Coefficients for the Overall Model 60

ABSTRACT

Effective enterprise risk management practices are critical for both private and public sector organizations to enhance their sustainability. The study is prompted by the challenges that have been facing KEMSA, including allegations of corruption and mismanagement of funds. The organization has been accused of irregular procurement practices, overpricing of medical supplies, and misuse of public funds. The main intention of this research was to examine enterprise risk management influence on sustainability of supply chain industry in Kenya. The following specific objectives were used to guide the study namely to determine the influence of risk identification on sustainability, to examine the effect of risk assessment on sustainability, to determine the effect of risk response on sustainability and to establish the effect of risk monitoring and review on sustainability. The study was anchored on contingency theory and supported by agency theory and resource-based view theory. An explanatory research design was used in this research. The population of the study was the 389 employees at KEMSA headquarters in Nairobi. Sample size was 198 employees stratified according to their departments. Primary data obtained using questionnaires was collected. The questionnaire's validity and effectiveness was tested in this study by randomly selecting 20 employees at KEMSA to complete it. The questionnaires were administered through Google forms. Upon collection of the data, it was coded in quantitative format so as to enable analysing using version 24 of statistical package for social sciences (SPSS). Inferential as well as descriptive statistics generated included frequencies and percentages and simple and multiple linear regression respectively. Descriptive and inferential statistics generated were presented in tables and figures. The study revealed a significant positive relationship between risk identification, risk assessment, risk response, risk monitoring and review and sustainability of supply chain industry in Kenya. This study concluded that enterprise risk management practices are essential for KEMSA to use in their endeavour to improve on their sustainability. The study recommends that KEMSA should enhance risk identification, assessment, response, and monitoring and review processes, to bolster its sustainability in the supply chain industry in Kenya. Additionally, ongoing training, performance monitoring, and alignment with strategic objectives are essential to ensure the sustainability of these enterprise risk management efforts over the long term.

DEFINITION OF TERMS

Enterprise risk management: Refers to a process of identifying, assessing, and managing risks that may impact an organization's ability to achieve its objective.

Organizational sustainability: Refers to the ability of an organization to achieve its business objectives in a way that minimizes its negative impact on the environment, society, and the economy, while also maximizing its positive impact.

Risk assessment: Evaluating the likelihood and potential impact of identified risks. This involves analyzing the nature and severity of risks and prioritizing them based on their significance.

Risk identification: Identifying potential risks that may impact the organization's objectives. This can include both internal and external risks.

Risk monitoring and review: Ongoing monitoring of the effectiveness of risk management strategies and continuous review of the organization's risk profile.

Risk response: Developing and implementing strategies to manage and mitigate identified risks. This can include risk avoidance, risk transfer, risk reduction, and risk acceptance.

ABBREVIATIONS AND ACRONYMS

ANU	-	Africa Nazarene University
CBK	-	Central Bank of Kenya
CEO	-	Chief Executive Officer
CMA	-	Capital Markets Authority
CSR	-	Corporate Social Responsibility
ERM	-	Enterprise Risk Management
ICT	-	Information and Communication Technology
KEMSA	-	Kenya Medical Supplies Authority
NACOSTI	-	National Commission of Science, Technology and Innovation
RBV	-	Resource Based View
SEM	-	Structural Equation Modeling
SME	-	Small and Medium Enterprises
SPSS	-	Statistical Package for Social Sciences
VRIN	-	Valuable, Rare, Inimitable, And Non-Substitutable

CHAPTER ONE: INTRODUCTION TO THE STUDY AND BACKGROUND

1.1 Introduction

The chapter explores the study's background, problem statement, study objectives, research questions, study's significance, scope, limitations and delimitations and exemplifies a conceptual framework that shows the relation between the study independent and dependent variables.

1.2 Background of the Study

In today's enterprises, enterprise risk management (ERM) has gained importance. With globalization and the rapid pace of technological advancement, organizations are facing increasingly complex risks that are often interconnected (Elahi, 2019). ERM helps organizations in identifying and managing these risks in a holistic way. Regulatory bodies are also placing greater emphasis on ERM, with many requiring organizations to implement ERM frameworks as part of their compliance obligations. This is particularly true in highly regulated industries such as finance, healthcare, and energy (Paape & Speklé, 2022). Further, investors, customers, and other stakeholders are becoming more aware of the risks that organizations face and are increasingly demanding that organizations take a proactive approach to managing these risks.

Economic volatility has also increased in recent years, with events such as the global financial crisis and the covid-19 pandemic causing significant disruptions to businesses. ERM can help organizations to prepare for and mitigate the impact of these types of events (Bento, Mertins & White, 2018). ERM provides organizations with a structured approach to identifying, assessing, and managing risks, which is critical in today's complex and fast-changing business environment. By implementing ERM frameworks, organizations can better protect themselves against probable risks and position themselves for long-term success (Burnaby & Hass, 2019).

1.2.1 Organizational Sustainability

Epstein and Buhovac (2019) defines organizational sustainability as organization capacity to achieve its business objectives in a manner minimizing its detrimental effect on the environment, society, and the economy, whereas also exploiting its positive effect. Bonn and Fisher (2021) terms it as a holistic approach to managing the organization that takes into account the long-term impact of its operations on various stakeholders, including employees, customers, suppliers, investors, and the broader community.

Organizational sustainability involves considering the environmental, social, and economic impact of an organization's activities, and implementing strategies to reduce negative impacts and enhance positive ones (Joyce & Paquin, 2016). This includes minimizing waste and pollution, conserving resources, promoting social responsibility, and ensuring the financial stability and profitability of the organization over the long term. Organizational sustainability also involves a commitment to transparency and accountability, with organizations being open and honest about their impact and efforts to improve sustainability (Dyllick & Muff, 2016). This may involve reporting on sustainability performance, engaging with stakeholders, and seeking feedback and input from stakeholders on sustainability initiatives.

According to Kyereboah-Coleman (2017), organizational sustainability can be evaluated using four major dimensions: effectiveness (capacity of organization to achieve its goal), efficiency (firm resource utilization in effective manner), and significance (the degree to which the stakeholders of the company feel that its actions are in line with their wants and needs) and, finally, financial viability (the extent to which a company is feasible both in the short and long terms, as well as the length of time the organization has been profitable). Sustainability signals in public entities like

KEMSA include funds over operating expenses, customer satisfaction, and number of projects completed within budget (Nzuma, 2022).

Other indicators include budget deficit/surplus, and reserves. A budget surplus indicates greater sustainability, as it suggests that the government agency is generating more revenue than it is spending. This can help to reduce debt and build up reserves, which are a measure of the amount of money a government agency has set aside for unexpected events (Paape & Speklé, 2022). A higher reserve level indicates greater sustainability, as it suggests that the government agency is prepared to deal with unforeseen circumstances without having to resort to borrowing or increasing taxes (Bonn & Fisher, 2021).

1.2.2 Enterprise Risk Management

Enterprise risk management (ERM) is a procedure of identification, assessment, and managing risks that may impact a firm's entity to realize its objectives (Burnaby & Hass, 2019). Elahi (2019) describes ERM as a complete and integrated tactic of managing risk that considers the organization's entire risk profile, including risks related to its operations, finances, reputation, and strategic objectives. ERM is an important process for organizations as it aids in guaranteing that risks are managed in a systematic and synchronized manner, and that risks are identified and addressed before they can have a significant impact on the organization. It also helps to endorse risk-awareness and proactive risk management culture, and can contribute to improved decision-making and strategic planning (Settembre-Blundo, González-Sánchez, Medina-Salgado, & García-Muiña, 2021).

The ERM process naturally comprises four steps. Risk identification being the first step encompasses recognizing potential risks which might impact the firm objectives. This

can include both internal and external risks. The second step is risk assessment which involves assessing the probability and probable influence of risks identified. This encompasses analyzing the nature and severity of risks and their prioritization on the basis of their significance. The third step is risk response which involves developing and implementing strategies to manage and mitigate identified risks. This can include risk avoidance, risk transfer, risk reduction, and risk acceptance. The final step is monitoring and review which involves ongoing monitoring of the effectiveness of risk management strategies and continuous review of the organization's risk profile (Burnaby & Hass, 2019).

1.2.2.1 Risk Identification

The first step in the ERM process is risk identification, which entails finding potential hazards that could affect a company's capacity to meet its goals (O'Donnell, 2018). This step involves considering both internal and external risks, such as operational risks, financial risks, strategic risks, and reputational risks. Risk identification can utilize numerous approaches, like brainstorming sessions, risk assessments, and analysis of historical data Bharathy & McShane, 2020). It is important to involve stakeholders in entire organization in the process of risk identification to guarantee that a comprehensive range of risks is identified. By identifying potential risks in a systematic and comprehensive manner, organizations can advance a more accurate considerate of their risk profile and make informed judgement regarding how to manage and mitigate these risks (Liebenberg & Hoyt, 2023).

1.2.2.2 Risk Assessment

Risk assessment is the second step in the ERM process, and it involves analyzing and evaluating the potential impact and likelihood of identified risks (Ruiz-Canela López,

2021). This step helps organizations to understand the significance of risks and prioritize them based on their potential impact. To conduct a risk assessment, organizations can use various methods, such as risk matrices, scenario analysis, and probabilistic modeling. The goal of risk assessment is to develop a better understanding of the nature and severity of risks, as well as their probability of occurrence (Berg, 2020). By steering a risk assessment, organizations can gain a deeper know how of their risk profile and advance approaches to manage and mitigate identified risks. This information can also inform decision-making and resource allocation, as well as help to identify gaps in the organization's risk management framework.

1.2.2.3 Risk Response

Risk response is the third step in the ERM process, and it encompasses development and implementation of policies of managing and mitigating risks identified (Tummala, & Schoenherr, 2021). Risk response goal is reducing the potential impact and likelihood of risks, whereas also taking advantage of any potential opportunities that may arise. There are four main strategies for managing and responding to risks: Risk avoidance involves eliminating or avoiding the risk altogether by changing the organization's processes, operations, or activities. Risk reduction encompasses decreasing the potential impact and probability of the risk by implementing controls, procedures, and safeguards (Wideman, 2022). While risk acceptance is accepting the risk and any potential consequences whilst also creating contingency measures to minimize any bad impacts, risk transfer entails passing the risk to a third party, like an insurance company or a contractual arrangement.

1.2.2.4 Risk Monitoring and Review

The fourth and last element of the ERM process is risk monitoring and review, which entails routinely monitoring and evaluating the efficiency of the organization's risk management methods and procedures (Olson & Wu, 2020). The goal of risk monitoring and review is to ensure that the organization's risk management efforts remain relevant and effective over time. By regularly monitoring and reviewing their risk management efforts, organizations can identify emerging risks and ensure that they are prepared to respond to potential changes in their risk environment (Hiles, 2022). This ongoing monitoring and review process also help to guarantee that the organization's risk management efforts remain effective and affiliated to its overall objectives and strategies (Iso, 2019).

1.2.3 Supply Chain Industry in Kenya

The supply chain industry in Kenya is relatively underdeveloped compared to more developed economies, but it is growing and improving (Kimani, 2017). The sector is vital to the country's economic growth, as it supports various industries, including agriculture, manufacturing, and retail. Poor infrastructure is one of the key challenges facing the supply chain industry in Kenya as the country's road, rail, and port infrastructure is inadequate and requires significant investment to improve efficiency and reduce costs. Further, many Kenyan companies still rely on manual processes and have not fully embraced technology solutions to optimize their supply chain operations (Muhalia, Ngugi & Moronge, 2021).

In Kenya, the medical supply chain process involves various medical organizations, with the Ministry of Health playing a central role. The Ministry of Health is responsible for formulating and implementing health policies, coordinating health services, and

overseeing the entire healthcare system (Matuga, 2022). It collaborates with organizations like the Kenya Medical Supplies Authority (KEMSA), which is tasked with procuring, warehousing, and distributing medical supplies to healthcare facilities across the country (Awino, 2021). Additionally, other medical organizations, such as hospitals, clinics, and non-governmental organizations, actively participate in the medical supply chain by providing demand forecasts, ensuring proper storage of medical supplies, and facilitating the distribution of healthcare resources to the end-users (Waweru & Kisaka, 2022).

The state of ERM in the Kenyan supply chain industry is still relatively low, with many companies in the industry yet to fully embrace the ERM framework. This is partly due to the fact that many organizations in Kenya are small and medium-sized enterprises that lack the resources and expertise to develop and implement a comprehensive ERM program (Munyalo, 2020). However, there is a growing recognition of the importance of ERM in the Kenyan supply chain industry, and some larger organizations are beginning to adopt ERM practices. These organizations are recognizing the potential benefits of ERM, such as improved risk identification and mitigation, better decision-making, and enhanced organizational resilience (Kimotho, 2019).

The Kenyan government has also recognized the importance of ERM and has included it as a requirement in some regulations (Awino, 2021). For instance, the Capital Markets Authority requires all listed companies to have an ERM framework in place. The Central Bank of Kenya (CBK) has also issued guidelines for banks and other financial institutions to develop and implement ERM programs (Waweru & Kisaka, 2022). Despite these developments, there is still a need for greater awareness and understanding of ERM in the Kenyan supply chain industry. Organizations should be encouraged to adopt ERM practices, and government agencies and other stakeholders

should provide support and resources to help smaller organizations implement ERM programs (Mwangi, 2018). With the increasing importance of supply chain resilience and sustainability, it is likely that more companies in the Kenyan supply chain industry will begin to adopt ERM practices in the coming years.

1.2.4 Kenya Medical Supplies Authority

The Kenyan Ministry of Health founded the Kenya Medical Supplies Authority (KEMSA) as a state corporation to offer the Kenyan people with dependable, cost-effective, and high-quality healthcare goods and services (KEMSA 2023). The mission of KEMSA is to acquire, store, and supply medical supplies to Kenya's public health facilities. KEMSA is responsible for the procurement of essential medicines and medical supplies for the public health sector in Kenya (KEMSA 2023). It operates a central medical store that serves as a distribution hub for medical products to public health facilities across the country.

In recent years, KEMSA has faced some challenges, including allegations of corruption and mismanagement of funds (Kiarie & Kamanda, 2020). The organization has been accused of irregular procurement practices, overpricing of medical supplies, and misuse of public funds. These allegations have led to investigations and audits of KEMSA's operations, and calls for reforms to address the organization's governance and management issues. Despite these challenges, KEMSA remains a critical player in the Kenyan healthcare system, and its role in ensuring the availability of essential medical supplies and medicines to public health facilities in Kenya cannot be overstated (Sriyanto et al., 2021). The Kenyan government has taken steps to address the governance and management issues at KEMSA, and it is hoped that the organization will continue to improve its operations to better serve the Kenyan people.

1.3 Statement of the Problem

This study is prompted by the challenges that have been facing KEMSA, including allegations of corruption and mismanagement of funds. The organization has been accused of irregular procurement practices, overpricing of medical supplies, and misuse of public funds. According to governance agencies including the Office of the Auditor General, the Controller of Budgets, and the Ethics and Anticorruption Commission, reported corporate accounting and accounting malpractice in the public sector have also increased. In these incidents, heads of institutions, CEOs, directors, board members, and heads of departments frequently engaged in unethical behavior in the interest of monetary gain. These are all indications of subpar business risk management procedures.

A number of studies on enterprise risk management and sustainability have been performed in various sectors. For instance, Smit and Watkins (2022) investigates the relationship between ERM and financial performance in South African listed companies while Chen, Chuang, Huang and Shih (2020) examines the ERM effect on firm value in Taiwanese companies. These studies did not however establish the influence of risk identification, risk assessment, risk response and risk monitoring and review on sustainability of Supply chain industry in Kenya which was the focus of the current study. Given the ever-increasing cases of misappropriation of funds and corruption especially among government agencies in Kenya and the scant literature especially on the selected variables (risk identification, risk assessment, risk response and risk monitoring and review), there was need to investigate how enterprise risk management influence sustainability of Kenyan Supply chain industry. Therefore, this research sought to examine the effect of enterprise risk management on sustainability of supply chain industry in Kenya; a case study of KEMSA.

1.4 Purpose of the Study

The purpose of this research was to determine the influence of enterprise risk management on sustainability of supply chain industry in Kenya; a case study of KEMSA

1.5 Objectives of the Study

i. To determine the influence of risk identification on sustainability of supply chain industry in Kenya
ii. To establish the influence of risk assessment on sustainability of supply chain industry in Kenya
iii. To establish the influence of risk response on sustainability of supply chain industry in Kenya
iv. To examine the influence of risk monitoring and review on sustainability of supply chain industry in Kenya
v. To establish the joint effect of enterprise risk management on sustainability of supply chain industry in Kenya

1.6 Research Hypotheses

i. H_1: There is no significant relationship between risk identification and sustainability of Kenyan supply chain industry
ii. H_2: Risk assessment has no significant relationship with sustainability of Kenyan supply chain industry
iii. H_3: There is no significant relationship between risk response and sustainability of supply chain industry in Kenya
iv. H_4: Risk monitoring and review has no significant relationship with sustainability of Kenyan supply chain industry

v. H_5: Enterprise risk management has no significant relationship with sustainability of Kenyan supply chain industry

1.7 Significance of the Study

The research is useful to various groups. The research would help policymakers understand how the implementation of ERM impacts the sustainability of supply chain industry. The study would assist policymakers in comprehending the value of supply chain industry adhering to the ERM principles. The researchers will benefit greatly from the analysis because they will have access to reference materials on the effect of ERM on the sustainability of Kenyan supply chain industry. The study places a high value on supply chain industry practitioners because it will help them understand the role of risk identification, risk monitoring and review, risk response and risk monitoring and review on their sustainability in Kenya.

1.8 Scope of the Study

This research considers enterprise risk management in its entirety to be very important and wide, however the study was limited to the four steps of enterprise risk management namely risk identification, risk assessment, risk response and risk monitoring and review as these attributes have received little attention in enterprise risk management empirical studies in supply chain industry globally. The enterprise risk management practices were the predictor variables while the sustainability was the response variable.

1.9 Delimitations of the Study

The scope of this research was delimited to a thorough examination of the operations and challenges faced by the Kenya Medical Supplies Authority (KEMSA). The decision to concentrate solely on KEMSA was substantiated by the pronounced issues that the organization has encountered, notably allegations related to corruption and the mismanagement of financial resources. KEMSA has been the subject of substantial

controversy, with specific concerns revolving around irregular procurement practices, instances of overpricing in the acquisition of medical supplies, and reported instances of the misappropriation of public funds. By concentrating on KEMSA, this study aimed to offer an in-depth analysis of the dynamics at play within the organization, allowing for a nuanced understanding of the factors contributing to its challenges.

1.10 Limitations of the Study

While there are many forms of data which can be collected in a study, primary data will be adopted in the current study. As mechanism to reducing the possible outliers, a structured questionnaire was used. Though this can increase the chances of having data collection that is skewed because the expected respondents are restrained in relation to the information type they give and how they are supposed to share the information. Therefore, this study aimed at ensuring that instrument of data collection captured comprehensive data that addressed the research objective without any prejudice.

In addition, some of the interview subjects were skeptical that they are research participants. This challenge was addressed by the researcher through requesting for the required approval, consents and permit for the numerous authorities with KEMSA, university as well as the National Commission of Science, Technology and Innovation (NACOSTI). More so the research considered all the ethical required and the respondents were notified of the same. Finally, the respondents were required to be willing to give their opinion and views and this was indicated in the questionnaire.

1.11 Assumptions of the Study

One of the key assumptions was that KEMSA employees were available and willing to provide the required information given they operate in busy and tight environments further to the fact that some of the information sought is both sensitive and confidential.

Further, the researcher assumed that the employees of KEMSA sampled would agree to have their responses recorded with the guarantee that the information was only to be used for the envisioned purpose. Finally, the study assumed that the management, policymakers, and other stakeholders will uphold the conclusions of this study and find it useful to guide operations as well as in decision making and policy formulation.

1.12 Theoretical Framework

The segment is a review of theories describing the link midst enterprise risk management and sustainability. The thesis is anchored on contingency theory and supported by agency theory and resource-based view theory.

1.12.1 Contingency Theory

This theory was first developed in the 1960s by organizational theorists, like Joan Woodward, Fred Fiedler, and Paul Lawrence. According to contingency theory, there lacks one perfect way to run a business or lead a group of people. The most efficient strategy is instead determined by a number of variables, such as the organization's size, structure, culture, technology, and external environment. Contingency theory postulates that managers must understand these situational factors and adapt their management style accordingly (Rehman & Anwar, 2019). Contingency theory also emphasizes the importance of flexibility and adaptation. Managers must be able to change their management style as the situation changes and be willing to experiment with different approaches until they find the most effective one for their organization or team (Hiles, 2022).

Contingency theory has faced numerous criticisms over the years. One criticism is that the theory is too complex and difficult to apply in practice. The situational factors that determine the most effective management approach can be numerous and complex, making it challenging for managers to identify the best approach for a given situation

(Iso, 2019). In addition, the theory does not provide clear guidelines or principles for managers to follow, leaving them to rely on their own judgment and intuition to determine the best course of action. Some critics also argue that contingency theory neglects the importance of interpersonal relationships and emotional intelligence in effective management. The theory focuses primarily on the situational factors, neglecting the importance of the human element in management (Sriyanto et al., 2021).

Contingency theory can be relevant in explaining the link between enterprise risk management (ERM) and organizational sustainability. According to contingency theory, the most effective management approach depends on the specific situation or context. This means that the effectiveness of ERM in promoting organizational sustainability may depend on the specific factors that are present in a given organization. By understanding these situational factors, managers can adapt their ERM approach to fit the specific needs and challenges of their organization, enhancing the effectiveness of ERM in promoting organizational sustainability. For instance, in an organization with a strong culture of risk management, managers may be able to rely more heavily on employee engagement and participation in ERM practices, while in an organization with a less supportive culture, managers may need to take a more directive approach.

1.12.2 Agency Theory

Numerous studies take on enterprise risk management are informed by agency theory, enterprise risk management is needed to guarantee that the principal-agent issue is minimized (Otieno, Odhiambo & Ngwenya, 2015). According to the agency theory put forth by Jensen and Meckling in 1976, when management and business ownership are divided, the agent-principal relation must be controlled for improved value creation (Moenga, 2015). Divergent perspectives between agents and shareholders need the firm

to employ different methods. For the company to maintain a sound financial position in these organizations, this will result in some agency costs. The relationship between a principal and an agent is vulnerable to conflicts of interest because the principal and the agent have different goals and incentives. According to agency theory, agreements and oversight procedures are required to balance the two parties' interests and guarantee that the agent acts in the principal's best interests. It shows how the information asymmetry prevents shareholders from easily accessing, assessing, and interpreting all documents and information relevant to opportunistic managerial activity (Njau, 2016).

Authors with a strong reputation have backed the agency theory, including Bendickson, Muldoon, Liguori, and Davis (2016) as well as Alabdullah (2016), who contend that the theory is crucial for describing the numerous interactions that exist in an organizational environment. In spite of this, agency theory has several drawbacks. Many of the complications and difficulties that agents face when completing the responsibilities and assignments of the principal are not taken into consideration by the agency theory. The agency paradigm suggests expensive and ineffective control mechanisms. As stated by Segrestin and Hatchuel (2011), this is the case because actions implemented to protect shareholders' interests may hinder the execution of strategic choices, inhibit business operations, modify investment plans, and give little weight to the complaints of other stakeholders.

Agency theory is relevant in explaining the relationship between ERM and organizational sustainability because it focuses on the relationship between owners (shareholders) and managers in a firm. In the context of ERM, effective risk management practices can help align the interests of shareholders and managers by reducing the potential for losses and protecting the financial health of the organization. However, there may be situations where managers do not prioritize effective ERM

practices, either due to a lack of understanding of the importance of risk management or because of their own personal interests. In such situations, the organization may be exposed to greater risks and may experience financial losses or reputational damage, which can ultimately impact its sustainability. Consequently, agency theory is believed to offer a comprehensive theoretical basis for the study's primary objective as well as specific objectives one to four.

1.12.3 Resource Based View Theory

This theory was pioneered by Barney (1991). According to this theory, a firm's resources can give it a competitive edge if they are priceless, uncommon, unique, and non-replaceable (VRIN). Resources that meet these criteria are referred to as strategic resources, as they can offer a firm with a sustained competitive edge over its rivals (Gassmann & Becker, 2018). Additionally, the RBV theory contends that in order to produce value and establish a long-term competitive advantage, a firm's resources must be coordinated with its strategy and the requirements of the external environment (Donnellan & Rutledge, 2019).

Critique such as Bontis (2020) and Sinay, Carter and de Sinay (2020) have observed that because the RBV theory mainly relies on qualitative evaluations of a firm's resources and capabilities, it is difficult to evaluate scientifically. As a result, some academics have begun to doubt the reliability of the VRIN criterion and the RBV theory's capacity to account for long-term competitive advantage. Ghasemzadeh et al. (2022) asserted as a result that the RBV theory does not provide prescriptive direction for businesses seeking to establish a lasting competitive edge.

The RBV theory is relevant in explaining the relationship between ERM and organizational sustainability because it emphasizes that a firm's resources and

capabilities are key drivers of its competitive advantage and long-term sustainability. As per RBV, a firm's resources and capabilities must meet certain criteria in order to contribute to its competitive edge. They must be valuable, rare, difficult to imitate, and non-substitutable. Effective ERM practices can meet these criteria by providing the firm with a valuable resource that is difficult for competitors to imitate or substitute.

1.13 Conceptual Framework

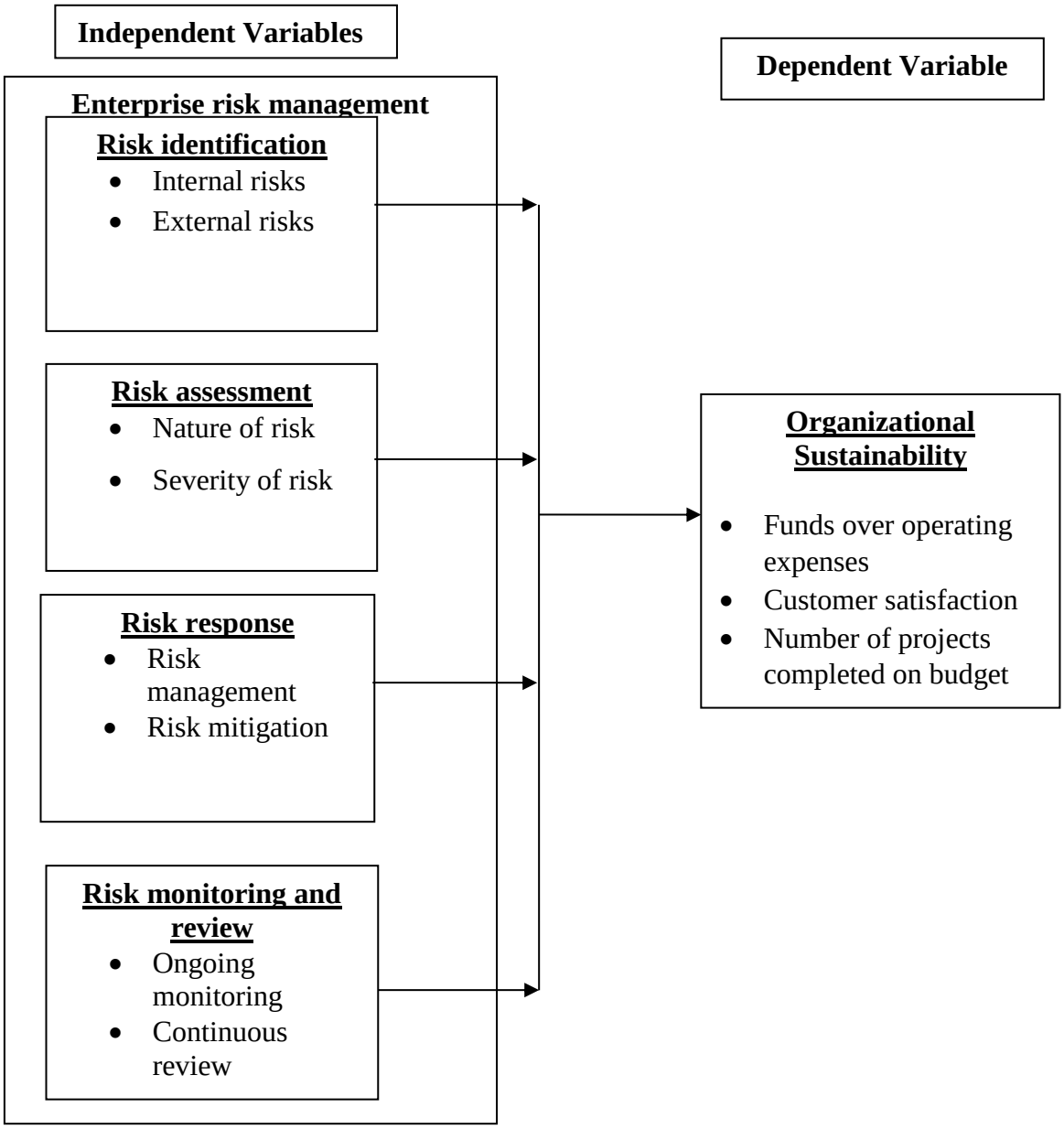


Figure 1.1: Relationship between Enterprise Risk Management and Organizational Sustainability

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers a review of literature from various studies performed by other scholars on the study area and the research gap that revealed what was not studied in the field of study. This section presents a literature review based on the objectives of the study. This section is split on the basis of each specified objective to ensure it is reliable to the study problem. An empirical review outlines what other researchers who conducted similar studies found and resolved so as to recognize the gap left unstudied and thus covered by this current research. An empirical review is a judgment based on tangible data. It is a mechanism through which knowledge is gained using direct and indirect experience. The main goals and variables of this study are reviewed by the researcher.

2.1.1 Risk Identification and Organizational Sustainability

Abideen and DeKlerk (2022) conducted a research on the link between risk identification and organizational sustainability of firms in the South African construction industry. A survey research design was used to collect data from 89 construction companies in South Africa. The respondents were required to rate the extent to which risk identification practices affect organizational sustainability. The author found that risk identification positively influences organizational sustainability in the South African construction industry. The study revealed that identifying risks early enables organizations to manage them effectively, reducing the negative impact of risks on organizational sustainability. While the study provided valuable insights into the relationship between risk identification and organizational sustainability in the South African construction industry, the research design was limited to a single industry and the sample size was relatively small.

A study by El-Sayegh, Manjikian, Ibrahim, Abouelyousr and Jabbour (2021) titled "Risk evaluation and identification in UAE sustainable construction projects. The research utilized a cross-sectional survey research design in collecting data from 260 construction professionals in UAE. The data were analyzed using partial least squares structural equation modeling. The authors found that risk identification positively affects the sustainability of construction projects, as it helps to prevent potential risks from materializing and causing harm to the project, leading to better project outcomes. This study focused on UAE's construction projects whose structure and operations are different from supply chain industry which were the focus of the current study with KEMSA as a proxy.

Li, Xiang, You, Guo, Liu and Ren (2021) researched on the impact of risk identification on the sustainable development of construction projects. The research utilized a mixed-methods research design to collect data from 150 construction project managers and site supervisors in Hong Kong. The authors used regression analysis and content analysis to examine the relationship between risk identification and sustainable development in construction projects. The authors investigated the relationship between risk identification and sustainable development in the Hong Kong construction industry. The study found that effective risk identification is critical to achieving sustainable development in construction projects, as it helps to reduce project risks and enhance project outcomes. This was a cross-sectional study covering 150 construction projects while the current study was an in depth case study of one organization. Moreover, the research was on corporate firms whose social and economic background is diverse from those of public organizations that are the current research focus.

In a study by Hashim et al. (2021) titled "Impact of risk identification on organizational sustainability: A case study of Pakistani textile industry," the authors investigated the relationship between risk identification and organizational sustainability in the Pakistani textile industry. The study utilized a case study research design and collected data from semi-structured interviews with 25 top-level managers in the Pakistani textile industry. The study found that effective risk identification is critical to achieving organizational sustainability in the textile industry, as it helps to identify risks that could potentially impact the industry's performance and take appropriate measures to manage them. The authors recommended that textile companies should adopt proactive risk identification strategies to enhance their sustainability. This study focused on Pakistani textile industry that has a diverse social cultural and economic environment from the current research which focuses on Kenyan supply chain industry with KEMSA as a proxy.

Iwedi, Anderson, Barisua and Zaagha (2020) focused on risk identification and organizational sustainability of selected Nigerian banks. The research utilized a cross-sectional research design to collect data from 105 employees working in five Nigerian banks. The authors used structural equation modeling to analyze the data and examine the relationship between risk identification and organizational sustainability. The study found that effective risk identification positively influences organizational sustainability in the Nigerian banking industry. The authors concluded that effective risk identification can help banks to identify risks that could affect their financial performance and take appropriate measures to manage them, which ultimately contributes to the banks' sustainability. The research was constrained by its small sample size and cross-sectional design, which made it difficult to establish causality.

Additionally, the location of this research, Nigeria, differs from Kenya, the location of the current research, in terms of sociocultural and economic conditions.

2.1.2 Risk Assessment and Organizational Sustainability

A study by Zhang et al. (2022) examined the association between risk assessment and sustainability in the context of construction projects in China. The study used a structural equation modeling approach to analyze survey data. The research utilized a survey technique in sourcing data from 187 construction projects in China. The survey focused on assessing the level of risk assessment practices and organizational sustainability. The findings indicated that risk assessment possess positive impact on sustainability through the mediating role of project performance. However, the research was constrained to a single industry in a specific country, that might limit the results generalizability. This research was conducted among construction projects, whereas the current research would concentrate on Kenyan supply chain industry using KEMSA as a proxy.

A study by Faraji, Rashidi, Khadir and Perera (2021) investigated the effect of risk assessment on the sustainability of Iranian construction firms using a survey questionnaire. The research utilized a survey methodology in collecting data from 123 healthcare organizations in Iran. The survey focused on assessing the level of risk assessment practices and organizational sustainability. A partial least squares structural equation model was used to examine the data. The findings indicated that risk assessment has a positive effect on the environmental, social, and economic sustainability of construction firms. However, the research was constrained to a single industry in a specific country, that might limit the results generalizability. Furthermore, the current research was undertaken in Kenya, but Iran's social and economic environment is diverse.

In a study by McMaster et al. (2020), risk assessment impact on the sustainability of Chinese manufacturing firms was examined using survey data. The research utilized a survey methodology in collecting data from Chinese manufacturing firms. The survey focused on assessing the level of risk assessment practices and organizational sustainability. Using a structural equation model (SEM), data was analyzed. The research discovered risk assessment possessed positive impact on environmental and social sustainability but has no significant effect on economic sustainability. However, the research was constrained to a single industry in a specific country, limiting outcome generalizability. This study also focused on Chinese manufacturing firms that has a diverse social cultural and economic environment compared to current research which focuses on Kenyan supply chain industry with KEMSA as a proxy.

In a study by Altanashat, Al-Dubai and Alhety (2019) on risk assessment effect on the sustainability of Jordanian manufacturing firms was examined using a survey questionnaire. The study used a questionnaire survey in obtaining data from 130 Jordanian manufacturing firms. The survey focused on assessing the level of risk assessment practices and organizational sustainability. The research discovered found that risk assessment possesses substantial positive effect on the sustainability of manufacturing firms. However, the research was constrained to a single industry in a specific country, limiting the results generalizability. This research was focused on Jordanian manufacturing firms whose social cultural setting is different from supply chain industry which was current study focus.

Gunduz and Laitinen (2017) conducted a study on the effect of risk assessment on the sustainability of small and medium-sized enterprises in Turkey. The study used a survey method to collect data from 110 small and medium-sized enterprises in Turkey. The survey focused on assessing the level of risk assessment practices and organizational

sustainability. Data was analyzed using a multiple regression model. The findings indicated that risk assessment has a positive effect on the environmental, social, and economic sustainability of small and medium-sized enterprises in Turkey. However, the study was limited to a specific country, which limits the generalizability of the results. Further, the social and economic background of Turkey is diverse from Kenya where the current research was undertaken.

2.1.3 Risk Response and Organizational Sustainability

Sohrabi and Noorzai (2023) undertook a research on risk response impact on sustainability performance in the Iranian oil and gas industry. The research made use of questionnaire survey in obtaining data from 132 firms. The outcomes indicated that risk response positively influenced sustainability performance. The study's reliance on self-reported data, making it vulnerable to response bias, was one of its limitations. The research, however, was conducted in the Iranian oil and gas industry and did not examine how the sustainability can be fostered through risk response, which were the focus of this study.

Ji, Shi, Zhu and Hu (2022) steered a research on the association between risk response and sustainability performance in the Chinese construction industry. The research utilized a questionnaire survey to collect data from 186 construction firms. The conclusions showed that risk response positively influenced sustainability performance. The research was restricted though, in that it relied on admitted to information that might be skewed by social desirability. Further, the research was also cross-sectional in nature cutting across Chinese construction industry firms whereas the current research was KEMSA in-depth case study.

Adeleke, Mohd-Nawi and Abd-Karim (2020) investigated risk response effect on sustainability performance in the Malaysian construction industry. The research utilized a 196 firms sample and collected data through a structured questionnaire. The findings revealed that risk response positively affected sustainability performance. However, the study has the drawback of relying on self-reported data, which can be biased. The research also focused on sustainability performance in the Malaysian construction industry whereas the current study scope was contextually limited to sustainability of supply chain industry using KEMSA as a proxy.

Patel et al. (2018) conducted a research on the connection between risk response and sustainability in the Indian cement industry. The research utilized a questionnaire survey in collecting data from 111 firms. The findings exhibited that risk response positively influenced sustainability. A limitation of the study was that it only focused on one industry, which could limit the generalization of the findings to other sectors. This research was also cross-sectional in nature cutting across Indian cement industry firms whereas the current research was KEMSA in-depth case study.

Habaragoda (2018) investigated the impact of risk response on corporate social responsibility (CSR) and firm performance in Saudi Arabia. The research utilized 276 firms sample firms and collected data through a structured questionnaire. The results revealed that risk response positively affected CSR and firm performance. A constraint of the research was that the sample was restricted to one country, which could limit generalization to other contexts. The study also failed to indicate how the risk response influence sustainability of firms as it focused on CSR and firm performance which are different concepts from sustainability. Further the study was conducted in Saudi Arabia whose social economic and cultural setting is diverse from Kenya, the current research setting.

2.1.4 Risk Monitoring and Review and Organizational Sustainability

In a study by Sharma, Kumar and Arora (2022) the authors investigated risk management practices impact on the sustainable growth of Indian companies. The research utilized a sample of 100 Indian Bombay Stock Exchange and National Stock Exchange listed firms, and data was obtained via structured questionnaire. The findings showed that risk monitoring and review had a significant positive impact on the sustainable growth of Indian companies. However, the study did not examine the specific aspects of risk monitoring and review that influenced organizational sustainability. This study was also conducted among Indian Bombay Stock Exchange listed firms where operations nature and social economic environment is diverse from that of supply chain industry in Kenya that was the current research focus.

A study by Oyewo (2022) investigated the association between risk management and corporate sustainability in Africa. The study utilized a sample of 47 African firms, and data was obtained via structured questionnaire. The findings revealed that effective risk monitoring and review had a significant positive impact on corporate sustainability in African firms. However, the study did not examine the specific mechanisms through which risk monitoring and review influenced sustainability. This research attention was on 47 African firms in the private sector whose nature of operations is different from supply chain industry which are the focus of the current study using KEMSA as a proxy.

In a study by Wut, Xu and Wong (2021) the researchers scrutinized the connection between risk management and sustainability performance in the Bulgarian hospitality industry. The study used a sample of 97 hotels and employed multiple regression analysis to test the impact of risk monitoring and review on sustainability performance. The outcomes exhibited that risk monitoring and review had a positive substantial effect on sustainability performance. However, the study did not consider the impact of other

risk management practices such as risk identification, risk assessment, and risk response on sustainability performance. This research was conducted in Bulgarian hospitality industry, a diverse social, cultural, and economic environment than Kenya, which was the subject of the current analysis.

Jalali et al. (2019) studied the relationship between risk management and sustainability in Iranian SMEs. The study employed a mixed-method approach, utilizing both survey data and interviews with SME owners and managers. The findings revealed that risk monitoring and review significantly influenced sustainability performance in Iranian SMEs. However, the study was limited in scope, as it focused solely on SMEs in Iran. This research focused on Iranian SMEs whose structure and operations are different from those of supply chain industry in Kenya. Further, the study operationalized sustainability using balanced scorecard which is more of a firm performance measure rather than organizational sustainability.

Ali et al. (2019) inspected risk management practices effect on the environmental and social sustainability of Bangladeshi manufacturing firms. The study used a sample of 102 firms and employed structural equation modeling to test the affiliation between risk monitoring and review and sustainability performance. The findings showed that risk monitoring and review possessed positive substantial effect on environmental and social sustainability. However, the study did not consider the impact of other risk management practices such as risk identification, risk assessment, and risk response on sustainability performance. Further, this research centered on Bangladeshi manufacturing firms, while the current study concentrated on Kenyan supply chain industry using KEMSA as a proxy.

2.2 Summary of Review of Literature and Research Gaps

Based on the goals of the study and how they relate to those of other ongoing research, the empirical literature review has been examined. To make a well-informed choice regarding the focus of this research, several studies conducted by previous researchers were examined and reviewed. After an extensive review of other recent studies, the knowledge gap was discovered. The minimal consensus among previous researchers was reason enough to conduct further study.

There was also a conceptual, methodological, and contextual gap from the works reviewed above. The varied operationalization of corporate risk management and sustainability revealed the concepts' conceptual inadequacies. For instance, Smit and Watkins (2022) operationalizes ERM using the steps of risk management while Chen, Chuang, Huang and Shih (2020) focuses on the types of risks. Limited agreement among the study methods used revealed methodology gaps. As a result of the various study settings, gaps pertaining to the contexts were demonstrated. Majority of the research done such as Faraji et al. (2021); Ji et al. (2022); and El-Sayegh et al. (2021) were in developed nations while the local context research failed to focus on supply chain industry. The gaps demonstrate that research on enterprise risk management and sustainability relationship still there are some gray areas on which there is no scientific consensus. The study sought to contribute in this area.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the study's research design. Others include research site and rationale, target population, sampling protocol, data collection instrument and procedure, and eventually the data collection and analysis and findings presentation.

3.2 Research Design

The research adopted an explanatory research design to establish the impact of enterprise risk management on sustainability. Explanatory study seeks to determine a causal relation among variables (Burns & Burns, 2018). According to Cooper and Schindler (2018) an explanatory study is applicable when the researcher seeks to explain how the phenomenon operates through the identification of the underlying factors producing the change in which case the independent variable cannot be manipulated and, in this case, enterprise risk management practices. The hypotheses of the research were tested using Spearman’s correlation and regression analysis.

3.3 Research Site

The study looked into the impact of enterprise risk management on the sustainability of Kenyan supply chain industry because it is important to Kenya’s socio-economic development. Data collection was conducted at the KEMSA Headquarters located in Kenya’s Nairobi County. The study's results were used to assess the impact of risk identification, risk assessment, risk response and risk monitoring and review on sustainability. Based on the actual and demonstrable findings, wise judgments and conclusive statements were made.

3.4 Target Population

This refers to all observations of interest in a research study (Burns & Burns, 2018). In respect of this study, population of the study was all the 389 employees at KEMSA headquarters. Population is as presented in Table 3.1.

Table 3.1 Population Distribution

Departments	**No. of Employees**	**% Distribution**
Corporate Services	61	15.68
Procurement	61	15.68
Business Development	34	8.74
Finance and Accounts	52	13.37
ICT	30	7.71
Quality Assurance	6	1.54
Operations	74	19.02
Legal Services	20	5.14
Human Resource and Administration	34	8.74
Marketing and Communication	17	4.38
TOTAL	**389**	**100**

Source: KEMSA (2022)

3.5 Study Sample

This section explains the sampling procedure used and the sample size selected for the study and the justification for the same.

3.5.1 Sampling Procedure

This research used stratified random sampling because this method enables a researcher to subdivide the sample into suitable strata which are mutually exclusive. The employees were categorized as per their department. Cooper and Schindler (2018) stated that this sampling procedure produces a statistical efficiency increase on the sample, offers sufficient data that analyzes the respective sub-population and allows

different study methods to be utilized in different strata. Burns and Burns (2018), the methodology calls for segmenting the research population into separate sub groups and acquiring a simple random sample for each sub group. They further stated that the selection of the sample is made in such a way that a number of sub groups within the population are included in the sub group in proportion to their number within the population.

3.5.2 Sample Size

A sample is a research target population subset from which data is gathered for generalization to the entire population, while sampling is the method of selecting individuals from a sample to ensure that the sample is representative of the entire population. The sample size is determined by many factors, including the study design and the size of the target population (Kothari, 2014).

The study used the Yamane (1967) algorithm and a 95% confidence level assumption to determine the sample size.

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

Where:

n = sample size

N = population size

e = precision level

1 = Constant

$$n = 389/\ 1+ 389(0.05)^2$$

$$= 197.21 \approx 198 \text{ respondents}$$

These values are substituted in the equation above to get 198 respondents, which served as the sample size for the current study. The sample size is displayed in Table 3.2 below.

Table 3.2 Sample Size Distribution

Department	Population	Sample Size	% Distribution
Corporate Services	61	31	15.68
Procurement	61	31	15.68
Business Development	34	17	8.74
Finance and Accounts	52	27	13.37
ICT	30	15	7.71
Quality Assurance	6	3	1.54
Operations	74	38	19.02
Legal Services	20	10	5.14
HR and Administration	34	17	8.74
Marketing	17	9	4.38
TOTAL	**389**	**198**	**100**

3.6 Data Collection

This section covers the data collection instruments, pilot testing of the research instruments, instrument reliability, validity, and data collection procedures used in achieving the objectives of the research.

3.6.1 Data Collection Instruments

This research collected primary data by aid of a questionnaire. When undertaking data collection in a study where the population is dispersed, the most appropriate tool for use is a questionnaire (Burns & Burns, 2018). Since this study used quantitative data, a structured questionnaire was used. Structured questionnaires make it possible to obtain categorical data that is numerical in nature. In addition, the data items that reflect the study's specific goals—risk identification, risk assessment, risk response, and risk

monitoring and review—were on a 5-point Likert scale and were made explicit and precise to address the problem of ambiguity for the anticipated respondents.

3.6.2 Pilot Testing of Research Instruments

Research instrument relevance and accuracy is crucial. This project carried out a pilot study in this regard. A pilot research was conducted to assess the viability of carrying out a full study. This involved 20 employees at KEMSA (10% of the target population) who filled the questionnaires and its accuracy tested. To ensure that the research data was not compromised, the 20 responders were not part of the final study. The responses aided in estimating the time required to complete the surveys and helped to spot errors that needed to be fixed. The pilot study determined the research strengths and weaknesses. The preceding testing was put in place to help determine the study tool's correctness, clarity, and applicability.

3.6.3 Instrument Reliability

According to Cooper and Schindler (2018), an instrument's overall consistency is referred to as its dependability. When a measurement regularly produces the same outcomes when applied to the same situations, it is said to have high dependability. The Cronbach alpha analysis helped in assessing the dependability of the research instruments by demonstrating the internal correctness of the data gathering device. Cronbach's Alpha is a dependable dependability metric that displays a real "base" score. Even if similar items are included in place of some of the original ones, Cronbach's Alpha is essential to a researcher in determining the validity and reliability of the questionnaire (Khan, 2018). Most people consider a dependability rating of between 0.7 and 0.8 to be adequate, and anything over 0.8 to be excellent. This standard was applied to the study. The results are as shown in Table 3.3

Table 3.3 Reliability Results

Variables	Items	Cronbach Alpha	Remark
Risk identification	7	.870	Reliable
Risk assessment	6	.871	Reliable
Risk response	6	.887	Reliable
Risk monitoring and review	6	.922	Reliable
Organizational sustainability	8	.957	Reliable

Source: Researcher (2023)

3.6.4 Instrument Validity

According to Cooper and Schindler (2018), instrument validity refers to an instrument's ability to measure a concept as intended. When determining whether the operational definition of variables accurately reflects the underlying theoretical meaning of a concept or idea, construct validity is used. The researcher adapted the questionnaire for this study in accordance with similar earlier studies in order to meet the study's objectives. On the other hand, expert advice verified the correctness of the content. To guarantee that all research variables are recorded, it was necessary to have study supervisors who carefully reviewed the questionnaire and provided knowledgeable input. Additionally, they proofread the article to make sure the theoretical dimensions were given as they had been imagined.

3.6.5 Data Collection Procedures

Before undertaking the data collection exercise, a letter of authorization was sought from Africa Nazarene University. Upon getting the authorization, a permit was gotten from the National Commission for Science, Technology and Innovation (NACOSTI). The study used a structure questionnaire for collecting primary data. The study issued the questionnaire to selected KEMSA managers through Google forms. In order to ensure that the respondents receive the issued questionnaire, care and control was exercised. The researcher kept a copy of the questionnaire register, which were issued and obtained.

3.7 Data Processing and Analysis

The process through which raw data is refined and organized in a systematic and scientific way that make it easy to interpret and understand the data refers to data analysis (Burns & Burns, 2018). According to Kothari (2014), it involves a number of closely connected procedures that are carried out in order to summarize the data and arrange it in a way that responds to the research question. The researcher reviewed the questionnaires, counted how many there were, and ensured that they are adequate and complete. Based on their suitability, the questionnaires were sorted. Each question received a different code, which were then scored. To determine the strength of emerging patterns, the data was then loaded into a computer for analysis and summarization. Data was evaluated using descriptive statistical methods such as the mean, which is a measure of central tendency, and the standard deviation, which is a measure of dispersion. This aided in describing the variables of the study. Correlation and regression analysis were used to assess the strength and direction of relationship among the study variables and this answered the research questions of the study. These were run on the SPSS Version 24. The following model was adopted.

$$\mathbf{Y=\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Where:

Y = Sustainability

β_0 = Constant term

β_i = Beta coefficient of variable i measuring change Y to change in i

X_1 = Risk identification

X_2= Risk assessment

X_3= Risk response

X_3= Risk monitoring and review

ε =Error term

Both descriptive and inferential statistics results were presented in tables and figures which were accompanied by pertinent interpretations and discussions.

3.8 Testing of the Assumptions of Regression

Prior to data analysis, below tests were performed with the intention of testing and identifying transgression of any type to regression assumptions.

3.8.1 Normality Tests

Data is usually assumed to be normally distributed in statistical analysis such as T-tests, F, Z. To assess normality, Shapiro-Wilks, Lilliefors and Kolmogorov- Smirnov are the most frequently used test. It is common that in most situations, data tends to deviate from normality. Data can be viewed with graphical methods to roughly assess normality but, graphical methods do not test the significance of the differences between the sample distribution and the normal distribution (Burns & Burns, 2018).

Shapiro-Wilks test was used to test for normality. The study tested the null hypothesis that the disturbances were not normally distributed. If the p-value was < 0.05, then we failed to reject the null hypothesis at the 5% level. However, if the p-value calculated was >0.05 the error variance was normally distributed. Table 3.4 displays the results of the normality test. The results reveal that the data was normally distributed and therefore fit for conducting regression analysis.

Table 3.4 Test of Normality

		Shapiro-Wilk	
Study variables	Statistic	Df	Sig.
Risk identification	.881	154	.723
Risk assessment	.892	154	.784
Risk response	.918	154	.822
Risk monitoring and review	.874	154	.812
Organizational sustainability	.876	154	.826

Source: Researcher (2023)

3.8.2 Multicollinearity Test

Multicollinearity is defined as situations where the independent variables are greatly related. Where two or more independent variables are related, it leads to collapse of the regression model since both variables must be dropped from the model (Kothari, 2019). This research adopted the Variance Inflation Factor (VIF) to establish the multicollinearity.

Where multicollinearity is present in a set of data, the confidence interval for coefficients are usually very wide and the t-statistics is usually very small. The presence of multicollinearity between predictor variables can adversely affect the regression results of a study. A common understanding is that the VIF should be range 1-10. VIF of more than 10 indicates that there is high correlation. Table 3.5 reveals the results of Multicollinearity.

Table 3.5: Test of Multicollinearity

Variable	VIF	Tolerance
Risk identification	1.30	0.771
Risk assessment	1.27	0.785
Risk response	1.43	0.699
Risk monitoring and review	1.02	0.978
Mean VIF	1.26	

Source: Researcher (2023)

3.8.3 Test of Homogeneity Variance

The assumptions of homogeneousness of variance is the supposition of the predictor samples t-test and Analysis of Variance (ANOVA) asserting that all assessment groups have the same group. The independent samples t-test and ANOVA use the *t* and *F* statistics correspondingly, which are usually sensitive to violation of the assumptions provided the unit amounts are equivalent (Cooper & Schindler, 2018).

The linear regression model supposes that the error term is homoscedastic i.e. it has a constant variance. According to (Khan, 2020), there should be equal variance of errors across all levels of the predictor (independent) variables. It is therefore assumed that the errors are spread out evenly or consistently across the variables of the study. If error variance is not constant, this means there is heteroscedasticity in the data and this may lead to misrepresentation of outcomes that deteriorate the general exploration and the numerical command of the scrutiny. This leads to erroneous and biased results. Breusch-Pagan / Cook-Weisberg test for heteroscedasticity was used to test for homoscedasticity of the residuals. The results in Table 3.6 indicate that the null hypothesis of Homoscedastic error terms is not rejected as supported by a p-value of 0.1681.

Table 3.6: Heteroscedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
chi2(1)	=	0.3633
Prob > chi2	=	0.1681

Source: Researcher (2023)

3.9 Test of Hypotheses

Hypothesis testing is used to infer the result of a hypothesis performed on sample data from a larger population. In hypothesis testing, an analyst tests a statistical sample, with the goal of accepting or rejecting a null hypothesis. The test tells the analyst whether or not his primary hypothesis is true. If it is not true, the analyst formulates a new hypothesis to be tested, repeating the process until data reveals a true hypothesis.

Table 3.7: Hypotheses Testing

Hypotheses	What is expected	Remarks
Ho_1	There is no significant influence of risk identification on sustainability of Kenyan supply chain industry	When the P Value > significance level, we fail to reject H_{01}
Ho_2	Risk assessment has no significant influence on sustainability of Kenyan supply chain industry	When the P Value > significance level, we fail to reject H_{02}
Ho_3	There is no significant influence of risk response on sustainability of supply chain industry in Kenya	When the P Value > significance level, we fail to reject H_{03}
Ho_4	Risk monitoring and review has no significant influence on sustainability of Kenyan supply chain industry	When the P Value > significance level, we fail to reject H_{04}
Ho_5	Enterprise risk management has no significant influence on sustainability of Kenyan supply chain industry	When the P Value > significance level, we fail to reject H_{05}

Source: Researcher (2023)

3.10 Legal and Ethical Considerations

Requisite permits, consent, and approvals were required prior to data collection since it is an ethical requirement in research. The school granted permission to conduct the research report, and a research authorization/permit letter from the NACOSTI was sought because this is the institution in the country mandated to approve and supervise research in Kenya. Finally, approval to do the study in KEMSA was sought from the management for concurrence and access to staff and offices to conduct study. Confidentiality and privacy was observed by not having identification information on the questionnaire and allowing the respondents to fill the questionnaire in privacy as this is an ethical requirement by ANU and NACOSTI. The study protected and kept information confidential and, before revealing any information, the consent of the respondent was sought first.

CHAPTER FOUR
DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the results from the study. The sections in this chapter include the general information section encompassing the response rate and demographic information. The chapter also outlines the descriptive and inference statistics in line with the study objectives.

4.2 Response Rate

The response rate in a study is a proportion of the entire number of received responses divided by the number of target respondents. The response rate is also denoted as the completion rate or return rate and it is usually expressed percentage form. Information on the rate of response for this research is displayed in Table 4.1.

Table 4.1: Response Rate

Response Rate	Frequency	Percent
Returned	154	77.8
Unreturned	44	22.2
Total	**198**	**100**

Source: Researcher (2023)

According to the results of Table 4.1, a total of 198 questionnaires were administered to the respondents through Google forms that were sent via email. 154 of them were completely filled and returned. The response rate was 77.8%. Cooper and Schindler (2018) affirmed that a study with 70% response rate and above is considered good for analysis and drawing conclusions.

4.3 Demographic Analysis

This section presents the background information of the respondents in terms of gender, age, highest level of education and years of experience. The data was analysed and relayed in form of tables.

4.3.1 Gender Representation

The target respondents were requested to state their gender. The results are mentioned in Table 4.2.

Table 4.2: Gender Distribution

Gender	Frequency	Percentage
Male	82	53.2%
Female	72	46.8%
Total	**154**	**100%**

Source: Researcher (2023)

According to the findings, male respondents made up 53.2 percent of the total, while female respondents made up 46.8 percent. This demonstrates that KEMSA embraces gender equality as the ratio of women to men was not significantly different. The implication of these findings to the study is that data was collected from both gender and therefore the likelihood of getting comprehensive results.

4.3.2 Age of the Respondents

The study sought to establish the age of the respondents involved in this research. Understanding the age of the respondents is important as someone's age can influence their response to study. The outcomes are depicted in Table 4.3.

Table 4.3: Respondents' Age Composition

Age	Frequency	Percentage
21-30 years	6	3.9%
31-40 years	47	30.5%
41-50 years	83	53.9%
51 and Above	18	11.7%
Total	**154**	**100%**

Source: Researcher (2023)

Table 4.3 displays that the highest respondent number (53.9%) were between the ages of 41 and 50, 30.5 percent were between the ages of 31 and 40, 11.7 percent were 51 and up, and 3.9% were aged between 21 and 30 years. This shows most of the respondents are in midlife age and are mature enough to give required information.

4.3.3 Highest Education Level

The target respondents were asked to indicate their highest educational level. The results are shown in Table 4.4.

Table 4.4: Distribution of Respondents by Highest Level of Education

Education	Frequency	Percentage
Diploma	16	10.4%
First Degree	112	72.7%
Masters	24	15.6%
PhD	2	1.3%
Total	**154**	**100%**

Source: Researcher (2023)

Table 4.4 shows that the majority of respondents (72.7 percent) had a bachelor's degree, while 15.6 percent had a Master's degree. 10.4% had a diploma as the highest qualification. 1.3% of the respondents had a PhD as the highest level of education. High education levels helps in understanding and solving issues facing an organization. These results imply that the respondents had the requisite level of education to respond meaningfully to the questionnaire.

4.3.4 Years at KEMSA

Respondents were asked to indicate how long they had worked at KEMSA. The results are as shown in Table 4.5.

Table 4.5: Years of Service in the Firm

Number of years	Frequency	Percentage
Less than 1 year	4	2.6%
1-3 years	7	4.5%
4-7 years	81	52.6%
8 years and above	62	40.3%
Total	**154**	**100%**

Source: Researcher (2023)

The results in Table 4.5 reveal that the respondents had spent varied number of years with their current employer. The results indicated that 52.6% had worked with the current employer for 4-7 years, 40.3% for 8 years and above, 2.6% for less than 1 year

and 4.5% for 1-3 years. The results reveal that most respondents had more than 1 year of service at KEMSA meaning they had adequate information about the organization based on work experience.

4.4 Descriptive Statistics

Descriptive statistics allowed the researcher to analyse and interpret the mean and standard deviation of the data, providing a clear understanding of the distribution and patterns within the dataset. They also provided a foundation for further inferential statistical analyses and decision-making in the research process. Respondents rated their level of agreement on the provided statements on a 5-point Likert scale. Each sub-section presents the descriptive statistics in terms of mean and standard deviations.

4.4.1 Risk Identification

The respondents were requested to complete the questionnaire on statement concerning risk identification in KEMSA on a 5-point Likert scale. Table 4.6 shows the study findings. The findings revealed that KEMSA regularly identifies potential risks to its operations as shown by a mean score of 3.86 (±0.81). This suggests that, on average, respondents believe that KEMSA somewhat regularly identifies potential risks to its operations. The statement that KEMSA uses a systematic approach to identify risks has a mean score of 4.05 (±0.77), implying that respondents generally perceive KEMSA as employing a systematic approach for risk identification. The findings further revealed that KEMSA considers both internal and external risks when identifying potential risks as shown by a mean score of 4.09 (±0.60), indicating that respondents believe KEMSA is effective at considering both internal and external risks during risk identification. KEMSA also reviews and updates its risk identification process on a regular basis as shown by a mean score of 3.77 (±0.95). This suggests that respondents perceive KEMSA as somewhat regular in its review and update of the risk identification process.

Further, the results revealed that KEMSA communicates identified risks to relevant stakeholders as shown by a mean score of 4.05 (±0.77), indicating that respondents generally believe that KEMSA effectively communicates identified risks to relevant stakeholders. The statement that KEMSA has a dedicated team responsible for risk identification and management received the highest mean score of 4.64 (±0.48). This high mean score indicates a strong consensus among respondents that KEMSA has a dedicated team responsible for risk identification and management. In summary, KEMSA is generally viewed positively in terms of employing a systematic approach, considering both internal and external risks, and having a dedicated team for risk management as shown by an average mean of 4.05. The implication of these results is that KEMSA appears to have established robust risk management processes, fostering confidence among stakeholders and potentially contributing to enhanced organizational resilience and the mitigation of adverse operational outcomes.

Table 4.6: Descriptive Statistics on Risk Identification

Statements	N	Mean	Std. Dev
KEMSA regularly identify potential risks to its operations	154	3.86	0.81
KEMSA use a systematic approach to identify risks	154	4.05	0.77
KEMSA involves all relevant stakeholders in the risk identification process	154	3.91	0.95
KEMSA consider both internal and external risks when identifying potential risks	154	4.09	0.60
KEMSA reviews and update its risk identification process on a regular basis.	154	3.77	0.95
KEMSA communicates identified risks to relevant stakeholders.	154	4.05	0.77
KEMSA have a dedicated team responsible for risk identification and management	154	4.64	0.48
Overall mean Score	**154**	**4.05**	

Source: Researcher (2023)

4.4.2 Risk Assessment

The respondents were requested to complete the questionnaire on statement concerning risk assessment in KEMSA on a 5-point Likert scale. Table 4.7 shows the descriptive statistics for risk assessment. on average, respondents generally view the organization's risk assessment efforts positively.

Table 4.7: Descriptive Statistics for Risk Assessment

Statements	N	Mean	Std. Dev
We have identified and assessed risks that are critical to achieving our organizational objectives	154	4.09	0.67
Our risk assessment process is aligned with the overall strategy of our organization.	154	3.95	0.71
We regularly review our risk assessment results.	154	3.68	1.14
We regularly update our risk management plans	154	3.64	0.88
Our risk assessment process enables us to prioritize risks based on their potential impact on our organization	154	4.09	0.73
We have established clear criteria for evaluating the likelihood and impact of identified risks	154	3.95	0.88
Overall Mean Score	**154**	**3.90**	

Source: Researcher (2023)

The mean score of 4.09 for "We have identified and assessed risks that are critical to achieving our organizational objectives" suggests a consensus among respondents that the organization effectively identifies and assesses risks crucial to its objectives. Similarly, the mean score of 4.09 for "Our risk assessment process enables us to prioritize risks based on their potential impact on our organization" indicates that respondents believe the risk assessment process effectively aids in prioritizing risks.

However, there are some areas where improvements could be considered. For instance, the mean scores of 3.68 for "We regularly review our risk assessment results" and 3.64 for "We regularly update our risk management plans" indicate that respondents perceive a somewhat irregular review and updating of risk-related processes. Moreover, the mean score of 3.95 for "Our risk assessment process is aligned with the overall strategy

of our organization" suggests that while respondents perceive alignment, there's room for enhancing the degree of alignment between risk assessment and overall organizational strategy. Additionally, the clarity of criteria for risk evaluation, as indicated by the mean score of 3.95, could potentially benefit from further improvements. The overall mean of 3.90 highlight the organization's strengths in identifying and prioritizing critical risks but also suggest areas where there's potential for enhancing risk assessment practices.

The findings suggest that respondents generally believe the organization effectively identifies and prioritizes critical risks, but improvements could be considered in terms of the regularity of reviewing and updating risk-related processes, enhancing alignment with the overall organizational strategy, and clarifying criteria for risk evaluation, highlighting both strengths and areas for potential enhancement in the organization's risk assessment practices.

4.4.3 Risk Response

The respondents were requested to complete the questionnaire on statement concerning risk response in KEMSA on a 5-point Likert scale. Table 4.8 shows the findings. The mean score for risk response practices is 3.70, with a relatively low standard deviation of 0.50. This suggests a moderately positive consensus among respondents regarding these practices. For "KEMSA has a well-defined process for responding to identified risks," the mean score is 3.73, with a standard deviation of 0.91. This indicates that respondents generally believe that KEMSA has a reasonably clear process for addressing identified risks. Similarly, for "KEMSA's risk response strategies are effective in minimizing the impact of risks," the mean score is 3.73, with a standard deviation of 0.62. This suggests that respondents view the effectiveness of these

strategies as moderately positive, with relatively consistent agreement among respondents.

Table 4.8: Descriptive Statistics for Risk Response

Statements	N	Mean	Std. Dev
KEMSA has a well-defined process for responding to identified risks	154	3.73	0.91
KEMSA's risk response strategies are effective in minimizing the impact of risks	154	3.73	0.62
KEMSA's risk response strategies align with the organization's overall objectives.	154	3.86	0.55
KEMSA has allocated adequate resources to implement and monitor risk response strategies.	154	3.14	0.87
KEMSA's risk response strategies comply with regulatory requirements and ethical standards.	154	3.95	0.56
KEMSA regularly reviews and updates its risk response strategies based on changing circumstances and emerging risks.	154	3.82	0.72
Overall Mean Score	**154**	**3.70**	

Source: Researcher (2023)

Regarding alignment with organizational objectives, "KEMSA's risk response strategies align with the organization's overall objectives" has a mean score of 3.86 and a standard deviation of 0.55. This signifies that respondents perceive alignment between risk response strategies and the organization's objectives, with a relatively low standard deviation indicating consistent agreement on this aspect. However, some aspects merit attention. "KEMSA has allocated adequate resources to implement and monitor risk response strategies" has a mean score of 3.14 and a relatively high standard deviation of 0.87. This suggests a perception among respondents that there may be room for improvement in resource allocation for these strategies, with varying opinions among respondents.

For "KEMSA's risk response strategies comply with regulatory requirements and ethical standards," the mean score is 3.95, with a standard deviation of 0.56. This implies a positive perception among respondents that these strategies align with regulatory and ethical standards, with a relatively low standard deviation indicating a high level of agreement. Lastly, "KEMSA regularly reviews and updates its risk response strategies based on changing circumstances and emerging risks" has a mean score of 3.82 and a standard deviation of 0.72. This indicates a perception among respondents that the organization engages in regular reviews and updates of its risk response strategies. The study suggests that respondents generally view KEMSA's risk response practices positively, with perceived effectiveness, alignment with organizational objectives, and compliance with regulatory standards. However, there is room for improvement in resource allocation, as indicated by varying opinions among respondents.

4.4.4 Risk Monitoring and Review

The respondents were requested to complete the questionnaire on statement concerning risk monitoring and review at KEMSA on a 5-point Likert scale. Table 4.9 shows the findings. Firstly, the overall mean score for risk monitoring and review practices stands at 3.80, reflecting a generally positive consensus among respondents regarding these practices. The relatively low standard deviation of 0.47 suggests that there is a consistent level of agreement among respondents regarding these perceptions. Respondents view certain aspects of risk monitoring and review more favorably. For instance, "Our organization uses key performance indicators to measure the success of our risk management program" received a notably high mean score of 4.05, with a relatively low standard deviation of 0.56. This indicates a strong perception among

respondents that the organization effectively employs key performance indicators for assessing the success of its risk management program.

Table 4.9: Descriptive Statistics for Risk Monitoring and Review

Statements	N	Mean	Std. Dev
Our organization regularly reviews the effectiveness of our risk management strategies	154	3.73	0.62
Our organization regularly monitors the external environment for new risks that may emerge	154	3.64	0.71
There is adequate attendance in risk monitoring and review	154	3.36	0.88
Our organization uses key performance indicators to measure the success of our risk management program	154	4.05	0.56
Our organization regularly updates our risk management policies and procedures to reflect changing business conditions	154	3.64	0.77
Our organization has a dedicated risk management team responsible for monitoring and reviewing risks on an ongoing basis	154	4.41	0.49
Overall Mean Score	**154**	**3.80**	

Source: Researcher (2023)

On the other hand, some areas appear to require attention. "Our organization regularly monitors the external environment for new risks that may emerge" received a mean score of 3.64, but the standard deviation of 0.71 indicates variability in respondents' views regarding the consistency of this external risk monitoring. Similarly, "There is adequate attendance in risk monitoring and review" received a mean score of 3.36, with a high standard deviation of 0.88, implying that respondents perceive that there might be room for improvement in ensuring consistent attendance during risk monitoring and review sessions.

On the other hand, some areas appear to require attention. "Our organization regularly monitors the external environment for new risks that may emerge" received a mean score of 3.64, but the standard deviation of 0.71 indicates variability in respondents'

views regarding the consistency of this external risk monitoring. Similarly, "There is adequate attendance in risk monitoring and review" received a mean score of 3.36, with a high standard deviation of 0.88, implying that respondents perceive that there might be room for improvement in ensuring consistent attendance during risk monitoring and review sessions. The study indicates a generally positive consensus among respondents regarding risk monitoring and review practices. However, there are areas that may require attention, particularly in ensuring consistent external risk monitoring and attendance during review sessions.

4.4.5 Organizational Sustainability

Table 4.10 presents the descriptive statistics for various statements related to organizational sustainability at KEMSA (Kenya Medical Supplies Authority).

Table 4.10: Descriptive Statistics for Organizational Sustainability

Statements	N	Mean	Std. Dev
KEMSA has a positive operating margin ratio.	154	2.86	1.01
KEMSA is able to meet its recurring expenditures into unforeseen future	154	3.00	0.85
KEMSA annual statement of income and expenditure always has surplus	154	3.32	0.92
There is increase in customer satisfaction at KEMSA	154	2.77	0.90
KEMSA has recorded improved and continuous loyalty of customers courtesy of improved services	154	3.45	1.08
The cost of administration has been reduced	154	4.09	0.67
Employees at KEMSA have opportunities for personal and professional advancement.	154	3.22	0.62
The staff are friendly and provide outstanding customer service.	154	2.86	1.01
Overall Mean Score	**154**	**3.00**	

Source: Researcher (2023)

The respondents, numbering 154, were asked to complete a questionnaire using a 5-point Likert scale to express their views on different aspects of the organization's sustainability. The first statement in the table addresses KEMSA's positive operating margin ratio. The mean score for this statement is 2.86 with a standard deviation of 1.01. The mean score below the midpoint of the scale (which is 3 in a 5-point Likert scale) suggests that, on average, respondents lean towards a negative perception of KEMSA's operating margin ratio. The standard deviation indicates a considerable level of variability in respondents' opinions.

The second statement pertains to KEMSA's ability to meet its recurring expenditures into the unforeseen future. The mean score is 3.00 with a standard deviation of 0.85. This suggests a relatively neutral perception among respondents regarding KEMSA's financial sustainability, as the mean is close to the midpoint. The third statement focuses on the consistency of KEMSA's annual statement of income and expenditure having a surplus. The mean score of 3.32 with a standard deviation of 0.92 indicates that, on average, respondents perceive KEMSA's financial performance positively, leaning towards the higher end of the Likert scale.

Moving on to customer-related aspects, the fourth and fifth statements address the increase in customer satisfaction and the continuous loyalty of customers due to improved services. The mean scores for these statements are 2.77 and 3.45, respectively, with standard deviations of 0.90 and 1.08. The lower mean for customer satisfaction indicates a relatively less positive perception, while the higher mean for continuous customer loyalty suggests a more favorable view.

The sixth statement discusses the reduction in the cost of administration, earning a mean score of 4.09 with a low standard deviation of 0.67. This high mean indicates a strong

positive perception among respondents regarding the organization's efficiency in cost management. The seventh and eighth statements focus on employees, addressing opportunities for personal and professional advancement and the friendliness of staff providing outstanding customer service. The mean scores are 3.22 and 2.86, respectively, with standard deviations of 0.62 and 1.01. These scores suggest a relatively positive perception of employee-related aspects, though with some variability in opinions, especially regarding staff friendliness.

The overall mean score for all statements is 3.00, which falls around the midpoint of the Likert scale. This suggests a neutral to slightly positive overall perception of organizational sustainability at KEMSA among the respondents. In summary, the table provides a comprehensive overview of respondents' opinions on various aspects of organizational sustainability at KEMSA, indicating areas of strength and potential areas for improvement. The standard deviations highlight the variability in perceptions among respondents.

4.5 Inferential Statistics

Inferential statistics were conducted to establish the relationship between enterprise risk management and sustainability of the supply chain industry in Kenya and to determine the joint effect of the various components of enterprise risk management on sustainability of KEMSA. The results are as shown in the sections that follow.

4.5.1 Correlation Analysis

Correlation analysis was done to establish the association between enterprise risk management and sustainability. The findings were as shown in Table 4.11.

Table 4.11: Correlation Analysis

		Organizational sustainability	Risk identification	Risk assessments	Risk response	Risk monitoring and review
Organizational sustainability	Pearson Correlation	1				
	Sig. (2-tailed)					
Risk identification	Pearson Correlation	.485**	1			
	Sig. (2-tailed)	.000				
Risk assessments	Pearson Correlation	.479**	.840**	1		
	Sig. (2-tailed)	.000	.000			
Risk response	Pearson Correlation	.718**	.647**	.647**	1	
	Sig. (2-tailed)	.000	.000	.000		
Risk monitoring and review	Pearson Correlation	.517**	.681**	.723**	.673**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).
b. Listwise N=154

Source: Researcher (2023)

The correlation findings showed that the relationship between risk identification and sustainability is positive as well as significant ($r=0.485$, $p<0.05$). This is an indication that risk identification leads to improved sustainability. The correlation findings too show a strong and significant association between sustainability and risk assessment as revealed by a 0.479 Pearson correlation coefficient as well as a 0.000 P-value. This is a sign that better risk assessment lead to higher sustainability.

Furthermore, the correlation findings show a strong and significant relationship between sustainability and risk response, as shown by a 0.718 Pearson correlation coefficient as well as a 0.000 P-value. This is an indication that a rise in risk response yields an increase in sustainability. Finally, the correlation findings reveal a significant connection between risk monitoring and review and sustainability, as shown by a 0.517 Pearson correlation and a 0.000 P value. This is an indication that improvement in risk monitoring and review is linked to an increase in sustainability.

4.5.2 Regression Analysis

The regression analysis aimed to determine the effect of the independent variables on the dependent variable. The model summary, ANOVA, and coefficients tables present the analysis' findings. The model summary explains how much variation in the dependent variable is due to the independent variables fitted in the model. The ANOVA table checks if the model fit is statistically significant in predicting the dependent variable and the coefficient table quantifies the magnitude of the association between the variables. The findings of the study are shown in the tables below.

4.5.2.1 Regression Analysis for Risk Identification and Sustainability

Regression determined the effect of risk identification on sustainability. The appropriateness of fit as exhibited in Table 4.8 demonstrates that the findings showed that the R square was 0.235 indicating that risk identification explain 23.5% of the variation in sustainability and therefore 76.5% is of the variation is explained by other factors not included in this study.

Table 4.12: Model Fitness for Risk Identification and Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.485[a]	.235	.230	.547352

a. Predictors: (Constant), Risk identification

Source: Researcher (2023)

The ANOVA results in Table 4.13 exhibited that the overall model used to assess the relationship between risk identification and sustainability was significant. This was supported by a significance level of 0.000 that was below 0.05 with confidence level being at 95%.

Table 4.13: ANOVA Results for Risk Identification and Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.002	1	14.002	46.735	.000[b]
	Residual	45.538	152	.300		
	Total	59.540	153			

a. Dependent Variable: Organizational sustainability
b. Predictors: (Constant), Risk identification

Source: Researcher (2023)

The regression coefficient results indicated that risk identification positively and significantly relate with sustainability (β=0.533, p=0.000). This suggested that a unit increase in risk identification would result in 0.533 increases in sustainability as in the model. The t value (6.836) was higher than the t critical of 1.96 which further supports the findings.

Table 4.14: Regression Coefficients for Risk Identification and Sustainability

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.057	.319		3.313	.001
	Risk identification	.533	.078	.485	6.836	.000

a. Dependent Variable: Organizational sustainability

Source: Researcher (2023)

Y=1.057+0.533X

Where;

Y= Sustainability and

X = Risk identification

4.5.2.2 Regression Analysis for Risk Assessment and Sustainability

Regression analysis was done to determine the effect of risk assessment on sustainability. The model of fitness findings was illustrated in Table 4.15. This showed that the R square was 0.229 signifying that risk assessment explains 22.9% of the variation in sustainability.

Table 4.15: Model Fitness Results for Risk Assessment and Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.479[a]	.229	.224	.549389

a. Predictors: (Constant), Risk assessments

Source: Researcher (2023)

The ANOVA results in Table 4.16 indicated that the overall model applied to assess the relation between risk assessment and sustainability was significant. This was supported by a significance level of 0.000 that was below 0.05 at 95% confidence level.

Table 4.16: ANOVA Results for Risk Assessment and Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.662	1	13.662	45.264	.000[b]
	Residual	45.878	152	.302		
	Total	59.540	153			

a. Dependent Variable: Organizational sustainability

b. Predictors: (Constant), Risk assessments

Source: Researcher (2023)

The regression coefficient results indicated that risk assessment positively and substantially relate with sustainability (β=0.500, p=0.000). This implied that change with a unit in risk assessment would lead in 0.500 changes in sustainability as in the model. The findings were further supported by a t statistic of 6.728 which was higher than the t critical of 1.96.

Table 4.17: Regression Coefficients for Risk Assessment and Sustainability

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.266	.293		4.319	.000
	Risk assessments	.500	.074	.479	6.728	.000
a. Dependent Variable: Organizational sustainability						

Source: Researcher (2023)

Y= 1.266+0.500X

Where

Y is sustainability and

X is risk assessment

4.5.2.3 Regression Analysis for Risk Response and Sustainability

The variables were regressed to determine the effect of risk response on sustainability. The model of fitness findings was presented in Table 4.18. R square was 0.515 indicating that risk response explain 51.5% of the variation in sustainability.

Table 4.18: Model Fitness Results for Risk Response and Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718[a]	.515	.512	.435796
a. Predictors: (Constant), Risk response				

Source: Researcher (2023)

The ANOVA results in Table 4.19 indicated that the overall model used to assess the relationship between risk response and sustainability was significant. This was supported by a significance level of 0.000 which was less than 0.05 at 95% confidence level.

Table 4.19: ANOVA Results for Risk Response and Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.672	1	30.672	161.502	.000[b]
	Residual	28.868	152	.190		
	Total	59.540	153			

a. Dependent Variable: Organizational sustainability
b. Predictors: (Constant), Risk response

Source: Researcher (2023)

The regression coefficient results indicated that risk response positively and significantly relate with sustainability (β=0.897, p=0.000). This suggested that a unit variation in risk response would cause 0.897 variation in sustainability as shown in the model. The t computed was 12.708 which was greater than the t critical of 1.96 further supporting the findings that risk response significantly influences sustainability.

Y= 0.109+0.897X

Where Y is sustainability and

X is Risk response

Table 4.20: Regression Coefficients for Risk Response and Sustainability

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.109	.264		.412	.681
	Risk response	.897	.071	.718	12.708	.000

a. Dependent Variable: Organizational sustainability

Source: Researcher (2023)

4.5.2.4 Regression Analysis for Risk Monitoring and Review and Sustainability

Regression analysis was done to determine the effect of risk monitoring and review on sustainability. The model of fitness findings was illustrated in Table 4.21. This showed

that the R square was 0.268 signifying that risk monitoring and review explain 26.8% of the variation in sustainability.

Table 4.21: Model Fitness Results for Risk Monitoring and Review and Sustainability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.517[a]	.268	.263	.535576

a. Predictors: (Constant), Risk monitoring and review

Source: Researcher (2023)

The ANOVA results in Table 4.22 indicated that the overall model applied to assess the relation between risk monitoring and review and sustainability was significant. This was supported by a significance level of 0.000 that was below 0.05 at 95% confidence level.

Table 4.22: ANOVA Results for Risk Monitoring and Review and Sustainability

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.940	1	15.940	55.570	.000[b]
	Residual	43.600	152	.287		
	Total	59.540	153			

a. Dependent Variable: Organizational sustainability

b. Predictors: (Constant), Risk monitoring and review

Source: Researcher (2023)

The regression coefficient results indicated that risk monitoring and review positively and substantially relate with sustainability (β=0.688, p=0.000). This implied that change with a unit in risk monitoring and review would lead in 0.688 change in sustainability as in the model. The findings were further supported by a t statistic of 10.336 which was higher than the t critical of 1.96.

$Y= 0.600+0.688X$

Where

Y is sustainability and

X is risk monitoring and review

Table 4.23: Regression Coefficients for Risk Monitoring and Review and Sustainability

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.600	.354		1.697	.092
	Risk monitoring and review	.688	.092	.517	7.455	.000

a. Dependent Variable: Organizational sustainability

Source: Researcher (2023)

4.4.5.5 Regression Analysis for Enterprise Risk Management and Sustainability

Multiple regression analysis was done in determining the effect of enterprise risk management (risk identification, risk assessment, risk response and risk monitoring and review) on sustainability at KEMSA. The model fitness findings were as exhibited in Table 4.24. The findings reveal that the R square was 0.518 which suggested that enterprise risk management (risk identification, risk assessment, risk response and risk monitoring and review) explain 51.8% of the variation in sustainability.

Table 4.24: Overall Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719[a]	.518	.505	.439051

a. Predictors: (Constant), Risk monitoring and review, Risk response, Risk identification, Risk assessments

Source: Researcher (2023)

The ANOVA results in Table 4.25 indicated that the overall model used to assess the relationship between enterprise risk management (risk identification, risk assessment, risk response and risk monitoring and review) and sustainability was significant. This

was supported by a significance level of 0.000 which was less than 0.05 at 95% confidence level.

Table 4.25: ANOVA Results for the Overall Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.818	4	7.704	39.968	.000[b]
	Residual	28.722	149	.193		
	Total	59.540	153			

a. Dependent Variable: Organizational sustainability
b. Predictors: (Constant), Risk monitoring and review, Risk response, Risk identification, Risk assessments

Source: Researcher (2023)

The extent of the effect of risk identification, risk assessment, risk response and risk monitoring and review on sustainability is demonstrated by regression coefficient results.

Table 4.26: Regression Coefficients for the Overall Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.351	.225		6.011	.000
	Risk identification	.500	.084	.410	5.941	.000
	Risk assessment	.297	.060	.393	4.932	.000
	Risk response	.813	.070	.846	11.549	.000
	Risk monitoring and review	.604	.070	.588	7.197	.000

a. Dependent Variable: Change management

Source: Researcher (2023)

The multiple regression model used is illustrated below:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_{3+} \beta_4 X_4 + \varepsilon,}$$

Where,

Y denoted sustainability

β_0 denoted the constant

X_1 represented risk identification

X_2 represented risk assessment

X_3 denoted risk response

X_4 denoted risk monitoring and review

ε was the error term when there was assumed normal distribution

$\beta_1,\beta_2\beta_3,\beta_4$ denote independent variable coefficients

The regression model was substituted as below.

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon,}$$

$$\mathbf{Y = 0.351 + 0.500 X_1 + 0.297 X_2 + 0.813 X_3 + 0.604 X_4}$$

Interpretatively, a unit change in risk identification, risk assessment, risk response and risk monitoring and review will lead to a 0.500, 0.297, 0.813 and 0.604 change in sustainability respectively, whereas variables that were not part of this research remained unchanged. The four factors included in this research were critical for improving KEMSA sustainability. It is evident that the most essential element is risk response (β_3=0.813) while the least important was risk assessment (β_2=0.297). It was also shown that if the four variables chosen for this research were held constant, sustainability would still be significant ($\beta = 0.351$, $p < 0.05$). This implies that management and policy makers should ensure they enhance risk assessment,risk identification, risk response as well as risk monitoring and review as this will improve sustainability.

4.6 Hypothesis Testing

The hypotheses were tested using regression analyses. The acceptance/rejection criteria were that, if the p value is greater than 0.05, the Ho is not rejected but if it's less than 0.05, the Ho is rejected.

4.6.1 Risk Identification and Sustainability

The first null hypothesis in this current study, H_{01}, stated: risk identification has no significant effect on sustainability at KEMSA. Results in Table 4.26 show that the p-value was 0.000<0.05. This indicates that the null hypothesis is rejected hence there is a significant effect of risk identification on sustainability at KEMSA. Risk identification was positively and significantly related with sustainability at KEMSA (β=0.500, p=0.000). The study results show that risk identification is a significant factor affecting sustainability.

4.6.2 Risk Assessment and Sustainability

The second null hypothesis in this current study, H_{02}, stated: risk assessment has no significant effect on sustainability at KEMSA. Results in Table 4.26 show that the p-value was 0.000<0.05. This indicates that the null hypothesis is rejected hence there is a significant effect of risk assessment on sustainability of KEMSA. Risk assessment was positively and significantly related with sustainability of KEMSA (β=0.297, p=0.000). The study results show that risk assessment is a significant factor affecting sustainability.

4.6.3 Risk Response and Sustainability

The third null hypothesis in this study, H_{03}, stated: risk response has no significant effect on sustainability of KEMSA. Results in Table 4.26 show that the p-value was 0.000<0.05. This indicates that the null hypothesis is rejected hence there is a significant effect of risk response on sustainability at KEMSA. Risk response was positively and significantly related with sustainability of KEMSA (β=0.813, p=0.000). The study results show that risk response is a significant factor affecting sustainability.

4.6.4 Risk Monitoring and Review and Sustainability

The fourth null hypothesis in this current study, H_{04}, stated: risk monitoring and review have no significant effect on sustainability of KEMSA. Results in Table 4.26 show that the p-value was 0.000<0.05. This indicates that the null hypothesis is rejected hence there is a significant effect of risk monitoring and review on sustainability of KEMSA. Risk monitoring and review was positively and significantly related with sustainability of KEMSA (β=0.604, p=0.000). The study results show that risk monitoring and review is a significant factor affecting sustainability.

CHAPTER FIVE
DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a discussion, summary, conclusion, and recommendations. The discussion, summary, conclusion, recommendations for improvements for the study are presented in line with the study research objectives. Recommendations for further research are also presented in this chapter.

5.2 Discussions

The general objective of the study was to investigate the influence of enterprise risk management practices on sustainability of supply chain industry in Kenya using KEMSA as a proxy. The study was anchored on contingency theory and supported by agency theory and resource-based view theory. The dependent variable was sustainability which was represented by likert scale questions. The independent variables were risk identification, risk assessment, risk response and risk monitoring and review. Descriptive research design was adopted. The target population comprised of the 389 employees at KEMSA headquarters.

Primary data was collected using a structured questionnaire administered to 198 employees at KEMSA using Google forms. Through the researcher's follow ups 154 questionnaires were collected giving 77.8% response rate. Descriptive statistics, correlation and regression analyses were carried out in data analysis. A simple linear regression model and t-statistic were used to establish the relative importance of each independent variable in influencing the sustainability.

5.2.1 Risk Identification and Sustainability

The first objective of the current study was to assess the influence of risk identification on sustainability of Supply chain industry in Kenya. Results demonstrate that the KEMSA have adopted risk identification to a great extent. This is supported by the fact that on a five-point Likert scale, the mean scores for attributes related to risk identification were greater than 3. The correlation analysis conducted was aimed at testing the association between the risk identification and firm sustainability. These results revealed a significant positive association between risk identification and sustainability.

The null hypothesis was rejected, and conclusion made that risk identification significantly influenced the KEMSA sustainability. The results established that a unit change in risk identification would result in 0.500 change of sustainability. This was a confirmation also that there was a significant positive influence of risk identification on sustainability of Supply chain industry in Kenya.

The findings of this current study are in agreement with Abideen and DeKlerk (2022) who conducted a research on the link between risk identification and organizational sustainability of firms in the South African construction industry. The author found that risk identification positively influences organizational sustainability in the South African construction industry. The findings also concur with those of Li et al. (2021) who researched on the impact of risk identification on the sustainable development of construction projects. The study found that effective risk identification is critical to achieving sustainable development in construction projects, as it helps to reduce project risks and enhance project outcomes. The study also concurs with Iwedi et al. (2020)

who found that effective risk identification positively influences organizational sustainability in the Nigerian banking industry.

5.2.2 Risk Assessment and Sustainability

The second objective of the current study was to evaluate the influence of risk assessment on the sustainability of supply chain industry in Kenya. The descriptive analysis findings revealed that supply chain industry in Kenya had adopted risk assessment. The descriptive results further revealed that while there is a generally positive perception of the organization's ability to identify and assess critical risks and to prioritize them effectively, there may be opportunities for improvement in terms of the regularity of reviewing and updating risk-related processes and the clarity of criteria for risk evaluation.

Correlation analysis done to test the strength of the association between risk assessment and sustainability of supply chain industry in Kenya, the results established a positive and strong association between the two variables. The findings also implied that an increase in risk assessment would result to an increase in sustainability. Results also established that a unit change in risk assessment would result in 0.297 units change in sustainability of supply chain industry in Kenya. This confirmed the significant influence of risk assessment on sustainability. The null hypothesis was rejected, and a conclusion made that risk assessment had a significant influence on sustainability of KEMSA.

The findings of this current study are in line with Zhang et al. (2022) who examined the association between risk assessment and sustainability in the context of construction projects in China. The findings indicated that risk assessment possess positive impact on sustainability through the mediating role of project performance. The study findings

also concur with Faraji et al. (2021) who investigated the effect of risk assessment on the sustainability of Iranian construction firms. The findings indicated that risk assessment has a positive effect on the environmental, social, and economic sustainability of construction firms. The study differs with McMaster et al. (2020) who discovered that risk assessment possessed positive impact on environmental and social sustainability but has no significant effect on economic sustainability.

5.2.3 Risk Response and Sustainability

The third objective of the current study was to determine influence of risk response on sustainability of supply chain industry in Kenya. Descriptive results revealed that KEMSA practice risk response to a great extent. The descriptive results further revealed that there is a moderately positive perception of the organization's ability to define, align, and implement risk response strategies. However, areas such as resource allocation and the frequency of strategy updates appear to warrant consideration for potential enhancements.

The results of correlation analysis indicated that risk response had a positive and significant correlation with sustainability. The correlation findings implied that a positive increase in risk response would result to a corresponding positive change in sustainability. The regression results established a positive and significant relationship between risk response and sustainability. The results implied that a change in risk response would result to a 0.813 change in sustainability of supply chain industry in Kenya. The null hypothesis was rejected, and conclusion made that risk response had a significant influence on sustainability of supply chain industry in Kenya.

The findings of this current study concur with Sohrabi and Noorzai (2023) who undertook a research on risk response impact on sustainability performance in the

Iranian oil and gas industry. The outcomes indicated that risk response positively influenced sustainability performance. The study also concurs with Ji et al. (2022) who steered a research on the association between risk response and sustainability performance in the Chinese construction industry. The conclusions showed that risk response positively influenced sustainability performance.

5.2.4 Risk Monitoring and Review and Sustainability

The fourth objective of the current study was to determine influence of risk monitoring and review on sustainability of supply chain industry in Kenya. Descriptive results revealed that KEMSA practice risk monitoring and review to a great extent. The descriptive results further showed that there's a positive perception of the organization's ability to review risk management strategies, use key performance indicators effectively, and maintain a dedicated risk management team. However, areas such as external risk monitoring and ensuring adequate attendance in review sessions appear to be areas where improvements could be considered to enhance risk monitoring and review practices.

The results of correlation analysis indicated that risk monitoring and review had a positive and significant correlation with sustainability. The regression findings implied that a positive increase in risk monitoring and review would result to a corresponding positive change in sustainability. The results implied that a positive change in risk monitoring and review would result to an increase in sustainability of supply chain industry in Kenya by 0.604. The null hypothesis was rejected and conclusion made that risk monitoring and review had a significant influence on sustainability of supply chain industry in Kenya.

The findings of this study are in agreement with Sharma et al. (2022) who investigated risk management practices impact on the sustainable growth of Indian companies. The findings showed that risk monitoring and review had a significant positive impact on the sustainable growth of Indian companies. The findings of this study are also in line with Oyewo (2022) who investigated the association between risk management and corporate sustainability in Africa. The findings revealed that effective risk monitoring and review had a significant positive impact on corporate sustainability in African firms. The results also concur with Ali et al. (2019) who showed that risk monitoring and review possessed positive substantial effect on environmental and social sustainability.

5.3 Summary of Main Findings

The study's purpose was to establish the effect of enterprise risk management practices on sustainability among supply chain industry in Kenya. The specific research objectives were; to establish the effect of risk identification on sustainability of supply chain industry in Kenya, to determine the effect of risk assessment on sustainability of supply chain industry in Kenya, to establish the effect of risk response on sustainability of supply chain industry in Kenya and to determine the effect of risk monitoring and review on sustainability of supply chain industry in Kenya.

A descriptive research design was used and a questionnaire used in data collection. Data was collected from 154 employees at KEMSA. Descriptive statistics, regression analysis as well as correlation analysis were used in analyzing the data. SPSS version 24 was utilized in data analysis. The Descriptive statistics were applied in describing the mean and the standard deviations for the study findings. The inferential statistics on the other hand helped determine the relationship between risk identification, risk assessment, risk response, risk monitoring and review and sustainability.

In regards to risk identification and sustainability at the KEMSA, the descriptive analysis findings revealed that supply chain industry in Kenya had adopted risk identification to a great extent. The results further revealed that while some areas, such as the regularity of risk identification, might benefit from improvement, the presence of a systematic approach and a dedicated team for risk management appear to be strong points for KEMSA. The regression results revealed that risk identification had a significant positive influence on sustainability.

The findings of the study in regards to risk assessment and sustainability established that supply chain industry in Kenya had adopted risk assessment. The descriptive results further revealed that while there is a generally positive perception of the organization's ability to identify and assess critical risks and to prioritize them effectively, there may be opportunities for improvement in terms of the regularity of reviewing and updating risk-related processes and the clarity of criteria for risk evaluation. The correlation and regression results revealed that risk assessment has a positive and significant influence on sustainability.

Findings relating to risk response and sustainability established that KEMSA practice risk response to a great extent. The descriptive results further revealed that there is a moderately positive perception of the organization's ability to define, align, and implement risk response strategies. However, areas such as resource allocation and the frequency of strategy updates appear to warrant consideration for potential enhancements. The results of correlation and regression analysis revealed that risk response positively influences sustainability at KEMSA.

Findings relating to risk monitoring and review and sustainability established that KEMSA practice risk monitoring and review to a great extent. The descriptive results

further showed that there's a positive perception of the organization's ability to review risk management strategies, use key performance indicators effectively, and maintain a dedicated risk management team. However, areas such as external risk monitoring and ensuring adequate attendance in review sessions appear to be areas where improvements could be considered to enhance risk monitoring and review practices. The results of correlation and regression analysis revealed that risk monitoring and review positively influence sustainability at KEMSA.

5.4 Conclusions

This section presents the conclusions drawn from the research findings for each of the research objectives. The study concluded that risk identification plays a crucial role in influencing the sustainability of the supply chain industry in Kenya, with a positive and significant impact. These results underscore the importance of robust risk identification practices within the supply chain sector, as they contribute to better-informed decision-making and strategic planning, ultimately bolstering sustainability.

The study concludes that risk assessment significantly influences the sustainability of the supply chain industry in Kenya. Respondents perceive that KEMSA's risk assessment process is effective and aligned with organizational objectives. This underscores the critical role of systematic risk assessment practices within the supply chain, as they help in identifying, prioritizing, and mitigating risks effectively, ultimately contributing to enhanced sustainability.

This study concluded that risk response strategies have a substantial and positive influence on the sustainability of the supply chain industry in Kenya. Respondents generally perceive KEMSA's risk response strategies as effective and in alignment with the organization's objectives, as indicated in the descriptive results. This underscores

the importance of well-defined risk response strategies within the supply chain sector, as they enable organizations to mitigate and manage risks, ultimately ensuring operational continuity and long-term sustainability.

This study concluded that risk monitoring and review significantly contribute to the sustainability of the supply chain industry in Kenya. Respondents perceive KEMSA as engaging in regular reviews and updates of its risk management policies and procedures. This underscores the importance of ongoing vigilance and adaptability within the supply chain sector, as regular monitoring and review enable organizations to respond proactively to emerging risks and changing business conditions, thereby enhancing sustainability.

5.5 Recommendations

Based on the positive influence of risk identification on sustainability, KEMSA should further strengthen its risk identification practices. This can be achieved by implementing a systematic and continuous risk assessment process that involves all relevant stakeholders. Regular risk workshops and brainstorming sessions can be conducted to identify potential risks comprehensively.

Given the significant influence of risk assessment on sustainability, KEMSA should ensure that its risk assessment process is tightly aligned with the organization's strategic objectives. This can be accomplished by regularly reviewing and updating risk assessment criteria to reflect changing business conditions and emerging risks.

n light of the positive impact of risk response on sustainability, KEMSA should focus on strengthening its risk response strategies. This entails developing clear, well-defined risk response plans that outline specific actions to be taken when risks are identified.

Adequate resources should also be allocated to implement and monitor these strategies effectively.

As risk monitoring and review significantly contribute to sustainability, KEMSA should prioritize ongoing vigilance and adaptability. This includes maintaining a dedicated risk management team responsible for monitoring and reviewing risks on an ongoing basis. Regularly updating risk management policies and procedures to reflect changing business conditions and emerging risks should be a standard practice.

5.6 Areas of Further Research

Further research in this field could explore the nuanced dynamics of enterprise risk management and sustainability within the context of the healthcare supply chain, delving into the specific challenges and opportunities faced by organizations like KEMSA in low- and middle-income countries. Additionally, investigating the role of technology, data analytics, and artificial intelligence in enhancing ERM practices and sustainability outcomes within healthcare supply chains would be pertinent, especially in light of the increasing digitization of healthcare systems worldwide. Furthermore, an in-depth examination of the influence of regulatory frameworks and government policies on ERM adoption and sustainability in the healthcare supply chain could provide valuable insights for both practitioners and policymakers.

REFERENCES

Abideen, Z. U., & De Klerk, A. M. (2022, August). Risk Management in the South African Construction Industry. In 2022 *Portland International Conference on Management of Engineering and Technology* (PICMET) (pp. 1-10). IEEE.

Adeleke, A. Q., Mohd Nawi, M. N., & Abd Karim, S. B. (2020). Where are we? The level of risk management in Malaysian construction industries. *International Journal of Supply Chain Management* (IJSCM), 9(1), 527-535.

Ali, S. M., Moktadir, M. A., Kabir, G., Chakma, J., Rumi, M. J. U., & Islam, M. T. (2019). Framework for evaluating risks in food supply chain: Implications in food wastage reduction. *Journal of cleaner production*, 228, 786-800.

Awino, Z. B. (2021). *An empirical investigation of selected strategy variables on firms performance*: A study of supply chain management in large private manufacturing firms in Kenya.

Bento, R. F., Mertins, L., & White, L. F. (2018). *Risk management and internal control: A study of management accounting practice.* In Advances in management accounting (Vol. 30, pp. 1-25). Emerald Publishing Limited.

Berg, H. P. (2020). Risk management: procedures, methods and experiences. *Reliability: Theory & Applications*, 5(2 (17)), 79-95.

Bharathy, G. K., & McShane, M. K. (2020). Applying a systems model to enterprise risk management. *Engineering Management Journal*, 26(4), 38-46.

Bonn, I., & Fisher, J. (2021). Sustainability: the missing ingredient in strategy. *Journal of business strategy*, 32(1), 5-14.

Burnaby, P., & Hass, S. (2019). Ten steps to enterprise-wide risk management. Corporate Governance: *The international journal of business in society*.

Burns, N. & Burns, S. (2018). *The practice of nursing research: Conduct, critique and utilization*: 5th Edition: St Louis, Elsevier Saunders

Chen, Y. L., Chuang, Y. W., Huang, H. G., & Shih, J. Y. (2020). The value of implementing enterprise risk management: Evidence from Taiwan's financial industry. *The North American Journal of Economics and Finance*, 54, 100926.

Cooper, D., & Schindler, P., (2018). *Business research methods*. *(13th Ed.)*. Boston: McGraw-Hill Irwin

Dyllick, T., & Muff, K. (2016). Clarifying the meaning of sustainable business: Introducing a typology from business-as-usual to true business sustainability. *Organization & Environment*, 29(2), 156-174.

Ekwere, N. (2022). Framework of effective risk management in small and medium enterprises (SMESs): a literature review. Bina Ekonomi, 20(1), 23-46.

Elahi, E. (2019). Risk management: the next source of competitive advantage. *Foresight*, 15(2), 117-131.

Eltweri, A., Faccia, A., Roxana Moþteanu, N., Sawan, N., & Pio Leonardo Cavaliere, L. (2020, December). The Role of Risk Management in Auditing E-Business.

In 2020 The 4th International Conference on Software and e-Business (pp. 39-44).

El-Sayegh, S. M., Manjikian, S., Ibrahim, A., Abouelyousr, A., & Jabbour, R. (2021). Risk identification and assessment in sustainable construction projects in the UAE. *International Journal of Construction Management*, 21(4), 327-336.

Epstein, M. J., & Buhovac, A. R. (2019). Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts. Berrett-koehler publishers.

Faraji, A., Rashidi, M., Khadir, P., & Perera, S. (2021). A Risk Analysis-Best Worst Method Based Model for Selection of the Most Appropriate Contract Strategy for Onshore Drilling Projects in the Iranian Petroleum Industry. *Buildings*, 11(3), 97.

Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. The British Accounting Review, 49(1), 56-74.

Gunduz, M., & Laitinen, H. (2017). A 10-step safety management framework for construction small and medium-sized enterprises. *International Journal of Occupational Safety and Ergonomics*, 23(3), 353-359.

Habaragoda, B. S. (2018). Corporate social responsibility (CSR) and firm performance: Impact of internal and external CSR on financial performance. *Business and Management*, 10(3), 156-170.

Hashim, M., Nazam, M., Zia-ur-Rehman, M., Abrar, M., Baig, S. A., Nazim, M., & Hussain, Z. (2021). Modeling supply chain sustainability-related risks and vulnerability: *Insights from the textile sector of Pakistan. Autex Research Journal*, 22(1), 123-134.

Hiles, A. (2022). Enterprise risk management. The definitive handbook of business continuity management, 1-21.

Iso, I. (2019). Risk management–Principles and guidelines. *International Organization for Standardization, Geneva, Switzerland*.

Iwedi, M., Anderson, O. E., Barisua, P. S., & Zaagha, S. A. (2020). Enterprise risk management practice and shareholders value: evidence from selected quoted firms in Nigeria. *Green Financ*, 2, 197-211.

Jalali, A., Jaafar, M., Talebi, K., & Ab Halim, S. (2019). The moderating role of bridging ties between risk-taking, proactivness and performance: The evidence from Iranian SMEs. *International Journal of Business and Management*, 9(5), 74.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

Joyce, A., & Paquin, R. L. (2016). The triple layered business model canvas: A tool to design more sustainable business models. *Journal of cleaner production*, *135*, 1474-1486.

Khan, H. (2018). *A Literature Review of Enterprise risk management*. E-business Management and 4Economics, 25.

Kimani, C. W. (2017). Supply chain management challenges in Kenya petroleum industry: case of national oil corporation of Kenya. *International Journal of Social Sciences and Entrepreneurship,* 1(3), 231-246.

Kimotho, G. W. (2019). *Relationship between Enterprise risk management practices and the Financial performance among Commercial state corporations in Kenya* (Doctoral dissertation, University of Nairobi).

Kothari C.R (2014). *Research methodology, methods and techniques* (2nd Ed.), New Delhi: New Age International Publishers.

Kyereboah, C. A. (2017). The link between enterprise risk management and sustainability of the non-traditional export sector: evidence from Ghana. Enterprise risk management: *The international journal of business in society, 56*(3), 22-46.

Liebenberg, A. P., & Hoyt, R. E. (2023). The determinants of enterprise risk management: Evidence from the appointment of chief risk officers. *Risk management and insurance review, 6(1), 37-52.*

Li, Y., Xiang, P., You, K., Guo, J., Liu, Z., & Ren, H. (2021). Identifying the key risk factors of mega infrastructure projects from an extended sustainable development perspective. *International Journal of Environmental Research and Public Health,* 18(14), 7515.

Matuga, A. O. (2022). *Effect of Supply Chain Management Practices on Performance of Tea Subsector Industry in Kenya* (Doctoral dissertation, JKUAT-COHRED).

Moenga, G. O. (2015). *The Effect of Enterprise risk management on the Financial Sustainability of Microfinance Institutions in Kenya*. Unpublished PhD dissertation, Nairobi: University of Nairobi.

Muhalia, E., Ngugi, P., & Moronge, M. (2021). Effect Of Transportation Management Systems On Supply Chain Performance Of Fmcg In Kenya. *American Journal Of Supply Chain Management*, 6(1), 1-12

Munyalo, E. M. (2020). *Effect of Enterprise Risk Management On Financial Performance Of Supermarkets* In Nairobi County (Doctoral dissertation, Kca University).

Mwangi, A. K. (2018). *Effect of Risk response on Quality of Financial Reporting among non-Commercial State Corporations in Kenya*. Retrieved from http://hdl.handle.net/123456789/4598 on 12th August, 2019.

Njau, K. D. (2016). *The Effect of Adoption of Public Financial Reforms on the Sustainability of County Governments in Kenya*. Unpublished PhD dissertation, Nairobi: University of Nairobi.

Nzuma, B. M. (2022). Impact of Effective Procurement Management on Performance of Constituency Development Fund Projects In Kenya: *A Case Study Of Kitui County.*

OECD (2020). Board Practices: Incentives and Governing Risks, Enterprise risk management, Paris: OECD Publishing.

O'Donnell, E. (2018). Enterprise risk management: A systems-thinking framework for the event identification phase. *International Journal of accounting information systems*, 6(3), 177-195.

Odoyo, F. S., Omwono, G. A., & Okinyi, N. O. (2014). *An Analysis of the Role of Internal Audit in Implementing Risk Management*-a Study of State Corporations in Kenya.

Odubuasi, A. C., Ofor, N. T., & Ilechukwu, F. U. (2022). Enterprise Risk Management, Risk Committee, and Earning Capacity of African Banks: *A Comparative Approach. Modern Economy*, 13(1), 51-68.

Olson, D. L., & Wu, D. D. (2020). *Enterprise risk management models* (No. 273102). Heidelberg: Springer.

Otieno, E. A., Ogutu, M., Ndemo, B., & Pokhariyal, G. (2020). Influence of enterprise risk management on organizational performance: evidence from Kenyan State-Owned Corporations.

Otieno L., Odhiambo & Ngwenya, S. (2015). Debt capital, firm sustainability and change of CEO in firms listed on the Nairobi securities exchange. *Corporate Ownership and Control. 13*(9); 659-673.

Oyewo, B. (2022). Enterprise risk management and sustainability of banks performance. Journal of Accounting in Emerging Economies, 12(2), 318-344.

Paape, L., & Speklé, R. F. (2022). The adoption and design of enterprise risk management practices: An empirical study. *European Accounting Review*, 21(3), 533-564.

Rehman, A. U., & Anwar, M. (2019). Mediating role of enterprise risk management practices between business strategy and SME performance. *Small Enterprise Research*, 26(2), 207-227.

Ruiz-Canela López, J. (2021). How can enterprise risk management help in evaluating the operational risks for a telecommunications company?. *Journal of Risk and Financial Management*, 14(3), 139.

Segrestin,.B & Hatchuel,.A (2011).Beyond Agency theory, a post-crisis view of corporate law. *British Journal of Management,22*(9);484-499

Settembre-Blundo, D., González-Sánchez, R., Medina-Salgado, S., & García-Muiña, F. E. (2021). Flexibility and resilience in corporate decision making: a new sustainability-based risk management system in uncertain times. *Global Journal of Flexible Systems Management*, 22(Suppl 2), 107-132.

Sharma, A., Kumar, D., & Arora, N. (2022). Supply chain risk factor assessment of Indian pharmaceutical industry for performance improvement. *International Journal of Productivity and Performance Management*, (ahead-of-print).

Smit, Y., & Watkins, J. A. (2022). A literature review of small and medium enterprises (SME) risk management practices in South Africa. *African journal of business management.*

Sohrabi, H., & Noorzai, E. (2023). Risk assessment in Iranian oil and Gas construction industry: a process approach. *International Journal of Quality & Reliability Management,* 40(1), 124-147.

Spanò, R., Zagaria, C., Spanò, R., & Zagaria, C. (2022). Enterprise Risk Management Systems: *Emerging Issues and Future Trends*.

Sriyanto, S., Lodhi, M. S., Salamun, H., Sardin, S., Pasani, C. F., Muneer, G., & Zaman, K. (2021). The role of healthcare supply chain management in the wake of COVID-19 pandemic: hot off the press. *foresight,* 24(3/4), 429-444.

Tummala, R., & Schoenherr, T. (2021). Assessing and managing risks using the supply chain risk management process (SCRMP). Supply Chain Management: *An International Journal, 16(6), 474-483.*

Vergotine, H., & Thomas, A. (2017). Enterprise risk management at South African state-owned companies. *Journal of Contemporary Manageme*nt, 13(1), 674-701.

Viscelli, T. R., Hermanson, D. R., & Beasley, M. S. (2017). The integration of ERM and strategy: Implications for corporate governance. *Accounting Horizons*, 31(2), 69-82.

Waweru, N., & Kisaka, E. S. (2022, August). *The effect of enterprise risk management implementation on the value of companies listed in the Nairobi Stock Exchange. AAA.*

Wideman, R. M. (2022). *Project and program risk management a guide to managing project risks and opportunities*. Project Management Institute, Inc..

Wut, T. M., Xu, J. B., & Wong, S. M. (2021). Crisis management research (1985–2020) in the hospitality and tourism industry: *A review and research agenda. Tourism Management,* 85, 104307.

Yılmaz, A. K., & Flouris, T. (2020). Managing corporate sustainability: Risk management process based perspective.308 – 328.

Zhang, S., Loosemore, M., Sunindijo, R. Y., Galvin, S., Wu, J., & Zhang, S. (2022). Assessing safety risk management performance in Chinese subway construction projects: a multistakeholder perspective. *Journal of Management in Engineering,* 38(4), 05022009.

APPENDICES

APPENDIX I: INTRODUCTION LETTER

Dear Sir/Madam,

My name is Linet Atieno Ochieng, a student at Africa Nazarene University of admission number **18S03DMBA010** and currently undertaking an academic research project on*; "**EFFECT OF ENTERPRISE RISK MANAGEMENT ON ORGANIZATIONAL SUSTAINABILITY OF SUPPLY CHAIN INDUSTRY IN KENYA: A CASE OF KEMSA**".* This research is needed for Africa Nazarene University's School of Business to grant the Master of Business Administration degree.

A questionnaire has been developed to assist gathering relevant information for this study. I will ask you a few questions to assist in completion of this research. Whatever data you shall offer will be strictly confidential and will only be utilized for academic purposes only. Participation in the study is voluntary.

Many thanks for your acceptance with regards to participation in this study

Yours Faithfully,

Linet Atieno Ochieng

APPENDIX II: RESEARCH QUESTIONNAIRE

The aim of this questionnaire is to gather data on the impact of enterprise risk management on sustainability at Kenya Medical Supplies Authority. In best of your understanding, after reading kindly submit response. The facts gathered will purely be used for academic purposes

Instructions

Do not indicate your name on the questionnaire.

For each question, only one answer (box) should be ticked

PART A: BACKGROUND INFORMATION

1 Gender: Male [ ] Female [ ]

2 Under which age brackets are you?

21 – 30 years	[ ]	31-40 years	[ ]
41 - 50 years	[ ]	Over 50 years	[ ]

3 Which is the highest education level that you have attained?

High school	[ ]	Certificate	[ ]
Diploma	[ ]	Masters	[ ]
Degree	[ ]	PhD	[ ]

Others Specify…….

4 How many years have you worked in your firm?

Less than one year	[ ]	1-3 years	[ ]
4-7 years	[ ]	8 years and above	[ ]

PART B: RISK IDENTIFICATION

Which of the following statements do you agree with the most? On a scale of 1 to 5, how would you rate this? (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

NO	STATEMENT	1(SD)	2(D)	3(N)	4(A)	5(SA)
B1	KEMSA regularly identify potential risks to its operations					
B2	KEMSA use a systematic approach to identify risks					
B3	KEMSA involves all relevant stakeholders in the risk identification process					
B4	KEMSA consider both internal and external risks when identifying potential risks					
B5	KEMSA reviews and update its risk identification process on a regular basis.					
B6	KEMSA communicates identified risks to relevant stakeholders.					
B7	KEMSA have a dedicated team responsible for risk identification and management					

PART C: RISK ASSESSMENT

Which of the following statements do you agree with the most? On a scale of 1 to 5, how would you rate this? (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

NO	STATEMENT	1(SD)	2(D)	3(N)	4(A)	5(SA)
C1	We have identified and assessed risks that are critical to achieving our organizational objectives					
C2	Our risk assessment process is aligned with the overall strategy of our organization.					
C3	We regularly review our risk assessment results.					
C4	We regularly update our risk management plans					
C5	Our risk assessment process enables us to prioritize risks based on their potential impact on our organization					

C6	We have established clear criteria for evaluating the likelihood and impact of identified risks					

PART D: RISK RESPONSE

Which of the following statements do you agree with the most? On a scale of 1 to 5, how would you rate this? (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

NO	**STATEMENT**	**1(SD)**	**2(D)**	**3(N)**	**4(A)**	**5(SA)**
D1	KEMSA has a well-defined process for responding to identified risks					
D2	KEMSA's risk response strategies are effective in minimizing the impact of risks					
D3	KEMSA's risk response strategies align with the organization's overall objectives.					
D4	KEMSA has allocated adequate resources to implement and monitor risk response strategies.					
D5	KEMSA's risk response strategies comply with regulatory requirements and ethical standards.					
D6	KEMSA regularly reviews and updates its risk response strategies based on changing circumstances and emerging risks.					

PART E: RISK MONITORING AND REVIEW

Which of the following statements do you agree with the most? On a scale of 1 to 5, how would you rate this? (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

NO	STATEMENT	1(SD)	2(D)	3(N)	4(A)	5(SA)
E1	Our organization regularly reviews the effectiveness of our risk management strategies					
E2	Our organization regularly monitors the external environment for new risks that may emerge					
E3	There is adequate attendance in risk monitoring and review					
E4	Our organization uses key performance indicators to measure the success of our risk management program					
E5	Our organization regularly updates our risk management policies and procedures to reflect changing business conditions					
E6	Our organization has a dedicated risk management team responsible for monitoring and reviewing risks on an ongoing basis					

PART F: ORGANIZATIONAL SUSTAINABILITY

The statements below are related on sustainability in your organizational. Indicate your level of agreement with each statement using the scale of 1 to 5 provided below, where (1 Strongly disagree, 2 Disagree, 3 Neutral, 4 Agree, 5 Strongly Agree)

NO	STATEMENT	1(SD)	2(D)	3(N)	4(A)	5(SA)
F1	KEMSA has a positive operating margin ratio.					
F2	KEMSA is able to meet its recurring expenditures into unforeseen future					
F3	KEMSA annual statement of income and expenditure always has surplus					
F4	There is increase in customer satisfaction at KEMSA					
F5	KEMSA has recorded improved and continuous loyalty of					

	customers courtesy of improved services					
F6	The cost of administration has been reduced					
F7	Employees at KEMSA have opportunities for personal and professional advancement.					
F8	The staff are friendly and provide outstanding customer service.					

THANK YOU

APPENDIX III: RESEARCH AUTHORIZATION LETTER

13th, July, 2023

E-mail: researchwriting.mba.anu@gmail.com

Tel. 0202711213

Our Ref: 18S03DMBA010
The Director.
National Commission for Science,
Technology and Innovation (NACOSTI),
P. O. Box 30623, 00100
Nairobi. Kenya

Dear Sir/Madam:

RE: RESEARCH AUTHORIZATION FOR: LINET ATIENO OCHIENG

Ms. Linet Atieno Ochieng is a postgraduate student of Africa Nazarene University in the Master of Business Administration (MBA) program.

In order to complete her program, Ms. Linet is conducting research entitled: "**Enterprise Risk Management and Organizational Sustainability Within the Supply Chain Industry in Kenya: A Case of Kenya Medical Supplies Authority**"

Any assistance offered to her will be highly appreciated.

Yours Faithfully,

DR. Kimani Gichuhi,

MBA, Coordinator,

School of Business,

Africa Nazarene University.

APPENDIX IV: NACOSTI RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **131539**

Date of Issue: **25/July/2023**

RESEARCH LICENSE



This is to Certify that Ms.. Linet Atieno Ochieng of Africa Nazarene University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ENTERPRISE RISK MANAGEMENT AND ORGANIZATIONAL SUSTAINABILITY WITHIN THE SUPPLY CHAIN INDUSTRY IN KENYA: A CASE OF KENYA MEDICAL SUPPLIES AUTHORITY for the period ending : 25/July/2024.

License No: **NACOSTI/P/23/27932**

131539

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX V: MAP OF NAIROBI COUNTY



APPENDIX VI: RESEARCH BUDGET

Item Description	**Cost- Kshs**
Stationery	3500
Printing services	9500
Binding	9000
Travel charges	5000
Data collection costs	10000
Miscellaneous	12000
Total	**49, 000**

APPENDIX VII: WORK SCHEDULE

ACTIVITY	May 2023	June 2023	July 2023	August 2023	September 2023
Proposal development					
Pilot testing					
Data collection					
Data analysis					
Report writing					
Submission					