

**RISK MANAGEMENT STRATEGY AND PERFORMANCE OF CONSTRUCTION  
PROJECTS IN HOMA BAY COUNTY, KENYA**

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**D53/CE/29194/2015**

**A PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND  
TOURISM IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE  
AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION  
(PROJECT MANAGEMENT OPTION) OF KENYATTA UNIVERSITY**

**JANUARY, 2025**

## DECLARATION

I certify that my study report is entirely original with no submissions to other institutions for consideration for a degree or certification. No portion of the project may be duplicated without permission from Kenyatta University or the author.

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## **DEDICATION**

I dedicate this research to my son Dalvin Otieno, my mother Yunia Ondiek, my grandmother Zilpa Adhiambo, my brothers Phestus and Moses Oganga, as well as my friends Judith Ayalo and Emmanuel Wafula, all of whom have significantly contributed to this academic endeavor. The progress I have achieved this far has been facilitated by their unwavering support, encompassing both material assistance and moral guidance.

## **ACKNOWLEDGEMENT**

For his love and care for me, I am grateful to the All-Powerful God. I wish to appreciate Dr. Paul Sang, my supervisor, for his assistance with the study endeavor. I acknowledge the Kenyatta University fraternity, as being part of such highly profiled institution makes me feel very proud. I would like to take this opportunity to convey my sincere appreciation to my colleagues for their invaluable assistance in the development of this study. I am grateful for the unwavering encouragement and support provided by my classmates throughout this research.

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## **ABBREVIATIONS/ACRONYMS**

<b>SPSS</b>	Statistical Package for Social Sciences
<b>ANS</b>	Air Navigation Services
<b>ICT</b>	Information Communication Technology
<b>SMEs</b>	Small and Medium Enterprises
<b>KCAA</b>	Kenya Civil Aviation Authority
<b>NACOSTI</b>	National Commission for Science and Technology
<b>NGO</b>	Non-Governmental Organization

## OPERATIONAL DEFINITION OF TERMS

<b>Project performance</b>	A gauge of the effectiveness of a project in realizing set objectives and producing the anticipated outcomes within the given time, money, and quality restrictions.
<b>Risk management strategy</b>	The creation and application of plans, guidelines, and practices to efficiently manage and control hazards.
<b>Risk avoidance strategy</b>	A strategy employed by people or organizations to totally eradicate or steer clear of possible dangers or threats that can have a detrimental effect on their aims or objectives.
<b>Risk retention strategy</b>	Entails embracing the possible outcomes and monetary implications of a risk occurrence instead than depending on risk transfer methods like insurance to lessen possible losses.
<b>Risk reduction strategy</b>	Entails identifying possible risks, assessing their effects and possibility, developing plans to lessen or remove them, and putting policies in place to keep an eye on and manage them.
<b>Risk transfer strategy</b>	Shifting management and risk mitigation responsibilities to another organization in order to protect against unanticipated events that could cause financial loss.

## ABSTRACT

To improve accessibility in remote areas, Homa Bay County has carried out a major road restoration project that includes building a primary route every administrative ward. Through the expansion of piped water infrastructure, the County has made impressive strides in extending shoreline amenities. However, data research shows that just 15% of the construction projects the County commissioned between 2019 and 2023 are still partially operational, with the remaining projects becoming obsolete and untraceable once the funding ended. Homa Bay's agreement to build 400 affordable homes is already 70% advanced. The Homa Bay County Referral Hospital's outpatient block, which is expected to be finished by the end of 2021, is currently 80% complete. On the other hand, the Maternity Wing renovation project has been stalled since 2022, the Rachuonyo Outpatient Block improvement is still in its early stages, the Homa Bay Raila Odinga Stadium project is 50% complete, and the lakefront development project, which was started in 2022, is still unfinished. Therefore, this study aimed at investigating the influence of risk management strategies on performance of construction projects in Homa Bay County, Kenya. The specific objectives include to determine the effects of risk retention strategy, risk avoidance strategy, risk transfer strategy and risk reduction strategy on construction projects performance in Homa Bay County, Kenya. Project management theories, corporate risk management, contingency planning, and contemporary portfolio management served as the study's compass. The study utilized a design known as a descriptive research design. This study focused on seven construction projects in Homa Bay County, Kenya, that began in 2019 and were still ongoing as of 2022. There were 85 respondents in all. In Homa Bay County, Kenya, 78 members of the project and 7 managers of the project took part in the study. Population sample of 85 participants was conducted. The primary instrument employed for obtaining data is semi structured questionnaire. 8 respondents who were excluded from the main sample participated in the pilot study. The study employed a content validity test to assess the questionnaires' validity. Coefficient of Cronbach's alpha was adopted to assess the reliability of the questionnaire items. The qualitative data was presented narratively after a theme analysis that aligned with the research objectives. Conversely, quantitative data was analyzed using descriptive statistics. In particular, the inferential statistics were analyzed using multiple regression analysis. The diagnostic tests included the multicollinearity test, normality test and autocorrelation test. The results indicated that the total performance of these projects was positively correlated with the application of risk avoidance, retention, transfer, and reduction measures. According to the findings of this survey, companies that highly prioritize proactive management and transparent risk avoidance are more likely to boost stakeholder trust and enhance project performance. Retaining risk encourages adaptation and ongoing improvement, both of which are critical for negotiating the challenges of project execution. By shifting some risks to third parties, like insurers or subcontractors, project managers can lessen the financial effect of unanticipated events. Successful risk-reduction techniques contribute to the timely, budget- friendly, and high-standard completion of projects. According to the report, the County should use SWOT analysis and other techniques to identify potential hazards throughout the project design phase by conducting thorough risk assessments. To recognize any risks that are likely to impact project performance, the Homa Bay County administration should host thorough risk identification workshops that involve all stakeholders. To precisely identify any risks at every stage of the project, the County should lead thorough brainstorming sessions with stakeholders.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background to the Study**

Project management methodologies help teams streamline workflows, and effective resource allocation ensures projects meet deadlines and budgets, enhancing productivity, work quality, and overall success in achieving objectives (Bryde, 2019). As articulated by Nitithamyong and Tan (2021), the efficacy of project management doesn't just encompass the identification and mitigation of risks but also the enhancement of communication among the stakeholder and the adaptability to alterations in project requirements or scope. In summary, the efficacy of project management is fundamentally vital for fostering successful outcomes and amplifying the impact of projects.

Carvalho and Rabechini (2018) assert that a meticulously crafted risk management strategy can profoundly affect a project's success by recognizing potential risks, evaluating their implications and probabilities, and executing mitigation techniques to lessen their impact. Raz, Shenhar, and Dvir (2022) further posit that a robust risk management framework can also augment project results by refining decision-making processes, bolstering stakeholder confidence, and nurturing a mindset of accountability and transparency amongst the team members in the project. Therefore, effective risk management allows project managers to anticipate and tackle challenges, leading to better project outcomes.

Developed countries have more advanced risk management methodologies in construction than developing nations, due to better technology, skilled labor, and strict regulations (Mahendra, Pitroda & Bhavsar, 2020). Iqbal, Choudhry, Holschemacher, Ali and Tamosaitiene (2023) noted that construction projects in developed countries typically include thorough risk assessments in the planning phase to identify hazards and create mitigation strategies, which may involve

environmental impact evaluations, feasibility studies, and cost-benefit analyses for long-term sustainability.

The construction sector in China is characterized by its rapid expansion and large-scale projects. Nevertheless, this growth is accompanied by multifaceted risks and uncertainties (Zhao, Hwang & Low, 2019). Tang Qiang, Duffield, Young and Lu (2021) highlight the complexity of China's construction regulatory framework, which includes many laws essential for project success. Additionally, the industry faces external risks like climate change and political instability that can significantly affect performance if not managed. Therefore, proper risk management leads to improved cost, time, quality, and overall project success in China.

Nnadi, Enebe, and Ugwu (2018) highlighted that Nigerian construction companies understand the need for effective risk mitigation strategies to enhance project performance through careful planning and feasibility studies. Before starting any project, these companies conduct thorough assessments to identify potential risks. Adeleke, Bahaudin, and Kamaruddeen (2021) noted that they also prioritize strong relationships with suppliers, subcontractors, and partners. Therefore, by establishing effective communication and fostering positive relationships, companies can manage risks and challenges promptly, ensuring all parties are aligned and reducing the chances of delays or disputes.

Nyaga (2020) highlights that skilled labor, quality materials, regulatory compliance, and effective project management are crucial for improving construction project performance in Kenya. Gichunge (2022) notes that risk mitigation strategies have helped identify and assess potential hazards in these projects, enabling firms to proactively address issues. Therefore, this approach

has improved project outcomes, fostered stakeholder collaboration, and ensured financial sustainability.

Kenya has experienced notable growth in its construction sector recently. For example, the Nairobi expressway project, which spans 27 kilometers, was developed to alleviate traffic congestion in Nairobi City County by decreasing travel times for commuters and effectively connecting Jomo Kenyatta International Airport with Nairobi's central business district (Nyangwara & Datche, 2021). Ong'ondo, Gwaya, and Masu (2023) noted that the Kenyan government initiated the construction of affordable housing to meet the demands of the increasing population in urban areas, aiming to provide 500,000 units across the country.

### **1.1.1 Project Performance**

According to Shenhar, Dvir, Levy, and Maltz (2021), project performance is the achievement of completing a project within the allocated budget and timeframe. According to Pheng and Chuan (2020), a number of indicators pertaining to aspects like customer satisfaction, project cost, quality and time serve as key indicators of project performance. But the three most important factors for assessing performance are time, cost, and quality. Adopting and implementing successful risk management techniques in projects depends on the performance of the project.

Adeyemi (2019) observe that the evaluation of project performance is carried out through the use of key performance indicators that are specifically aligned with the project's objectives. Furthermore, performance assessment can be achieved by comparing outcomes to established industry standards. Chua Loh, Kog and Jaselskis (2020) point out that the significance of project performance lies in its ability to provide insights into the efficiency and effectiveness of project

management methodologies. This study assessed project performance using quality standards, cost advantage, and schedule adherence.

To ascertain if a project is on track or delayed, the schedule performance index compares the project's actual progress to the projected timetable (Kog, Chua, Loh & Jaselskis, 2019). Assessing the effect of any timetable variations on the total project timeframe is part of evaluating project progress based on schedule adherence, claim Ahsan and Gunawan (2020). Examining the project's critical path—the sequence of actions that determines the quickest time frame for project completion—is one way to do this. Thus, assessing the effects of schedule deviations aids in deciding if the project schedule needs to be modified or whether additional resources are required to reduce the delays.

According to Talukhaba (2018), evaluating a project's success in respect to cost effectiveness entails determining its value and efficiency in terms of the resources used and the results obtained. To ascertain whether the project has been cost-effective, the financial performance of the project—including the expenses incurred and the benefits realized—must be examined. The assessment of cost effectiveness may also entail contrasting the project's performance with that of related projects or industry standards, claim McKim, Hegazy, and Attalla (2021). This enables a more detailed assessment of the project's efficacy and efficiency, as well as the identification of effective strategies and areas for improvement. As a result, by examining the project's financial performance, companies can make strategic decisions regarding the success and feasibility of their initiatives.

A project's quality performance is evaluated by determining how well it adheres to its objectives and aims, which entails determining if the project has produced the required results and reached

its planned outcomes (Ledbetter, 2017). According to Meng and Gallagher (2022), stakeholder satisfaction can be used to assess a project's quality performance. Feedback must be obtained from clients, consumers, and team members to ascertain how satisfied project stakeholders are with the project's outcomes and processes.

### **1.1.2 Risk Management Strategy**

A risk mitigation plan is an organization's methodical and structured approach to detecting, assessing, and mitigating risks in order to lessen any potential negative impacts on its objectives and operations (Luko, 2019). Hendershot (2022) asserts that a risk management strategy usually consists of a number of crucial actions. The first phase is risk identification, which entails locating and documenting any risk that could impact objectives of an organization. This can be achieved through multiple approaches, such as data analysis, brainstorming sessions and interviews. Thus, risk retention, risk reduction, risk transfer, and risk avoidance strategies were used to measure risk management method in this study.

According to Egboga and Worlu (2020), project managers can avoid possible problems or roadblocks that could impede the project's progress by using a risk avoidance strategy. This enables tasks to be completed more rapidly and efficiently, which enhances performance all around. According to Mumassabba, Mukulu, and Atikiya (2022), reducing risks can aid in keeping the project's budget and schedule on track. Risks frequently result in resource waste, delays, or cost overruns. Additionally, minimizing risks might improve the caliber of the project's output. Errors, flaws, or poor results might result from risks. Thus, project managers may ensure that the outputs of the project achieve or surpass the expected quality standards by proactively addressing and managing risks, improving the project's performance and customer satisfaction. The risk avoidance

strategy was measured in terms stakeholder confidence, decision making and minimizing potential loss.

According to Perera, Dhanasinghe, and Rameezdeen (2019), the overall success of the project in achieving its goals can be used to evaluate the effects of that risk retention strategy have on the performance of projects. The project can be considered a successful outcome of the risk retention approach if it can effectively manage and mitigate the risks that were kept. On the other side, it can be a sign that the risk retention approach was unsuccessful if the project faces major obstacles or setbacks as a result of the risks that were kept. Wang and Chou (2022) point out that the project's financial ramifications are used to evaluate risk retention strategies. Therefore, the project can be considered a successful implementation of the risk retention strategy if it can manage and absorb the costs associated with retained risks without having a substantial impact on the budget or timeline. The measures of risk retention strategy were self-insurance, risk management culture and creativity.

Early in the project planning stage, possible risks are identified and evaluated as part of the risk transfer strategy. This is accomplished by knowing the particular risks involved in the project, which allows the project manager to decide which risks need to be managed internally and which can be successfully outsourced to third parties (Mu, Peng & MacLachlan, 2019). According to Thuku and Muchemi (2021), a project's success can be significantly impacted by the manner in which risk is transferred. This is because by deftly transferring risk to other parties, such insurance companies or subcontractors, a project manager can lessen the likelihood of monetary losses and timetable delays. The risk transfer strategy was measured in terms of outsourcing, partnership and contractual agreement.

Finding potential hazards, evaluating their possibility and effects while formulating methods for lessening or mitigating them are all part of a risk reduction strategy. To do this, a thorough risk assessment must be conducted at the beginning of the project (Perminova, Gustafsson & Wikstrom, 2018). According to Dai and Wells (2022), identifying the hazards is followed by developing plan that helps in managing risk. This strategy specifies the precise procedures to be implemented to address every recognizable risk, as well as completion dates, accountability assignments, and resource allocations if necessary. The risk reduction strategy was measured in terms of project planning, project team collaboration and contingency plan.

### **1.1.3 Homa Bay County, Kenya**

Rachuonyo East, Rachuonyo North, Ndhiwa, Rachuonyo South, Rangwe, Suba North, Homa Bay Town and Suba South are the eight sub-counties that make up Homa Bay County, one of Kenya's 47 counties located around Lake Victoria in South Western Kenya. To enhance the effectiveness of road transportation and guarantee the security of travelers and other road users, the County has started a number of projects and programs. Notably, three guard rails were installed to improve bridge safety and a bus park was created at Oyugis town, Rachuonyo South Sub-county. In addition, 15 factories and pieces of machinery were maintained in order to speed up the development and repair of infrastructure in all eight sub-counties. The county government has acknowledged that main access roads need to be rehabilitated in order to improve accessibility in villages. They have set a goal to repair at least one major road every ward as part of this endeavor, and they are working closely with members of the county legislature to achieve this. This project is extremely important since it will improve the county's citizens' quality of life and spur local economic growth.

The 2024 report from the Homa Bay County Project Management Office highlighted significant findings regarding risk management practices across its sectors, especially in the construction industry. For example, the report revealed that construction projects aimed at enhancing road accessibility in the County's rural regions experienced a 15% decrease in cost overruns, attributed to the successful application of risk management practices. Additionally, the engagement of stakeholders in risk assessments led to a 40% increase in the timely completion rate of infrastructure projects.

## **1.2 Statement of the Problem**

The importance of running construction projects smoothly is that it guarantees the project's successful, safe, and high-quality completion, which eventually results in a happy client and a favorable reputation for the construction company (Chan & Kumaraswamy, 2020). However, Omopariola, Ilori, and Windapo (2022) note that a number of factors, including financial limitations, design modifications, regulatory obstacles, disagreements with stakeholders or nearby properties, environmental concerns, and unforeseen difficulties that arise during construction, could hinder the progress of construction project. In Homa Bay County, several risks have been recognized in current projects. Frequent problems consist of insufficient planning, a shortage of skilled labor, delays in procurement processes, and challenges related to community engagement.

Homa Bay County has constructed new medical facilities and initiated a thorough refurbishment of the Level 5 hospital. In an effort to enhance accessibility in rural regions, the County has undertaken a significant road restoration initiative that involves the construction of a primary road in each administrative ward. Through the expansion of piped water infrastructure, the County has made notable progress in extending shoreline amenities. At the onset of the new political administration, the County established the Kigoto maize facility. However, research data indicates

that only 15% of the construction projects commissioned by the County between 2019 and 2023 remain partially operational, while the rest have become obsolete and untraceable following the cessation of funding. Homa Bay's commitment to constructing 400 affordable homes is currently 70% complete. The Outpatient Block of the Homa Bay County Referral Hospital is now 80% finished, with completion anticipated by the end of 2021. On the other hand, the renovation of the Maternity Wing has been on hold since 2022, the improvement of the Rachuonyo Outpatient Block is still in its initial phases, the Homa Bay Raila Odinga Stadium project is 50% complete, and the lakefront development project, which commenced in 2022, remains unfinished.

The correlation that exists between risk management approaches and projects performance is always the subject of numerous research. Although their qualitative approach has limitations, Ali et al. (2018) indicated that construction project performance is positively impacted by effective risk management. A conceptual gap was revealed by Aduma and Kimutai (2018), who found a negative association between the performance of Kenya's National Hospital Insurance Fund and several risk management strategies. Although their research is restricted to Kiambu County, Ebole and Samson (2021) noted that risk identification greatly improves infrastructure project performance in that area. The purpose of this study was to evaluate how risk management strategies influence the performance of building projects in Kenya's Homa-Bay County.

### **1.3 Study Objectives**

#### **1.3.1 General Objective**

Risk management strategies and performance of construction projects in Homa Bay, Kenya

### **1.3.2 Specific Objectives**

- i. To assess the impact of risk avoidance strategies on the performance of construction projects in Homa Bay County, Kenya.
- ii. To evaluate the impact of risk retention strategies on the performance of construction projects in Homa Bay County, Kenya.
- iii. To investigate the impact of risk transfer strategies on the performance of construction projects in Homa Bay County, Kenya.
- iv. To analyze the effects of risk reduction strategies on the performance of construction projects in Homa Bay County, Kenya.

### **1.4 Research Questions**

- i. What impact does strategy on risk reduction strategy have on the performance of construction projects in Homa Bay County, Kenya?
- ii. In what ways does strategy on risk retention affect the performance of construction projects in Homa Bay County, Kenya?
- iii. To what degree does strategy on risk transfer impact the performance of construction projects in Homa Bay County, Kenya?
- iv. To what level does strategy on risk avoidance relate to the performance of construction Projects in Homa Bay County, Kenya?

### **1.5 Significance of the Study**

Managers and team members of projects in Homa Bay County, Kenya, would benefit from the study since it will give them the tools they need to handle hazards that could affect the County's project performance and how to mitigate those risks. Additionally, by educating policymakers, other counties, and the federal government on risk management best practices, the findings of this research will provide key understandings for the creation of suitable regulations that can improve

project outcomes. Furthermore, this study would provide new insights to the already available knowledge on risk management techniques in project performance across different counties, offering scholars fresh viewpoints and possibly promoting extensive research in this area of research.

### **1.6 Scope of the Research**

The analysis of this survey concentrated on seven building projects in Kenya's Homa Bay County (see appendix v) due to the County's distinctive challenges and opportunities within its construction industry. Numerous risk management approaches, including risk retention, risk transfer, risk reduction, and risk retention, were included in the analysis. Schedule adherence, cost control, and quality standard adherence were all evaluated as part of the project performance review. Project supervisors and team members from Homa Bay County participated in the survey.

### **1.7 Limitations of the Study**

The survey was constrained by several factors that could impact the validity and reliability of its findings. One significant limitation was the fear exhibited by respondents, which could lead to biased or incomplete responses. However, this was mitigated by enhancing respondent confidentiality and building trust through transparent communication about the research process and providing assurances regarding data protection and emphasizing the importance of honest feedback that could encourage more open participation. Additionally, the demanding work schedules of the respondents posed another challenge because the respondents could struggle to find the time to participate fully in the study, leading to potential issues such as low response rates or rushed answers. However, the researchers could implement flexible scheduling options, such as offering multiple time slots for participation and utilized asynchronous data collection methods, such as online surveys that could accommodate the busy schedules of respondents and allowed

them to engage with the study at their convenience. Furthermore, the reliance on a descriptive research design could constrain the ability of the research to explore causal relationships or delve deeper into the underlying factors influencing the phenomena being studied. However, to address this limitation, the researcher could incorporate mixed-methods approaches that included qualitative elements, such as open ended questions that could enable a richer exploration of the data and provide deeper insights into the respondents' perspectives, thereby enhancing the overall strength of the research findings.

### **1.8 Organization of the study**

The research background, problem, goals, and significance are all discussed in detail in Chapter 1. Along with outlining the investigation's parameters and scope, it also poses the leading research questions. The second chapter examines pertinent literature and evaluates both theoretical and empirical studies conducted in the area. It outlines the conceptual framework, points out knowledge gaps, summarizes important discoveries, and suggests areas for more research. The target population, sampling techniques and research design are all covered in length in Chapter 3. It explains the methods for data analysis, validity and reliability pilot studies, and data collection tools. To ensure that the research is conducted responsibly, ethical issues are also covered. The research findings and discussions are outlined in Chapter 4. Chapter 5 outlines the summary, recommendations, results and ideas for additional study.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Theoretical Review**

Theories that serve as the study foundation variable are highlighted in this chapter. They include contingency, modern portfolio, enterprise risk management, and project management theories.

#### **2.1.1 Project Management Theory**

According to Richardson's (2010) project management theory, project teams may ensure that projects are completed successfully and satisfy stakeholders by implementing project management concepts like scope management, cost management, and time management. In addition to helping firms accomplish their strategic objectives, project management theory offers a road map for project success. Furthermore, Richardson (2010) notes that project teams can guarantee that their work is done efficiently and produces the desired results by putting project management concepts into practice through the use of strategies like communication, quality, and stakeholder management. Project management philosophy is essential to achieving project goals and optimizing project outcomes.

The theory of project management, according to Conforto and Amaral (2018), is a thorough framework that describes the concepts, procedures, and practices necessary for effectively organizing, carrying out, overseeing, and wrapping up a project. It includes a range of approaches, instruments, and strategies that assist teams and project managers in efficiently managing time, resources, scope, and quality in order to accomplish project objectives while staying within budgetary and time constraints. According to Shenhar and Dvir (2021), the theory of project management, stakeholder communication, and project outcome evaluation all depend on the following: establishing project objectives and goals, creating a project plan, identifying and managing project risks, allocating resources, and monitoring progress. In order to successfully

navigate the intricacies and unpredictabilities of project contexts, it also highlights the significance of leadership, teamwork, problem-solving, and flexibility.

Shenhar and Dvir (2021) indicate that the project management theory shows that many project management methodologies are too rigid and fail to adapt to the unique needs of individual projects which is detrimental since each project is unique, and forcing them into a rigid framework can stifle creativity and responsiveness. Walker and Kwong (2023) critics on project management theory shows that the predefined structures can sometimes hinder the very adaptability and innovation that project management aims to support. Processes are crucial, but when project managers focus too heavily on following procedures, they often lose sight of the actual objectives and stakeholder needs.

The study can gain from this research because the Homa Bay County can implement the idea of project management to enhance their ability to deliver projects, foster teamwork, boost productivity and efficiency, and ultimately achieve successful project results. In order to successfully negotiate the difficulties and complexities of project management and provide value to stakeholders, project managers can also use this theory as a framework for guidance. Project management theory is explained by the theory.

### **2.1.2 Enterprise Risk Management Theory**

Lam (2014), a well-known authority on risk management, developed the enterprise risk management theory and has made important contributions to the creation and use of enterprise risk management procedures. The way businesses handle and manage risks has been completely transformed by Dr. Lam's work on enterprise risk management theory. He has underlined the significance of a wholistic and integrated approaches to risk management that considers factors

that can influence an organization's objectives both internally and externally. Dr. Lam has offered frameworks and approaches for recognizing, evaluating, and reducing risks in a variety of sectors and businesses through his books and research. His ideas have aided businesses in developing risk management strategies that complement their overall corporate objectives.

According to Bromiley, McShane, Nair, and Rustambekov (2020), ERM theory emphasizes the significance of incorporating risk management into an agency's broader strategic planning and decision-making processes. It recognizes that risks exist in every aspect of an agency's operations and that successful risk management requires a thorough and systematic approach. Nocco and Stulz (2022) highlight the significance of incorporating risk management into strategic planning, asserting that it should not merely function as an isolated entity but rather shape the trajectory of an organization. Schiller and Prpich (2024) state that the most successful Enterprise Risk Management (ERM) strategies stem from a cultural dedication to acknowledging risks at all organizational levels. When employees are equipped with the necessary knowledge and tools, they can transform into essential elements of a strong risk management framework.

The idea is relevant to the research since it addresses identification, assessment, and management of risks that could affect the achievement of a project. Because construction projects are always complex and include many stakeholders, the use of ERM theory can help reduce possible risks and guarantee that projects are done as per the schedule and under budget. The ERM theory encourages construction companies to continuously monitor and assess risks during a project. This is particularly important in Homa Bay County, where factors such as fluctuating weather conditions, regulatory challenges, and resource availability can significantly impact project outcomes. Implementing ERM allows construction firms to proactively address potential issues, leading to improved project efficiency, reduced costs, and timely completion.

### **2.1.3 Modern Portfolio Theory**

Developed by Sharpe and Sharpe (1970) between the 1950s and the beginning of the 1970s, portfolio theory aims to optimize expected return on investment for a specific level of risk in the portfolio. Alternatively, it aims to lower risks for a specific amount of anticipated returns by thoroughly selecting the proportions of the project (Hamimah, 2008). Ritchie and Bridley (2005) define portfolio theory as a mathematical model of investing diversity. Its objective is to choose a collection of investment initiatives with a lower total risk than any one project. Diversification can lower risk even when project outcomes are closely related.

Elton and Gruber (2021) assert that the true strength of Modern Portfolio Theory (MPT) resides in its quantitative methodology for evaluating risk and return. By concentrating on the correlation between portfolio risk and return, investors are empowered to make more informed choices. In accordance with Surtee and Alagidede (2023), it is posited that all pertinent information is already incorporated into asset prices, indicating that consistently "beating the market" is unattainable. They advocate for investors to explore passive index funds as viable alternatives that are in harmony with MPT principles, emphasizing that a well-structured portfolio can yield adequate returns without incurring the substantial expenses linked to active management.

The theory is important to the study because project managers in Homa Bay can strategically select and combine various construction projects, ensuring a balanced approach that maximizes returns while mitigating risks associated with project delays, budget overruns, and resource shortages. Furthermore, this theory encourages the evaluation of different project scenarios and their potential impacts, allowing stakeholders to make informed decisions that lead to more successful project outcomes.

#### **2.1.4 Contingency Theory**

According to Fielder's contingency theory, which was developed in 1960, businesses should have a plan in place to handle any risks that may arise throughout a project. This notion highlights how crucial it is to be ready for unforeseen circumstances that can affect a project's success. In line with this approach, Fielder (1960) suggests that businesses should recognize possible risks, assess their probability of occurrence and impact, and formulate plans to either mitigate or respond to them. This could entail allocating funds, time, or staff to mitigate these risks should they materialize. Thus, companies can improve their odds of successfully finishing projects on schedule and within budget by putting project risk management contingency theory into practice. This method lessens the negative consequences of unforeseen circumstances and enables a more proactive and strategic approach to project management.

The contingency theory's critics contend that it is unduly straightforward and falls short in addressing the intricacies and unpredictabilities of risk management. They contend that the theory fails to take into consideration the dynamic nature of hazards and the requirement for flexible and adaptable measures due to its reliance on preset contingency plans and responses (Barki, Rivard & Talbot, 2017). The contingency theory, according to Kulchmanov, Hassan, and Rashid (2020), makes the assumption that risks can be precisely identified and categorized, which is frequently not the case in actual projects. They argue that because risks are unpredictable and ever-changing, it is challenging to create thorough backup plans that can adequately handle every possible risk.

Contingency theory plays a crucial role in understanding the performance of construction projects in Homa Bay County, Kenya by positing that there is no one-size-fits-all approach to management

and that the effectiveness of a project is contingent upon various internal and external factors. In the context of construction projects, these factors may include the specific characteristics of the project, the environment in which it operates, and the unique challenges faced by the local community. Therefore, application of contingency theory enable the project managers in Homa Bay to design their strategies to better align with the local conditions, resources, and stakeholder expectations, ultimately leading to improved project outcomes.

## **2.2 Empirical Review**

### **2.2.1 Risk Avoidance Strategy and Performance of Projects**

Nturanu and Mundia (2023) investigated the impact of risk avoidance strategies on the success of construction projects within the judiciary at Narok County Courts. The study's target population included 60 employees selected from Narok County Courts, which encompasses Narok Law Courts and Kilgoris Law Courts. Data were gathered from 45 respondents who were involved in the daily operations of the projects at these two courts. A descriptive survey research design was employed for this study. The collected data were analyzed and interpreted. Qualitative data were examined in accordance with the objectives, while quantitative data were analyzed using descriptive statistics. Inferential statistics, specifically correlation and regression analysis, were also utilized. The findings revealed that a majority of the respondents reported a weak correlation between risk avoidance and project success. However, the context of the study was focused on construction projects within the judiciary at Narok County Courts.

Rabechini and Monteiro (2020) did an empirical investigation to ascertain the effects of the project risk avoidance approach on the performance of projects. To identify recurring themes and patterns, the research comprised examining project documentation, interviewing stakeholders and project managers, and evaluating project data. The study team discovered that projects with clearly defined

risk management plans and proactive risk avoidance techniques had a higher chance of achieving their goals, staying within budget, and meeting deadlines. Additionally, the study found that projects that promoted an environment of open communication and teamwork and had strong leadership support for risk management activities were better equipped to recognize and promptly resolve hazards. But the study's use of qualitative data exposed a methodological gap.

The study by Al-Shibly, Louzi, and Hiassat (2021) investigated how employees viewed the success of building projects in relation to risk avoidance tactics. On-site observations of risk management procedures and interviews with construction project managers and risk management staff are examples of primary sources. Academic journals, industry reports, and government publications about building and risk management in Jordan are examples of secondary sources. The study aimed to offer insights and suggestions for improve risk management procedures in Jordanian construction projects by examining the data gathered from primary and secondary sources. The study findings point to a close relationship between risk mitigation techniques and project performance. However, a contextual gap was detected because the study concentrated on construction projects in Jordan.

### **2.2.2 Risk Retention Strategy and Project Performance**

Kahanya and Ondara (2023) evaluated the connection between risk retention strategies and the performance of residential building construction projects in Nairobi County, Kenya. The study focused on a target population of 1024 projects executed by contractors categorized under NCA 1, 2, and 3. Utilizing a stratified random sampling technique, a sample size of 103 projects was determined. A descriptive survey research design was employed. Data analysis was conducted using SPSS for both inferential and descriptive purposes. The findings indicated that risk management strategies and skills significantly and positively influenced the performance of

residential building construction projects in Nairobi, Kenya. However, the study specifically addressed the performance of residential building construction projects within Nairobi County, Kenya.

Using Viope Solutions Ltd. as a case study, Duong's (2020) research examined the effects of risk retention techniques on the performance of micro and small businesses. Use of the qualitative technique, which entailed collecting and evaluating non-numerical data to better comprehend the research issue, assisted the research effort. By employing strategies like observations, interviews, and document analysis, this approach made it possible to investigate intricate phenomena like human behavior, attitudes, and experiences. According to the report, a successful project can be greatly aided by a well-executed project risk retention plan. It would be beneficial for project managers and business leaders to assess and tailor a project retention management strategies for their endeavor. However, compared to the current study, the study's usage of secondary data creates a methodological gap.

Paleologos and Fletcher's (2022) study on risk retention tactics for environmental project management states that environmental organizations are susceptible to liability claims, which can have a big impact on their resources and financial future. The study employed a cross-sectional research approach, which entailed collecting information from a sample of small and medium-sized construction projects at a particular moment in time. The researchers used descriptive statistics to examine the information they had gathered. Nonetheless, most small and medium-sized entities do not rely on intricate risk-management procedures. This study allows the distribution of liability risk across multiple projects and proposes a mechanism that these types of organizations can readily adopt. Nevertheless, the study's cross-sectional research design introduces a methodological gap.

### **2.2.3 Risk Reduction Strategy and Project Performance**

Ali, Norman, Ghani, and Haron (2024) evaluated the impact of risk reduction strategy on the performance of construction projects through a case study. The methodological framework utilized in this research is a case study approach that incorporates the analysis of documented data alongside face-to-face interviews with key stakeholders who possess various roles and responsibilities. These stakeholders include a director, project managers, finance managers, contract managers, and quantity surveyor managers. The findings indicate that the implementation of effective risk management practices has a positive effect on project performance, ultimately leading to project success. However, the lack of knowledge and inadequate communication regarding risk management practices in construction projects contribute to the ineffective implementation of systematic risk management practices in Malaysia. However, the study relied on secondary data.

Tadayon, Jaafar, and Nasri's (2022) study examined how risk reduction techniques influenced the outcome of major construction projects in Iran. This inquiry done using a questionnaires and a review of the literature. The survey questions helped in collecting information for the study. The surveys were distributed to forty-three people via postal and electronic mail in order to reach a wide range of responders. Following completion and return of the questionnaires, statistical techniques were used to review the survey's data. Both descriptive and inferential statistics were used in these techniques to fully comprehend the responses. The study revealed that risk reduction techniques holds a major impact on building project performance. However, the study's focus on Iranian construction projects created a contextual gap.

A study by Bhoola, Hiremath, and Mallik (2022) looked at how risk reduction techniques affect software project performance. Numerous questions about team dynamics, communication tactics,

project management techniques, and overall project success were included in the questionnaire. Following data collection, inferential statistics were employed to examine the correlations among various variables and make judgments regarding the general efficacy of the project management techniques being employed. The findings of this study demonstrated that risk reduction techniques had a significant and notable effect on software project performance. However, there is a contextual vacuum because the study concentrated on software initiatives.

#### **2.2.4 Risk Transfer Strategy and Project Performance**

Bunde, Wagude, Owuor, and Odada (2024) examined the impact of risk transfer on the execution of Kerra Road Construction Projects from 2019 to 2023 in Migori County, Kenya. A concurrent triangulation research design was employed, as it integrates both qualitative and quantitative elements of the research study. The study's target population comprised 92 contractors. Primary data was collected through self-administered questionnaires distributed to contractors and CRC members, while Key Informant Interviews (KII) were carried out with the consulting engineers. The findings indicated that risk transfer strategies are predominantly utilized during the road construction process in Migori County, accounting for 70.0% of the variance in project implementation. However, the study specifically focused on Kerra Road Construction Projects conducted between 2019 and 2023 in Migori County.

Gitonga and Nyang'au (2023) examined the effectiveness of air safety programs in Nairobi County, Kenya, in relation to risk transfer strategy in the civil aviation sector. Using a descriptive research design, the study included 277 KCAA members from the ANS unit stationed throughout Nairobi County as its target demographic. The initial target group of 277 was reduced to a sample size of 164 by applying Slovin's formula. In order to obtain primary data, surveys were disseminated during the data gathering period. Following that, both inferential statistical and descriptive

techniques were employed to aggregate as well as interpret the gathered data. The findings demonstrated a robust and positive correlation between risk transfer strategies and the accomplishment of air transport safety initiatives in air transport industry. However, the survey only looked at initiatives in Nairobi County, which revealed a contextual gap.

Odhiambo and Senelwa (2021) looked into how the project risk transfer technique affected the long-term viability of NGO healthcare programs in South Nyanza, Kenya. Project managers in charge of regional healthcare programs supported by NGOs formed the study's target population. To examine 93 project managers from 93 NGO initiatives in South Nyanza, a census research design was applied. The application of risk transfer strategies considerably increases project lifespan, as indicated by the results. It indicates that, one all the necessary elements are held equal, a significant improvement in project sustainability within businesses results from a greater use of risk transfer methodologies. However, because the study only examined the sustainability of healthcare programs for NGO's in South Nyanza, Kenya, it contains a conceptual gap.

## 2.3 Summary of Reviewed Literature and Research Gaps

**Table 2.1: Reviewed Literature and Research Gap Summary Table**

<b>Name</b>	<b>Study title</b>	<b>Finding</b>	<b>Gap</b>	<b>Current focus</b>
Al-Shibly, Louzi, and Hiassat (2021)	Employee perceptions of the impacts of risk avoidance techniques on building project success	Project performance and risk mitigation strategies are strongly correlated.	The study showed a contextual gap because it focused on construction projects in Jordan.	The focus was performance of construction projects in Homa Bay County, Kenya
Bhoola, Hiremath, and Mallik (2018)	How risk-reduction techniques affect software project results	Risk reduction techniques had favorable and substantial impacts on performance of software projects.	There was contextual gap that existed because the study concentrated on software project	The focus was performance of construction projects in Homa Bay County, Kenya
Duong (2020)	Using Viop Solutions Ltd., this study examines how risk retention strategy impact micro and small business performance.	The project success can be greatly improved by a well-executed project risk retention plan.	Comparing the study to the current one, there is a methodological gap because secondary data was employed.	Primary data to be used
Gitonga and Nyang'au (2023)	Execution of air safety projects in connection with risk transfer tactics in the civil aviation sector	There existed a strong and favorable relationship between risk transfer and the success of air safety programs in the air transport industry.	The research only looked at projects in Nairobi County, which revealed a contextual gap.	The focus was performance of construction projects in Homa Bay County, Kenya

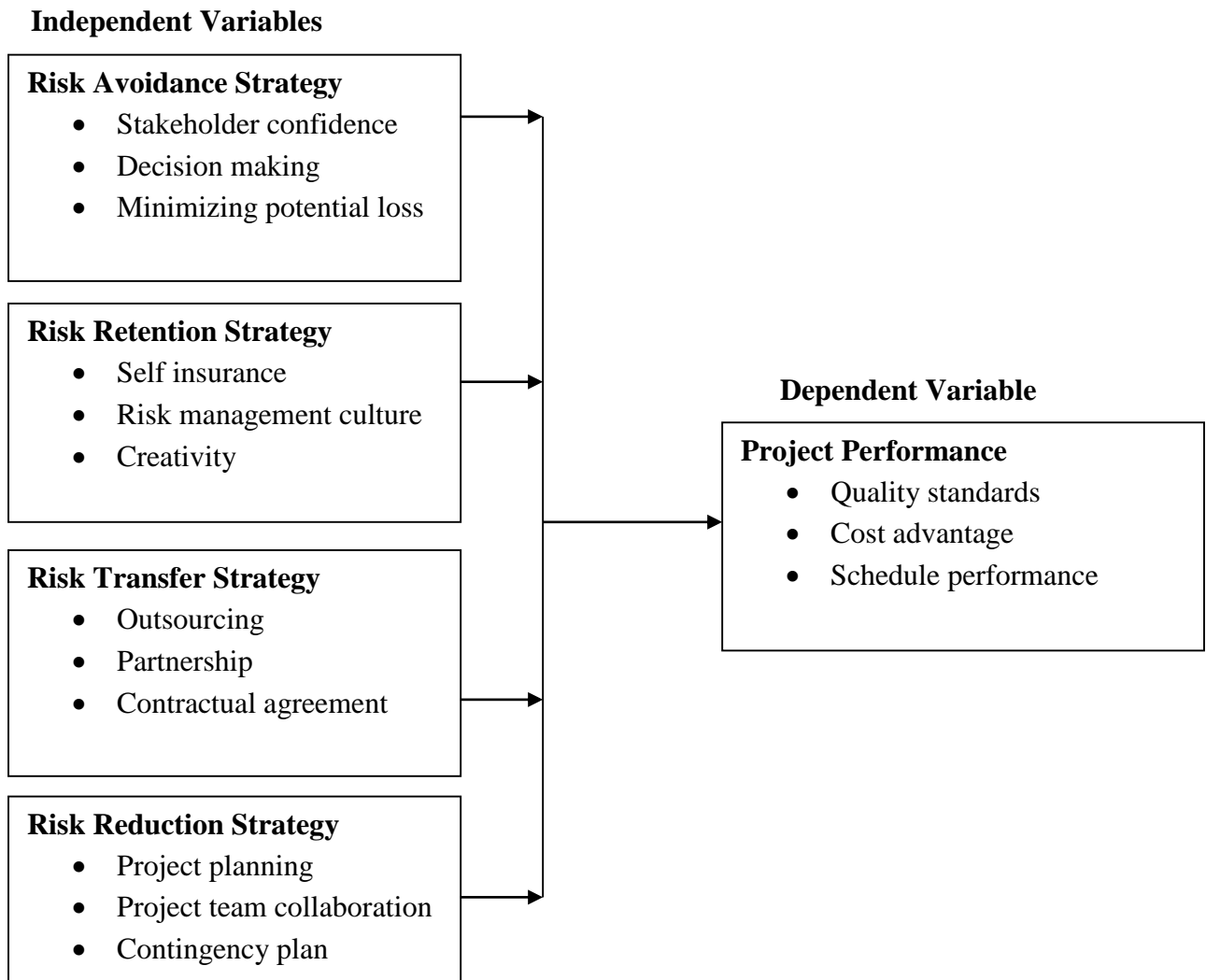
Nturanu and Mundia (2023)	Impact of risk avoidance strategies on the success of construction projects within the judiciary at Narok County Courts	Majority of the respondents reported a weak correlation between risk avoidance and project success	The context of the study was focused on construction projects within the judiciary at Narok County Courts	The focus was performance of construction projects in Homa Bay County, Kenya
Kahanya and Ondara (2023)	Connection between risk retention strategies and the performance of residential building construction projects in Nairobi County, Kenya	Risk management strategies and skills significantly and positively influenced the performance of residential building construction projects	The study specifically addressed the performance of residential building construction projects within Nairobi County, Kenya	The focus was performance of construction projects in Homa Bay County, Kenya
Ali, Norman, Ghani, and Haron (2024)	Risk reduction strategy on the performance of construction projects through a case study	The implementation of effective risk management practices has a positive effect on project performance, ultimately leading to project success	The study relied on secondary data	The study used primary data
Odhiambo and Senelwa (2021)	Risk transfer strategy and project sustainability	Project lifespans are significantly increased by the use of risk transfer techniques.	The study's exclusive focus on the sustainability of NGO healthcare initiative projects in South Nyanza, Kenya, creates a conceptual gap.	The focus was performance of construction projects in Homa Bay County, Kenya

Bunde, Wagude, Owuor, and Odada (2024)	Impact of risk transfer on the execution of Kerra Road Construction Projects from 2019 to 2023 in Migori County, Kenya	risk transfer strategies are predominantly utilized during the road construction process in Migori County, accounting for 70.0% of the variance in project implementation	The study specifically focused on Kerra Road Construction Projects conducted between 2019 and 2023 in Migori County	The focus was performance of construction projects in Homa Bay County, Kenya
Paleologos and Fletcher (2022)	The methods for retaining risk in environmental project management	A system that allows liability risk to be distributed among multiple projects and is simple for these enterprises to execute	There is a methodological gap because the survey used a cross-sectional research approach.	A descriptive research design will be used
Rabechini and Monteiro (2020)	Analyze the effects of the project risk avoidance strategy on project performance.	Projects that promoted a culture of open communication and cooperation and had strong leadership support for risk management initiatives were better equipped to recognize and promptly resolve hazards.	Qualitative data	Quantitative data used
Tadayon, Jaafar, and Nasri (2022)	The effect of risk mitigation techniques on the accomplishment of major construction projects in Iran	Risk mitigation techniques have a major effect on building projects' performance.	The study concentrated on construction projects in Iran, which created a contextual gap	The survey focused on performance of construction projects in Homa Bay County, Kenya



## 2.4 Conceptual Framework

Figure 2.1: Conceptual Framework



Source: Researcher (2018)

## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Research Design

The study used a descriptive design. A descriptive study strategy is used to identify and outline the aspects under investigation in a given scenario, claims Siedlecki (2020). Giving the researcher a comprehensive overview or highlighting pertinent elements of the phenomenon of interest from the viewpoint of an individual, an organization, a certain industry, or another standpoint is the primary objective of a descriptive study. Therefore, the application of descriptive research design played a crucial role in assessing the performance of selected projects undertaken by the Homa Bay County and also allowed for a comprehensive examination of various aspects of project performance.

### 3.2 Target Population

Orodho (2005) indicated that a target population is a sizable group of individuals from which a sample population is drawn (Cooper, Schindler & Sun, 2011). Seven building projects in Kenya's Homa Bay County that began in 2019 and were completed by 2024 were the focus of this study. The study involved 85 participants, including 7 project managers and 78 project team members from Homa Bay County, Kenya.

**Table 3.1: Target Population**

<b>Respondents</b>	<b>Population</b>
Project team members	78
Project managers	7
<b>Total</b>	<b>85</b>

### 3.3 Sample Design and Sample Size

Sampling procedures are defined by Fowler (2013) as the process of choosing cases for observation, describing the particular subjects to be included in the study and how they were

chosen from the target group. On the flip side, Hair, Wolfinbarger, Money, Samouel, and Page (2015) contend that when the research population is small, the entire population should be examined rather than sampling. As a result, a census of 85 respondents was conducted.

### **3.4 Data Collection Instruments**

The major technique for gathering data for the survey was a partially structured questionnaire. The aim of this study was to gather primary data from respondents, including both qualitative and quantitative information. Both open-ended and closed-ended questions were included in the poll. Participants are more likely to provide thorough and detailed responses to open-ended questions, which makes it easier to gather qualitative data. On the other hand, for closed-ended questions, participants were provided with a predetermined set of likert scale response options. The Likert Scale allows respondents to give more detailed responses by providing various answer choices, typically spanning from strongly disagree to strongly agree (Batterton and Hale, 2017). The questionnaire was organized in six sections, From A to F. Section A contains data gathered from demographics of the participants; Section B had findings related to risk avoidance strategies; Section C compiled data on risk retention strategies; Section D contained data on risk reduction strategies; Section E gathered data on risk transfer strategies; and Section F gathered data on project performance.

### **3.5 Pilot Study**

Before collecting the real data, there must be a pilot study on a sample of eight respondents who were left out of the main research. The pilot survey evaluates the efficacy of the research methods and validate the reliability and validity of the research tools. Furthermore, it helps to identify any internal variability, improving the research instrument's objectivity (Saunders, 2011).

### **3.5.1 Validity of the Instrument**

By assessing the instrument's validity, one can evaluate the accuracy of measurement scales and determine how well the intended constructs have been measured (Sjostrom, Holst & Lind, 2021). As part of the content validity procedure, the questionnaire's questions had to be thorough and pertinent so as to capture the survey's desired constructs or variables. This helped to ascertain that the data acquired for evaluation and interpretation was reliable and accurate. Finding any possible holes or places for development in the questionnaire was made possible thanks in large part to the supervisor's and the research experts' input. The overall quality and validity of the research instrument were improved by this iterative evaluation and improvement procedure.

### **3.5.2 Reliability of the Instruments**

Reliability of data or outcomes of a research instrument generated throughout several trials is what determines its reliability (Golafshani, 2013). The researcher calculated the Cronbach's alpha coefficient to evaluate the questionnaires' reliability. Greater internal consistency is indicated by more values of this coefficient, which ranges from 0 to 1. A perfect reliability score of 1 indicates that all of the questionnaire's items assess the same concept and that there is no measurement error (Rulon, 2015). The author claims that a 70% (0.7) coefficient is a reliable rule of thumb while collecting data as recommended by Mugenda and Mugenda (2003). Therefore, the study's objective is to achieve a 0.7 correlation coefficient.

### **3.6 Data Collection Procedure**

The survey analyst sought to contact the county administrator to explain that they were doing an organizational study, to talk about the importance of the study, and to ascertain how much help the management needed to give. After two weeks, independently completed questionnaire were given

to the identified participants. A week later, the researcher contacted the participants again to prompt them about questionnaires collection date.

### **3.7 Data Analysis and Presentation**

Before being grouped into pertinent themes that reflect significant information, the data collected from the surveys underwent initial editing, cleaning, and classification. The theme analysis and narrative presentation of the qualitative information gathered using the open-ended questions were done in accordance with the aim of the research. In contrast, descriptive statistics, which include measures like mean and standard deviation, were employed to evaluate the quantitative data. Version 21.0 of the Statistical Package for the Social Sciences (SPSS) was used to support this study. The findings were displayed in charts, graphs, and tables.

In particular, inferential statistics were applied using multiple regression analysis that assesses the connection and level of influence across variables. The regression equation was calculated based on the formula below:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3+ \beta_4X_4 + \epsilon$$

Thus:  $X_1$  stands for Risk Avoidance Strategy

$X_2$  stands for Risk Retention Strategy

$X_3$  stands for Risk Transfer Strategy

$X_4$  stands for Risk Reduction Strategy

$Y$  stands for Project Performance

$\beta_1$  to  $\beta_4$  Stands for coefficients

$\epsilon$  stand for error term

### **3.8 Diagnostic Tests**

The research conducted the subsequent diagnostic assessments: a multicollinearity test, a normality test, and an autocorrelation test.

#### **3.8.1 Multicollinearity Test**

The multicollinearity assessment was done to ascertain the extent of correlation among the independent variables within the regression model (Kim, 2019). As noted by Shrestha (2020), significant multicollinearity can lead to a rise in the variance of coefficient estimate, thereby diminishing the reliability of the model's predictions. Consequently, the research sought to identify and mitigate multicollinearity in order to improve the model's interpretability and ensure that the distinct impacts of each predictor variable could be evaluated with precision. According to Obite, Olewuezi, Ugwuanyim and Bartholomew (2020), the variance inflation factor (VIF) is a way to measure multicollinearity, with values from 1 (indicating no correlation) to those above 5 (signifying strong correlation). A VIF higher than 5 is generally desired to prevent multicollinearity problems in regression analysis.

#### **3.8.2 Normality Test**

This test was undertaken to establish if the errors identified in the regression model adhered to a normal distribution. This premise is vital in numerous statistical analyses, as any deviations can result in biased estimates and compromise the integrity of hypothesis testing (Ghasemi & Zahediasl, 2022). Consequently, by evaluating the normality of the residuals, the research aimed to verify that the assumptions of the model were satisfied, thus enhancing the reliability of the results.

### **3.8.3 Autocorrelation Test**

An autocorrelation test was conducted to assess the presence of autocorrelation within the residuals, a phenomenon that arises when residuals exhibit correlation over time or space (Breusch, 2018). According to Sokal and Wartenberg (2022), the presence of autocorrelation may suggest that the model overlooks essential variables or that there is an unaddressed temporal structure within the data. Consequently, by detecting any instances of autocorrelation, the research sought to enhance the model and increase its predictive precision.

### **3.9 Ethical Consideration**

Establishing a defined protocol, verify the validity of the researcher, and outlining the use of the results are essential for maintaining ethical standards throughout the data gathering phase. Consequently, the researcher acquired the essential documents, such as the university introduction letter along with a research permit from the National Commission for Science and Technology (NACOSTI). This strategy gave prospective participants the information they needed to determine whether to take part in the research or not. The research failed to reveal the respondents' identities in order to protect their privacy. Instead, the researcher employed codes to protect the privacy of the information gleaned from the recorded responses.

## CHAPTER FOUR: RESEARCH FINDING AND DISCUSSION

### 4.1 Introduction

Findings obtained from field data are presented in tables and figures in this chapter, along with an interpretation of the results backed up by pertinent literature. The sections of the chapter include the response rate, background information of the respondents, the descriptive statistics results, the diagnostic tests and inferential statistics results.

### 4.2 Response Rate

The rate of response was determined from 85 questionnaires distributed to all sampled respondents, with the findings indicated in the Table 4.1.

**Table 4.1: Response Rate**

<b>Division</b>	<b>Frequency</b>	<b>Percentages</b>
Questionnaires obtained from participants	79	92.9%
Questionnaires not obtained	6	7.1%
<b>Total</b>	<b>85</b>	<b>100</b>

While the non-response rate was 7.1%, the study had a rate of response 92.9%. Consequently, the high response rate suggests that individuals are highly engaged and interested, suggesting that the findings are likely to be representative of the target population. In addition, these results underscore the significance of participant involvement in research and the impact it has on the validity and applicability of the outcomes of the study as recommended by Deutskens, Ruyter, Wetzels and Oosterveld (2019).

### 4.3 Reliability Test Results

The research employed the Cronbach's alpha test to assess how reliable the questionnaire items were. The results are displayed in the below table.

Table 4.2: Results for Reliability Test

Variables	$\alpha$ -value
Risk avoidance strategy	0.778
Risk retention strategy	0.709
Risk reduction strategy	0.768
Risk transfer strategy	0.706
Project performance	0.719
<b>Aggregate score</b>	<b>0.736</b>

The results demonstrate that the alpha values obtained on every variable was above 0.7 with an aggregate score of 0.736. Therefore, it was determined that the questionnaire demonstrated reliability.

#### 4.4 Respondents' Demography

The demographic information of the respondents was derived from their gender, maximum educational achievement, and their professional background.

##### 4.4.1 Gender

The findings of determining the respondents' gender are indicated in Figure 4.1.

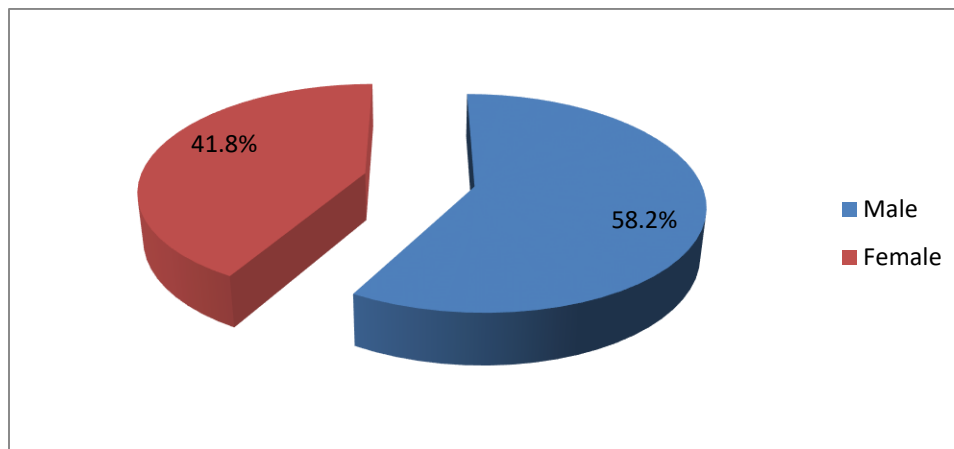


Figure 4.1: Gender

The research findings revealed a notable gender disparity among the participants, with male participants making up 58.2% of the total, while female participants accounted for 41.8%. This demographic breakdown is particularly significant as it provides insight into the representation of genders within the context of risk management techniques within the construction industry.

**4.4.2 Educational Attainment**

The findings of an evaluation of the educational background of the participants are displayed in table 4.3

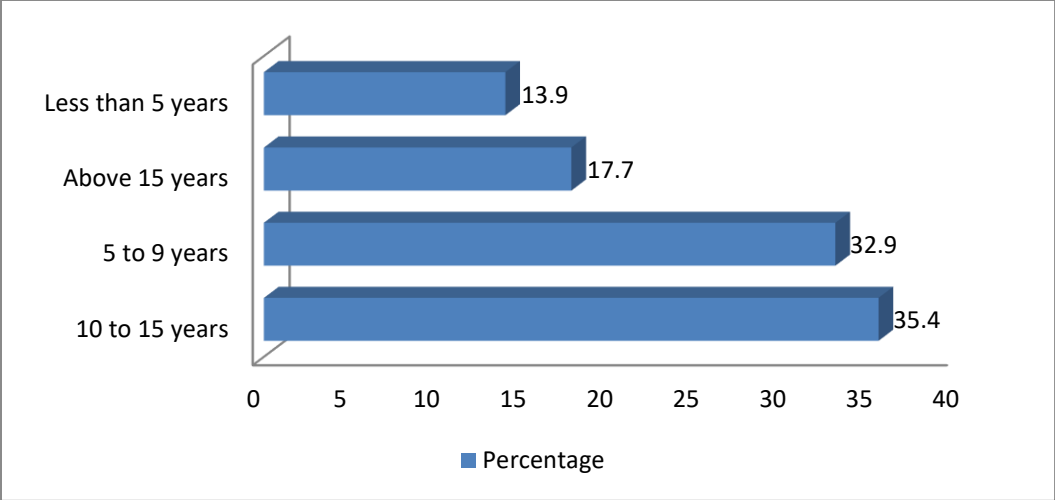
**Table 4.3: Educational Attainment**

<b>Level</b>	<b>Frequency</b>	<b>Percentage</b>
Diploma	22	27.8
Post graduate diploma	7	8.9
Bachelor degree	38	48.1
Master degree	12	15.2
<b>Total</b>	<b>79</b>	<b>100</b>

The study indicated that a substantial portion of the participants, specifically 48.1%, held a bachelor's degree, while 27.8% possessed a diploma. Additionally, 15.2% had obtained a degree in Masters, while 8.9% had completed a postgraduate diploma. These qualifications are crucial for understanding the correlation between strategies for minimizing risk and performance of the construction projects in Homa Bay, as a well-educated workforce is better equipped to identify and mitigate risks.

**4.4.3 Professional Experience**

The professional backgrounds of the participants were evaluated, and the results are presented in Figure 4.2.



**Figure 4.2: Professional Experience**

The findings presented show that a significant portion of the participants, specifically 35.4%, possessed professional experience spanning from 10 to 15 years. This was followed by 17.7% of respondents with experience spanning from 5 to 9 years, 13.9% with over 15 years of experience, and a smaller group of less than 5 years of experience. These results underscore the importance of leveraging the diverse experience levels of professionals in Homa Bay County, Kenya, so as to enhance the implementation of risk management approaches. The varying degrees of experience amongst the respondents suggest that a collaborative approach, integrating insights from both seasoned professionals and newer entrants, could lead to more effective risk management practices.

**4.5 Descriptive Statistics Results**

The research examined quantitative data through the application of descriptive statistics, focusing on the standard deviation and mean. The following segments present the results as per specific variable.

#### 4.5.1 Risk Avoidance Strategy

**Table 4.4: Risk Avoidance Strategy**

Statements	SD (%)	D(%)	N(%)	A(%)	SA(%)	M	SD
A risk avoidance strategy increases stakeholder confidence, which in turn boosts their support, collaboration, and dedication, ultimately increasing project results.	6.3	12.7	0	35.4	45.6	3.81	1.79
The confidence of stakeholders is strengthened when a clearly articulated risk avoidance strategy is established.	2.5	10.1	5.1	53.2	29.1	4.63	0.37
A risk avoidance strategy enables project managers to make well-informed decisions by evaluating different scenarios and their possible repercussions.	13.9	8.9	0	50.6	26.6	3.47	1.53
The implementation of a risk avoidance strategy improves decision-making abilities, resulting in more favorable project results.	24.1	10.1	3.8	41.8	20.3	3.9	1.1
By minimizing potential losses, project managers can take proactive measures to mitigate risks prior to their occurrence.	8.9	16.5	6.3	43.1	25.3	4.51	0.49
The avoidance of potential risks contributes to a reduction in the likelihood of	13.9	18.9	7.6	36.7	22.8	4.09	0.91

losses, thereby lessening the impact on project results.							
<b>Aggregate score</b>						<b>4.07</b>	<b>1.03</b>

81.0% of respondents concurred with the statement that a risk avoidance strategy increases stakeholder confidence, which in turn leads to increased support, cooperation, and commitment from stakeholders, ultimately improving project outcomes, according to Table 4.4's results. The respondents who disagreed were only 19.0%. The survey found that while 12.6% of respondents disagreed, 82.3% of respondents agreed that stakeholders' confidence is increased when they observe a clearly defined risk avoidance strategy in place. By taking into account different scenarios and their possible outcomes, a risk avoidance strategy assists project managers in making well-informed decisions, according to the majority of respondents (77.2%), while 22.8% disagreed.

According to the survey, the majority of participants (62.1%) concurred that using a risk avoidance technique improves decision-making skills, which in turn leads to improved project outcomes. 3.8% were neutral, and 34.2% disagreed. 68.4% of participants concurred with the statement that project managers can proactively address risks before they arise by minimizing possible loss, while 25.4% disagreed and 6.3% were undecided. While 32.8% disagreed and 7.6% expressed neutrality, the majority of respondents (59.5%) agreed that avoiding potential risks helps lower the likelihood of incurring losses and reduces the impact on project outcomes. The respondents agreed on every assertion about how risk avoidance techniques affect the performance of building projects in Homa Bay County, as evidenced in the 4.07 score for the overall mean and 1.03 for the standard deviation value.

These results align with previous research by Kinyua, Ogollah, and Mburu (2017) which emphasized the importance of risk management in building stakeholder trust and facilitating proactive measures. These findings also support the conclusions drawn from a previous study by Rabechini and Monteiro (2020), which also underscored the significance of risk management strategies in enhancing project outcomes that effective risk management is not only beneficial but essential for achieving favorable project results.

#### 4.5.2 Risk Retention Strategy

**Table 4.5: Risk Retention Strategy**

<b>Statements</b>	<b>SD (%)</b>	<b>D(%)</b>	<b>N(%)</b>	<b>A(%)</b>	<b>SA(%)</b>	<b>M</b>	<b>SD</b>
Self-insurance allows for the reallocation of funds, which can be reinvested into the project, resulting in enhanced outcomes.	3.8	0	0	62.1	34.2	4.54	0.46
Self-insurance provides comprehensive protection and aligns more closely with the project's goals and objectives.	15.2	7.6	0	51.9	25.3	3.29	1.71
A culture of risk management instills a sense of accountability and responsibility among members of the project team.	20.3	13.9	7.6	35.4	22.8	4.12	0.88
A risk management culture encourages a learning atmosphere within the project team.	31.6	21.5	0	22.8	24.1	4.55	0.45
Effectively managing risks presents opportunities for	11.4	6.3	1.3	51.9	29.1	3.57	1.43

innovation and growth within the project.							
Embracing calculated risks can cultivate a creative and resilient culture within the team, ultimately contributing to the project's greater success.	17.8	15.2	10.1	32.9	24.1	4.76	0.24
<b>Aggregate score</b>						<b>4.14</b>	<b>0.86</b>

As indicated by survey, the majority of respondents (96.3%) agreed that self-insurance frees up money that can be used to improve project outcomes, while 3.8% disagreed. 77.2% of respondents agreed with the assertion that self-insurance results in more comprehensive protection and better alignment with the project's goals and objectives, while 22.8% disagreed. 34.2% of respondents disagreed, 7.6% said they were neutral, and 58.2% agreed that a risk management culture encourages a sense of accountability and responsibility among project team members. According to the survey, 46.9% of respondents agreed and 53.1% disagreed that a risk management culture fosters a learning environment within the project team. 80.0% of respondents supported the statement indicating that limiting risk gives the project opportunities for innovation and growth, 17.7% disagreed, and 1.3% expressed neutrality. While 33.0% disagreed and 10.1% indicated indifferent, the majority of respondents (57.0%) said that taking measured risks can assist the team create a creative and resilient culture, which will ultimately contribute to the project succeeding more.

The average mean together with standard deviation for all statements were recorded at 4.14 and 0.86, respectively. This statistical data indicates a common agreement among the respondents regarding the efficiency of the risk retention strategy in influencing the performance of construction project in Homa Bay County. 4.14 mean score value shows that, on average,

participants rated their agreement with the statements positively, leaning towards the higher end of the scale, which typically indicates a strong belief in the positive impact of the risk retention strategy.

These findings are in agreement with previous study by Oehmen, Olechowski, Kenley, and Ben-Daya (2019) which observe that emphasizes the positive impact of self-insurance, risk management, and calculated risk-taking on project outcomes. These findings also align with available literature by Duong (2020) which show the benefits of proactive risk management in creating a collaborative team environment whereby by promoting a risk-conscious culture, organizations can empower teams to navigate uncertainties confidently, driving accountability and growth.

### 4.5.3 Risk Transfer Strategy

**Table 4.6: Risk Transfer Strategy**

<b>Statements</b>	<b>SD (%)</b>	<b>D(%)</b>	<b>N(%)</b>	<b>A(%)</b>	<b>SA(%)</b>	<b>M</b>	<b>SD</b>
Outsourcing enhances project performance, as specialized professionals manage the outsourced tasks, resulting in high-quality outcomes delivered with greater efficiency.	12.7	7.6	0	39.2	40.5	4.61	0.49
Outsourcing contributes to the timely and cost-effective completion of projects, as the outsourcing partner can supply the essential resources needed to fulfill project demands.	8.9	10.1	3.8	44.3	32.9	4.07	0.93
By collaborating with other organizations or individuals,	22.8	11.4	5.1	37.9	22.8	4.53	0.47

project managers distribute the risks and responsibilities associated with the project.							
Collaboration fosters a more varied approach to risk management, as each participant brings their distinct resources and expertise to the table.	30.4	16.5	6.3	32.9	13.9	4.01	0.99
Through contractual agreements, project managers can allocate specific risks to contractors, suppliers, or other stakeholders by incorporating particular clauses within the contracts.	11.4	5.1	0	58.2	25.3	4.42	0.58
Contractual agreements enable project managers to utilize their expertise and resources to effectively oversee and mitigate those risks.	20.3	13.9	2.5	40.5	22.8	4.23	0.77
<b>Aggregate score</b>						<b>4.31</b>	<b>0.71</b>

The results indicate that while 20.3% of respondents disagreed, the majority (79.7%) agreed that outsourcing improves project performance since the tasks are managed by professionals who can produce high-quality outcomes more quickly. Most respondents (77.2%) agreed with the statement that outsourcing helps guarantee that projects are finalized within the allocated time and under budget because the outsourcing partner can supply the required resources to meet project requirements, while 19.0% disagreed and 3.8% were neutral. Most of the respondents (60.7%) agreed that project managers share project-related risks and responsibilities by collaborating with other companies or persons; 34.2% disagreed, and 5.1% selected "neutral." While 46.9% disagreed and just 6.3% indicated indifferent, 46.8% of respondents agreed that partnerships enable a more varied approach to risk management because each participant contributes their special resources

and areas of expertise. By incorporating particular stipulations in contracts, project managers can transfer certain risks to suppliers, contractors, or other stakeholders, according to the majority of respondents (83.5%), while 16.5% disagreed. Most respondents (63.3%) supported the statement that contractual agreements enable project managers to use their skills and experience to efficiently manage and minimize those risks, while 34.2% disagreed and 2.5% expressed neutrality. The respondents appeared to agree with all of the claims about how risk transfer mechanisms influence the success of building initiatives in Homa Bay County, Kenya, as indicated in the overall average and standard deviation scores of 4.31 and 0.71, respectively.

These findings justifies previous research by Tadayon, Jaafar, and Nasri (2022) highlighting the advantages of outsourcing and collaboration in project management, which can lead to better outcomes, increased innovation, and greater adaptability. This supports previous study by Nderitu and Josphat (2019) that emphasize how structured contracts clarify responsibilities and enhance accountability. This finding also aligns with Mu, Peng and MacLachlan (2019) study that emphasized the importance of effective risk management in improving project outcomes by demonstrating that adopting risk transfer strategies, like insurance and contractual agreements, can greatly mitigate potential losses and uncertainties related to construction projects.

#### 4.5.4 Risk Reduction Strategy

**Table 4.7: Risk Reduction Strategy**

<b>Statements</b>	<b>SD (%)</b>	<b>D(%)</b>	<b>N(%)</b>	<b>A(%)</b>	<b>SA(%)</b>	<b>M</b>	<b>SD</b>
A risk mitigation strategy enhances project managers' understanding of the potential vulnerabilities within a	8.9	20.2	6.3	39.2	25.3	3.96	1.04

project, enabling them to devise appropriate plans.							
A risk mitigation strategy facilitates more precise scheduling, resource distribution, and budgeting, resulting in enhanced project planning and execution.	13.9	7.6	2.5	44.3	31.6	4.66	0.54
A risk mitigation strategy promotes collaboration among project teams to identify and address potential risks effectively.	17.7	12.7	0	40.5	29.1	3.67	1.33
The adoption of a risk mitigation strategy fosters a culture of proactive risk management and heightened risk awareness within the project team.	21.5	15.2	7.6	25.3	30.4	4.5	0.5
A contingency plan equips individuals and organizations to handle unforeseen events or emergencies effectively.	16.5	10.1	3.8	32.9	36.7	3.76	1.24
Contingency plans play a crucial role in recognizing potential hazards and formulating strategies to mitigate them.	18.9	16.5	0	27.8	36.7	4.56	0.44
<b>Aggregate score</b>						<b>4.19</b>	<b>0.85</b>

The findings indicated that most participants (64.5%) concurred with the statement that risk reduction strategies help project managers in gaining a comprehensive knowledge of the possible weaknesses of the initiative and plan accordingly, while 29.1% disagreed and 6.3% expressed neutrality. The majority of respondents (75.9%) agreed that using a risk reduction strategy

improves project planning and execution by enabling more precise scheduling, resource allocation, and budgeting; 21.5% disagreed, and 2.5% said they were neutral. Based on the study, 30.4% of respondents disagreed with the majority (69.6%) who agreed that a risk reduction approach promotes project teams to collaborate in order to identify and resolve potential hazards. According to the survey, Most respondents (55.7%) consented that implementing a risk reduction approach aids in developing a proactive risk management and risk awareness mindset within the project team. Of those, 36.7% disagreed, and 7.6% claimed they were neutral. A contingency plan guarantees that people and organizations are ready for unforeseen catastrophes or emergencies, according to 69.6% of respondents; 26.6% disagreed, and 3.8% said they were neutral. The majority of respondents (64.5%) endorsed the claim that contingency plans help identify potential hazards and create methods to reduce them, while 35.4% disagreed. The results show that there was agreement on the claims about how risk reduction techniques affected the performance of building projects in Homa Bay County, Kenya, with the total mean score and standard deviation being 4.19 and 0.85, respectively.

These findings align with Macharia and Kirui (2018) research which found that organizations that prioritize risk reduction and cultivate a proactive risk management culture are better equipped to navigate uncertainties and achieve their project goals. These insights align with Gitonga and Nyang'au (2023) study that advocate for a collaborative approach to risk management, suggesting that when project teams engage in collective risk assessment and mitigation efforts, they are better positioned to navigate uncertainties and enhance project outcomes. This outcome also aligns with previous research by Dai and Wells (2022) which found that effective risk reduction strategies can result in better project outcomes, including enhanced efficiency, reduced costs, and timely completion.

#### 4.5.5 Project Performance

**Table 4.8: Performance of the Project**

Statements	SD (%)	D(%)	N(%)	A(%)	SA(%)	M	SD
The project quality is influenced by the application of risk management strategies.	39.2	29.1	6.3	13.9	11.4	2.96	2.04
Through the adoption of risk management techniques, the company is able to develop a project that satisfies its clients.	26.6	35.4	12.7	20.3	5.1	3.12	1.08
Using risk management techniques reduces project costs	32.9	24.1	5.1	20.3	17.7	2.38	2.62
<b>Aggregate score</b>						<b>2.82</b>	<b>1.91</b>

The findings show that while 25.3% of respondents agreed and 6.3% stated neutrality, the majority of respondents (69.3%) disagreed that risk management strategies determine the project's quality. The majority of respondents (62.0%) disputed that a corporation may use risk management strategies to build a project that pleases its clients; 25.4% agreed, while 12.7% indicated they were neutral. The majority of respondents (57.0%) disagreed with the assertion that employing risk management approaches lowers project costs, while 38.0% agreed and 5.1% expressed neutrality. The large standard deviation of 2.04 implies significant variances in respondents' experiences, whereas the mean score of 2.96 for project quality suggests some anticipated potential influence. The slightly higher mean client satisfaction score of 3.12 indicates some confidence, but among other things, the standard deviation of 1.08 indicates doubt. The ambiguity around the financial benefits of risk management procedures is highlighted by the lowest mean score of 2.38 for cost reduction and a high standard deviation of 2.62.

This result is in contrary to Chua Loh, Kog, and Jaselskis (2020), research observation that assessing project performance involves completing projects on time and within budget, ensuring alignment with company strategy, and meeting customer satisfaction. The finding is also in contrary to Ahsan and Gunawan (2020) research observation that evaluating project progress based on schedule adherence entails evaluating the impact of any schedule deviations on the overall project timeline.

## 4.6 Diagnostic Test Result

### 4.6.1 Multicollinearity Test

**Table 4.9: Multicollinearity Test**

<b>Collinearity Tests</b>		
<b>Variables</b>	<b>Tolerance</b>	<b>VIF</b>
Risk transfer strategy	0.791	2.104
Risk retention strategy	0.786	3.025
Risk avoidance strategy	0.705	2.264
Risk reduction strategy	0.669	1.246

The study reveals key insights into the efficiency of risk mitigation strategies in construction projects in Homa Bay County, Kenya. Tolerance values indicate how reliable each strategy is in mitigating risks. The risk avoidance strategy has a tolerance value of 0.705, showing moderate effectiveness in eliminating risks, though some residual risks may remain. In contrast, the risk retention strategy, with a higher tolerance of 0.786, suggests stakeholders accept certain risks, which can be beneficial when avoidance costs are high. The risk transfer approach, with a tolerance value of 0.791, effectively shifts risk responsibility to third parties, enhancing project stability. Conversely, the risk reduction strategy has the lowest tolerance value of 0.669, indicating limitations in its effectiveness, suggesting that a combination of strategies may be needed for

optimal risk management. The Variance Inflation Factor (VIF) values further clarify the correlation among these strategies, with values of 2.264 for risk avoidance, 3.025 for risk retention, 2.104 for risk transfer, and 1.246 for risk reduction. This is according to Cooper and Schindler, 2011) who observe that a VIF greater than 10 and above is interpreted to indicate a problem of multicollinearity that can affect the study's finding.

#### 4.6.2 Normality Test

**Table 4.10: Normality Test**

Variable	Statistic	Sig.
Risk reduction strategy	0.703	0.302
Risk avoidance strategy	0.771	0.245
Risk retention strategy	0.697	0.304
Risk transfer strategy	0.758	0.119
Project performance	0.795	0.297

The normality test results reveal important perspective in the distribution of statistical values for various risk management strategies as well as their effects on project performance. The values for risk avoidance, retention, transfer, reduction strategies, and project performance are 0.771, 0.697, 0.758, 0.703, and 0.795, respectively, indicating a general adherence to normal distribution, essential for many statistical analyses. Additionally, the significance values for these strategies 0.245, 0.304, 0.119, 0.302, and 0.297 suggest that the data do not significantly deviate from normality, as they exceed the 0.05 threshold. This implies that the assumptions for further statistical analyses, like regression or correlation, are likely satisfied. Furthermore, the significance values suggest that these strategies are implemented consistently with normal practices, potentially leading to more predictable and favorable project performance.

### 4.6.3 Autocorrelation Test

**Table 4.11: Autocorrelation Test**

Variable	Durbin Watson
Risk reduction strategy	2.685
Risk avoidance strategy	2.685
Risk retention strategy	2.061
Risk transfer strategy	3.524
Project performance	2.245

The Durbin-Watson statistic helps detect autocorrelation in regression residuals, with values near 2 indicating no autocorrelation. A value of 2.685 for the risk avoidance strategy suggests slight negative autocorrelation, implying that past project performance has a weak influence on current outcomes. In contrast, the risk retention strategy's statistic of 2.061 indicates a stable relationship with past performance affecting current results more directly. The risk transfer strategy's high statistic of 3.524 indicates strong negative autocorrelation, suggesting that performance outcomes may inversely relate to past performance due to the nature of transferring risks. Lastly, the risk reduction strategy, with a statistic of 2.297, indicates moderate negative autocorrelation.

## 4.7 Regression Analysis Results

To evaluate intensity and direction of the associations between a number of independent factors and dependent variables of interest, the study performed a regression analysis, providing insights into how changes in the independent variables might influence the outcome. The findings are presented as follows:

### 4.7.1 Summary of Models

**Table 4.12: Summary of Models**

Model	R	R Square	Adjusted R Square	Std. Error Estimate
1	.809	.654	.623	0.0025

The analysis reveals a significant positive relation (R-value - 0.809) between risk management strategies and performance of the construction project in Homa Bay County, Kenya. The value of 0.645 representing R-square indicates that about 65.4% of the v project performance variance is clarified by these strategies, emphasizing their importance in project success. The adjusted value of R-square 0.623 confirms the strength of the findings, showing that the strategies significantly contribute to understanding project outcomes. Consequently, other variables which were not studied account for the rest of the project (37.7%) of project performance. Additionally, a low standard error estimate of 0.0025 indicates high prediction accuracy.

#### 4.7.2 Analysis of Variance

**Table 4.13: Variance Analysis**

Model		Sum of Squares	df	Mean Squares	F	Sig.
1	Regression	101.521	4	25.380	37.476	0.002
	Residual	50.116	74	0.677		
	Total	151.637	78			

The ANOVA analysis reveals that the mean square value of 25.380 indicates notable variability among the groups, reflecting differences in the effectiveness of these strategies. The F value of 37.476 suggests a strong effect of risk management on project outcomes, as it shows greater variance between groups than within them. Additionally, the significance level of 0.002, well below the 0.05 threshold, indicates a statistically significant relationship, with only a 0.2% chance that the results are due to random chance.

### 4.7.3 Coefficients

**Table 4.14: Coefficient Table**

Models	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Std. Errors	Beta		
1 (Constant)	0.596	0.315		1.892	0.002
Risk avoidance strategy	0.715	0.221	0.2091	3.235	0.003
Risk retention strategy	0.802	0.33	0.4052	2.430	0.001
Risk reduction strategy	0.764	0.285	0.2205	2.680	0.004
Risk transfer strategy	0.779	0.296	0.3009	2.631	0.003

The analysis reveals a constant value of 0.596, or 59.6%, serving as a baseline for project performance when other variables are constant. This provides a reference for understanding the effects of various elements on the achievement of the project. A coefficient of 0.715 indicates that each factor increase in risk avoidance measures improves performance of the project by 0.715 units, emphasizing the need for proactive risk mitigation. With a coefficient of 0.802, effective risk retention strategies can significantly enhance project outcomes, suggesting that managed risks can still lead to success. A coefficient of 0.779 shows that transferring risks to third parties, like through insurance, can relieve the project team and improve overall performance. A coefficient of 0.764 indicates that implementing risk reduction strategies, like safety measures, positively impacts project performance by minimizing risks and their effects.

The following is the regression equation obtained.

$$\text{Project performance} = 0.596 + 0.715 (\text{risk avoidance strategy}) + 0.802(\text{risk retention strategy}) + 0.779(\text{risk transfer strategy}) + 0.764(\text{risk reduction strategy}).$$

These findings indicate that the risk avoidance strategy employed in construction projects in Homa Bay County, Kenya, has a beta value of 0.2091. This beta value signifies a positive correlation

between the implementation of risk avoidance strategies and the overall project performance. Furthermore, the significance value associated with this beta is 0.003, which is significantly lower than the conventional threshold of 0.05. This low p-value shows the relationship observed is statistically meaningful, meaning that there is a high level of confidence that the positive impact of risk avoidance strategies on performance isn't due to random chance. The finding is in line with Mumassabba, Mukulu and Atikiya (2022) who observe that by proactively recognizing possible risks and implementing strategies to avoid them, project managers can mitigate adverse effects that could derail project timelines, budgets, and overall quality.

The findings indicate that the risk retention strategy employed in construction projects in Homa Bay County, Kenya, has a beta value of 0.4052 which suggests a moderate positive relationship, indicating that as the risk retention strategy is implemented more effectively, the performance of construction projects tends to improve correspondingly. Furthermore, the significance value associated with this beta is 0.001, which is considerably lower than the conventional level of significance of 0.05 meaning that the correlation observed is statistically important. The supports the finding of a study done by Duong (2020) who found that a well-implemented project risk retention strategy can significantly contribute to the success of the project.

These findings of the study reveal that the risk transfer strategies employed in construction projects in Homa Bay County, Kenya, has a beta value of 0.3009, which suggests a moderate positive correlation between the implementation of this strategy and project performance. Furthermore, the significance level of 0.003 confirms the results are statistically significant. The finding concurs with Odhiambo and Senelwa (2021) who investigated the influence of project risk transfer technique on the sustainability of NGO healthcare programs. Results revealed that the utilization of risk transfer tactics significantly enhances project sustainability.

The study findings indicate that the risk reduction techniques employed in construction projects in Homa Bay County, Kenya, has a beta value of 0.2205 which suggests a positive correlation, meaning that when the implementation of risk reduction strategies rises, construction projects performance is likely to improve as well. Furthermore, the significance value associated with this beta is 0.004, which is considerably below the 0.05 threshold of the standard level. The low significance value is an indication that the relationship observed is statistically meaningful. The results agree with a research by Bhoola, Hiremath, and Mallik (2022) that looked at the effects of risk reduction techniques on software project results. The study's results showed that risk reduction approaches had a favorable and substantial effect on software project performance.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION**

### **5.1 Introduction**

Chapter five outlines a summary of the results, conclusion, recommendations, and proposals for future studies.

### **5.2 Study Summary**

The research aimed to examine the correlation between the variables risk management strategies and the performance of construction projects in Homa Bay County, Kenya. The strategies examined included risk avoidance, transfer, retention, and reduction. Data was obtained using questionnaires, and the analysis was conducted employing descriptive statistics and regression analysis. The following summarizes the survey findings:

The research aimed at determining the effects of the risk avoidance strategies on the performance of construction projects in Homa Bay County. The results showed a positive relationship between the application of risk avoidance strategies and the overall performance of these projects. The presence of a clearly defined risk avoidance strategy enhances stakeholders' confidence, as it reduces potential losses and enables project managers to proactively manage risks before they materialize. By avoiding potential risks, the likelihood of incurring losses is diminished, thereby lessening the impact on project outcomes.

The research focused on investigating the impact of risk retention strategies on the performance of construction projects in Homa Bay County, Kenya. The findings indicated a moderate positive correlation, suggesting that more effective implementation of risk retention strategies is associated with enhanced project performance. Self-insurance allows for the allocation of funds that can be reinvested into the project, resulting in better outcomes. Additionally, fostering a risk management

culture encourages a learning environment within the project team, while embracing calculated risks can cultivate a creative and resilient culture, ultimately helping in the success of the project.

The research focused on examining the effects of risk transfer strategies on the performance of construction projects in Homa Bay County, Kenya. The results demonstrated a moderate positive correlation between the execution of this strategy and project performance. By outsourcing tasks, project performance is enhanced as these responsibilities are managed by specialists who can provide high-quality results more efficiently. Furthermore, project managers can share the risks and responsibilities associated with the project by collaborating with other organizations or individuals, and contractual agreements enable them to transfer specific risks to contractors, suppliers, or other stakeholders through the inclusion of particular clauses in contracts.

### **5.3 Conclusion of the Survey**

The research asserts that organizations placing a high priority on clear risk avoidance and proactive management are likely to enhance stakeholder trust and improve project outcomes. Risk avoidance strategy has a critical role in fostering successful project execution and stakeholder engagement. When stakeholders trust that risks are managed well, they are more likely to engage positively, contributing to overall project success. Effective risk avoidance allows for better allocation of resources, as funds and personnel can be directed towards productive activities rather than being diverted to address crises. Projects that incorporate risk avoidance strategies are more likely to adhere to their timelines.

The study concludes that risk retention promotes continuous improvement and adaptability, which are essential for navigating the complexities of project execution. Adopting self-insurance practices, project teams can free up valuable resources that can be redirected towards enhancing

various aspects of the project leading to improved outcomes, as teams are able to allocate funds and efforts towards critical areas that may require additional support or innovation. Organizations can empower their project teams to navigate uncertainties with confidence, ultimately driving both accountability and growth through cultivating a culture that prioritizes risk awareness.

The study concludes that by shifting some risks to third parties, like insurers or subcontractors, project managers can lessen the financial effect of unanticipated events. Project managers can leverage the expertise and resources of these entities, potentially leading to faster completion times by outsourcing certain tasks or responsibilities to specialized firms. Effective risk transfer can lead to improved quality outcomes, as specialized firms often have the expertise to manage specific risks. A proactive approach to risk management can be demonstrated through effective risk transfer, which can boost stakeholder confidence.

The study concludes that effective risk mitigation strategies assist in making sure that projects are finished to the necessary quality standards, on schedule, and within budget. Risk mitigation encourages informed decision-making by providing a clearer understanding of potential challenges and their implications. This leads to more strategic planning and execution. Implementing risk mitigation strategies can help prevent unforeseen expenses that arise from risk events. Project managers can better allocate resources and prevent budget overruns by foreseeing hazards and creating backup plans.

#### **5.4 Recommendations of the Study**

The study recommends that the County needs to use SWOT analysis and other techniques to identify potential hazards throughout the project design phase by conducting comprehensive risk assessments. To better comprehend risks and their possible effects, group them into categories

such as technical, financial, operational, and external. Involve stakeholders early on in the project to learn about any hazards. Their varied viewpoints can be useful in identifying risks that the team for the project might not be mindful of. Throughout the project, keep the lines of communication open with stakeholders to guarantee that any new hazards are quickly recognized and dealt with.

This study recommends that the County should conduct thorough risk identification sessions involving all stakeholders to uncover potential risks that could impact project performance. To help in decision-making, clearly outline the risk appetite for an organization and tolerance levels. Establish risk retention thresholds to decide which risks should be transferred or minimized and which can be kept. Encourage open lines of communication between all parties involved to make sure that everyone is aware of potential hazards and the risk management plans in place. To improve project teams' capacity to recognize and control risks, train them in risk management methods and resources.

The study suggests that the County should conduct thorough risk assessment workshops involving stakeholders to pinpoint potential risks across all project phases. Clearly define risk ownership in contracts, ensuring that risks are assigned to parties best equipped to handle them. Explore various insurance products (e.g., liability, property, performance bonds) to transfer financial risks to insurers. Form strategic alliances to share risks and resources, leveraging the strengths of each partner. Create risk mitigation plans that specify precise steps to lessen a risk's impact or possibility. Create effective communication plans to update stakeholders on hazards and risk management initiatives.

The survey suggests that the County needs to hold in-depth brainstorming sessions with stakeholders to identify possible risks at every stage of the project. To make management efforts

more efficient, group hazards into categories like technical, financial, operational, and external. Plan on reviewing the risk management strategy on a regular basis to make sure it stays applicable and efficient. Provide training sessions for team members on risk management principles and practices. Utilize tools that offer risk management features, such as risk registers and dashboards, to streamline tracking and reporting.

The study recommends that the county needs to increase stakeholders involvement in identifying risks in regular forums from the initiation phase and ensure that available communication channels are opened throughout the project management cycle. Since the findings showed financial risks as a recurring challenge, the county should adopt assurance products to guard against potential losses. To strengthen projects ability to manage risks, it is recommended that the county offers regular risk management training and also adopt risk management tools to improve risk tracking and control in every stage of implementation.

### **5.5 Suggestions for Further Study**

The research recommends that more research be done with a similar approach on other risk strategies apart from the ones studied in order to close a gap of 37.7% identified from the regression results. In addition, according to the study, comparable research that focuses on courts in counties other than Homa Bay County might be conducted.

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## APPENDICES

### Appendix I: Introductory Letter

Dear Participant,

**Subject: Invitation to Participate in Research Study**

I am currently pursuing MBA degree at Kenyatta University and am undertaking an academic research project titled "Risk Management Strategy and Performance of Construction Projects in Homa Bay County, Kenya." The results of this study are essential for fulfilling a requirement for my degree.

Please be assured that the response will be utilized solely for research objective and will be managed with the highest level of privacy. I kindly ask you to review each question thoroughly and provide your responses accordingly.

**Appendix II: Questionnaire**

If applicable, please indicate with a checkmark [√] or fill out the appropriate areas with the relevant information.

**Section A: Demographic Data**

Gender	Male	Female
Education attainment	Diploma	Post graduate diploma
	Bachelor’s degree	Master’s degree
Professional background	Below 5 years	5 to 9 years
	10 to 15 years	More than 15 years

Please indicate the extent to which you agree or disagree with the given statements about risk transfer, risk reduction, risk retention, and risk avoidance in relation to project performance in Homa Bay County, Kenya. Additionally, there are five choices that match these statements:

Five signifies "highly agree," Four signifies "agree," three signifies "neutral," two signifies "disagree," and one signifies "strongly disagree."

**Section B: Risk Avoidance Strategy**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
A risk avoidance strategy increases stakeholder confidence, which in turn boosts their support, collaboration, and dedication, ultimately increasing project results.					
The confidence of stakeholders is strengthened when a clearly articulated risk avoidance strategy is established.					
A risk avoidance strategy enables project managers to make well-informed decisions by evaluating different scenarios and their possible repercussions.					
The implementation of a risk avoidance strategy improves decision-making abilities, resulting in more favorable project results.					
By minimizing potential losses, project managers can take preventive measures to reduce risks prior to their occurrence.					

The avoidance of potential risks contributes to a reduction in the likelihood of losses, thereby lessening the impact on project results.					
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1. What other ways does the risk avoidance strategy affect the way projects in Kenya's Homa

Bay County perform?

### **Section C: Risk Retention Strategy**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Self-insurance allows for the reallocation of funds, which can be reinvested into the project, resulting in enhanced outcomes.					
Self-insurance provides comprehensive protection and aligns more closely with the goals and objectives of the project.					
A culture of risk management instills a sense of accountability and responsibility among the project team members.					
A risk management culture encourages a learning atmosphere within the project team.					
Effectively managing risks presents opportunities for innovation and growth within the project.					
Embracing calculated risks can cultivate a creative and resilient culture existing in the team, ultimately adding up to the greater success of the project.					

2. In what additional ways does the risk retention strategy affect the way projects in Kenya's

Homa Bay County perform?

### **Section D: Risk Transfer Strategy**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Outsourcing promotes project performance, as specialized professionals manage the outsourced tasks, resulting in high-quality outcomes delivered with greater efficiency.					
Outsourcing contributes to the convenient and cost-effective completion of projects, as the outsourcing partner can supply the essential resources needed to fulfill project demands.					
By collaborating with other organizations or individuals, project managers distribute the risks and responsibilities related to the project.					

Collaboration fosters a more varied techniques to risk management, as each participant brings their distinct resources and expertise to the table.					
Through contractual agreements, project managers can allocate specific risks to contractors, suppliers, or other stakeholders by incorporating particular clauses within the contracts.					
Contractual agreements enable project managers to utilize their expertise and resources to effectively oversee and mitigate those risks.					

3. In what additional ways does the risk transfer technique affect the way projects in Kenya's

Homa Bay County perform?

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**Section E: Risk Reduction Strategy**

Statement	1	2	3	4	5
A risk mitigation strategy enhances project managers' understanding of the potential vulnerabilities within a project, enabling them to devise appropriate plans.					
A risk mitigation strategy facilitates more precise scheduling, resource distribution, and budgeting, resulting in enhanced project planning and execution.					
A risk mitigation strategy promotes collaboration among project teams to identify and address potential risks effectively.					
The adoption of a risk mitigation strategy fosters a culture of proactive risk management and heightened risk awareness within the project team.					
A contingency plan equips individuals and organizations to handle unforeseen events or emergencies effectively.					
Contingency plans play a crucial role in recognizing potential hazards and formulating strategies to mitigate them.					

4. What other ways does the Homa Bay County, Kenya, risk reduction strategy affect project performance?

**Section F: Project Performance**

Statement	1	2	3	4	5
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The project quality is influenced by the application of risk management strategies.					
Through the risk management adoption techniques, the company is able to develop a project that satisfies its clients.					
Using risk management techniques reduces project costs					

### **Appendix III: List of Construction Projects**

1. Construction of Outpatient Block - Homa Bay County Referral Hospital
2. Homa Bay inks deal for 400 affordable houses
3. Lakefront Development
4. Raila Odinga Stadium, Homa Bay
5. Renovation of Maternity Wing
6. Upgrading of Rachuonyo Outpatient Block Upgrade
7. Upgrading to Bitumen Standard of Homa Bay-Mbita Road projects