European Journal of Management and Marketing Studies
ISSN: 2501 - 9988
ISSN-L: 2501 - 9988
Available on-line at: http://www.oapub.org/soc

DOI: 10.46827/ejmms.v10i1.1995 Volume 10 | Issue 1 | 2025

EFFECT OF RISK EVALUATION PRACTICES ON THE PERFORMANCE OF CONSTRUCTION FIRMS IN NAIROBI COUNTY, KENYA

Joseph Mberia[1i],
Mongare Omare[2],
Ezra Ronoh[3]
[1]Master of Business Administration Student
in Strategic Management,
Kabarak University,
Kenya
[2]Senior Lecturer, Prof.,
Kisii University,
Kenya
[2]Senior Lecturer, Dr.,
Kabarak University,
Kenya

Abstract:
This study investigated the effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya. Specifically, it examined the impact of risk assessment likelihood, impact evaluation, risk prioritization, quantitative evaluation methods, and regular risk reviews on firm performance. The research employed a descriptive research design with a sample size of 222 construction industry professionals, determined using the Taro Yamane formula. Data was collected through structured questionnaires and analyzed using descriptive statistics and multiple linear regression analysis. The findings revealed a moderate positive correlation between risk evaluation practices and construction firm performance, with risk evaluation practices explaining 15.2% of the variance in firm performance ($\beta = 0.152$, $p = 0.050$). The study found that aspects such as impact evaluation, risk prioritization, and regular reviews significantly contribute to firm performance. However, the research highlighted areas of concern, particularly in the adoption of quantitative evaluation methods. The study concludes that implementing comprehensive risk evaluation policies can significantly enhance firm performance among construction companies. These findings contribute to the growing body of literature on risk management and firm performance in the construction industries, particularly in the Kenyan context.

[i] Correspondence: email jmberia@kabarak.ac.ke

Keywords: risk evaluation, construction firm performance, risk assessment, construction industry, Nairobi County

1. Introduction

1.1 Background to the Study

Construction firms play a significant role in the global economy as they contribute to infrastructure development and economic growth. The construction industry is a vital sector that contributes substantially to national economies worldwide, with developing countries particularly dependent on construction activities for economic advancement (Issa *et al.*, 2020). The performance of construction firms is crucial not only for individual organizational success but also for broader economic stability and development.

The performance of construction firms can be evaluated based on several key indicators that reflect their overall effectiveness and success. Financial performance encompasses factors such as profitability, revenue growth, cost management, and return on investment, serving as primary indicators of a firm's economic viability and sustainability (Razi *et al.*, 2021). Project delivery excellence refers to the ability to complete projects within stipulated timeframes while meeting quality requirements and staying within budget constraints. Customer satisfaction reflects the level of satisfaction experienced by clients in terms of service delivery, including timely project completion, adherence to specifications, effective communication, and overall service quality (Ugwu *et al.*, 2019). Quality standards adherence ensures that construction firms meet required standards and regulations in terms of materials, workmanship, and safety protocols.

Globally, construction firms face numerous challenges that directly impact their performance outcomes. These challenges include cost overruns, time delays, quality issues, safety concerns, and regulatory compliance difficulties (Issa *et al.*, 2020). The complexity and uniqueness of construction projects, combined with their dynamic environments, create inherent uncertainties that can significantly affect firm performance. In developing economies, these challenges are often exacerbated by additional factors such as limited technological resources, skill shortages, and volatile economic conditions.

Regionally, African construction markets have demonstrated varying levels of performance influenced by economic conditions, regulatory frameworks, and market dynamics. The construction sectors in countries like South Africa, Nigeria, and Egypt have experienced both opportunities and challenges in achieving optimal performance outcomes. These markets are characterized by significant infrastructure needs, growing urbanization, and increasing demand for construction services, yet they also face constraints related to financing, technology adoption, and skilled workforce availability. In Kenya, the construction industry is a vital component of the country's social and economic development, contributing approximately 7% to the Gross Domestic Product (GDP) and supporting the government's ambitious target of delivering 50,000 affordable housing units (Amoo *et al.*, 2023). However, despite its economic significance, the

performance of construction firms in Kenya, particularly in Nairobi County, faces considerable challenges that underscore critical gaps in operational effectiveness and strategic management.

The performance landscape of Kenyan construction firms is characterized by significant operational challenges, including a decline in the housing index, persistent delays in project completion, compromised quality of completed projects, and widespread issues of client fund misappropriation leading to extensive litigation between constructors and clients (Amoo *et al.*, 2023). Notable cases involve developers such as Banda Homes, Dinara Developers, Lettas Developers, Tehillah Holdings, E-Farm Housing Cooperative Society, and Lesedi Developers Ltd, who have been accused of defrauding home buyers and fraudulently receiving funds without delivering promised housing units (Ciuri, 2023).

Current performance metrics among construction firms in Nairobi County reveal inconsistent financial results, with many firms struggling to maintain profitability due to cost overruns, extended project timelines, and quality-related rework expenses. Customer satisfaction levels remain suboptimal, as evidenced by frequent complaints regarding delayed project delivery, poor communication, and failure to meet specified quality standards.

1.2 Risk Management Practices

To enhance the performance of construction firms and address these persistent challenges, effective risk management practices serve as critical supportive inputs that can significantly influence operational outcomes. Risk management practices encompass a systematic approach to identifying, evaluating, mitigating, and monitoring potential uncertainties that may impact project delivery and firm performance (Issa *et al.*, 2020).

The importance of risk management in construction has been recognized globally, with research demonstrating strong correlations between effective risk management implementation and improved project outcomes. Studies have shown that construction projects implementing comprehensive risk management frameworks experience reduced cost overruns, fewer delays, and higher quality deliverables compared to projects without systematic risk management approaches (Bu Qammaz & AlMaian, 2020).

Risk identification practices involve systematically recognizing and cataloguing potential threats that may affect successful project completion and firm operations. These practices include conducting comprehensive risk assessments using various methodologies, utilizing diverse identification tools such as expert interviews and historical data analysis, involving stakeholders from different organizational levels, maintaining detailed risk registers, and regularly updating identification procedures to reflect changing conditions (Jiang *et al.*, 2019).

Risk evaluation practices focus on assessing the potential likelihood and impact of identified risks, enabling firms to prioritize their attention and resources effectively. This process involves analyzing risk probability, evaluating potential consequences across multiple dimensions, implementing systematic prioritization frameworks, utilizing both

quantitative and qualitative assessment methods, and conducting regular reviews of risk evaluations (Issa *et al.*, 2020).

Risk mitigation practices encompass the development and implementation of strategies to address identified and evaluated risks. These practices include formulating risk response strategies through avoidance, reduction, transfer, or acceptance approaches, implementing preventive and corrective measures, allocating adequate resources for risk management activities, training employees on risk mitigation procedures, and regularly updating mitigation strategies based on changing circumstances (Ugwu *et al.*, 2019).

Risk monitoring practices involve the continuous tracking and review of identified risks throughout project lifecycles and organizational operations. This includes establishing key risk indicators, conducting regular risk tracking activities, implementing systematic reporting mechanisms, adjusting risk responses based on monitoring feedback, and utilizing appropriate technology for real-time risk surveillance (Ugwu *et al.*, 2019).

1.3 Construction Firms in Kenya

In the context of construction firms in Kenya, it is crucial to understand the influence of risk identification, evaluation, mitigation, and monitoring practices on their performance. The construction industry in Kenya operates within a complex environment characterized by diverse challenges, including regulatory complexities, economic fluctuations, and varying market conditions that significantly impact firm performance outcomes.

According to Bu Qammaz and AlMaian (2020), effective risk management practices enable firms to make informed decisions, allocate resources efficiently, and enhance their overall performance. By identifying risks early on, evaluating their impact, actively mitigating them, and continuously monitoring them throughout project lifecycles, construction firms can minimize project delays, cost overruns, and other adverse outcomes that directly affect performance indicators.

The relationship between risk management practices and construction firm performance is supported by established theoretical frameworks. Risk Management Theory provides foundational understanding that systematic identification, assessment, mitigation, and monitoring of risks can significantly enhance organizational performance by reducing uncertainties and enabling more effective decision-making (Badin & Hamid, 2022). The Resource-Based View (RBV) theory suggests that effective risk management practices constitute valuable organizational capabilities that can provide competitive advantages and improve performance outcomes (Antonio & Gattermann Perin, 2020). Contingency Theory emphasizes that the effectiveness of risk management practices depends on their alignment with environmental conditions and organizational characteristics, highlighting the need for adaptive risk management approaches in the dynamic construction industry (Kankaew & Pongsapak, 2020).

Despite the critical importance of construction firm performance and the potential role of risk management practices in enhancing outcomes, there exists a significant research gap in the Kenyan context. Limited empirical studies have systematically examined the relationship between specific risk management practices and performance indicators among construction firms in Nairobi County. This gap is particularly pronounced given the unique operating environment, regulatory framework, and market dynamics that characterize the Kenyan construction industry.

The absence of comprehensive, locally-relevant research on this topic limits the ability of construction firms, policymakers, and industry stakeholders to make informed decisions about risk management investments and strategic priorities. Furthermore, the lack of empirical evidence regarding the relative importance and effectiveness of different risk management practices prevents the development of targeted interventions and best practice guidelines tailored to the Kenyan construction context.

In summary, construction firms in Nairobi County, Kenya, play a vital role in the economy by contributing to infrastructure development. The performance of these firms can be evaluated based on financial performance, project completion time, customer satisfaction, and adherence to quality standards. Risk identification, evaluation, mitigation, and monitoring practices are critical components of effective risk management. The proper implementation of these practices allows construction firms to identify potential risks, assess their impact, proactively address them, and continuously monitor them throughout the project lifecycle, ultimately leading to improved performance and successful project outcomes. The study aims to assess the effects of these risk management practices on the performance of construction firms in Nairobi County, Kenya.

2. Statement of the Problem

The construction industry serves as a critical driver of Kenya's socio-economic development, contributing approximately 7% to the nation's Gross Domestic Product (GDP) and supporting the government's strategic goal of delivering 50,000 affordable housing units (Amoo *et al.*, 2023). However, despite this sector's vital importance, construction firms in Kenya face interconnected challenges that significantly compromise their performance and threaten the industry's contribution to national development.

The primary challenges confronting the Kenyan construction sector stem from inadequate risk management practices, which manifest as delayed project completions, compromised quality standards, cost overruns, and widespread client fund misappropriation, leading to extensive litigation between constructors and clients (Amoo *et al.*, 2023). These interconnected issues have resulted in a decline in the housing index and damaged the sector's reputation, as evidenced by high-profile cases involving developers such as Banda Homes, Dinara Developers, Lettas Developers, Tehillah Holdings, E-Farm Housing Cooperative Society, and Lesedi Developers Ltd, who have

been accused of fraudulently receiving funds without delivering promised housing units (Ciuri, 2023).

Research has established the critical importance of systematic risk management practices in enhancing organizational performance across various industries, particularly in construction, where projects are inherently complex and uncertain (Kumar & Narayanan, 2021). Bu Qammaz and AlMaian (2020) emphasized that effective risk management practices significantly contribute to construction project success, while Anggraini *et al.* (2019) highlighted the necessity of proactive risk identification to prevent project delays.

However, despite the recognized importance of risk management, a significant empirical gap exists regarding the specific effects of systematic risk management practices on construction firm performance within the Kenyan context. This knowledge gap limits the ability of construction firms, policymakers, and industry stakeholders to make evidence-based decisions about risk management investments and strategic interventions necessary to improve sector performance.

Therefore, this study addresses this critical gap by systematically examining the effects of specific risk management practices—risk identification, evaluation, mitigation, and monitoring—on the performance of construction firms in Nairobi County, Kenya, with the objective of providing evidence-based insights that will benefit the construction sector and its stakeholders, including contractors, clients, and policymakers.

2.1 Objectives of the Study

2.1.1 General Objective

- To examine the effects of risk management practices on the performance of construction firms in Nairobi County, Kenya.

2.1.2 Specific Objectives

- To assess the effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya.

2.1.3 Hypotheses

- H_{02}: There is no statistically significant effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya.

3. Risk Management Theory

Risk Management Theory emerged as an integral aspect of strategic management and financial theory in the latter half of the 20th century, with its roots traceable to the burgeoning era of globalized business practices marked by rapid technological advances and increasing complexities in organizational structures and market dynamics (Badin & Hamid, 2022). The theory traces its origins to pioneering work by economist Frank Knight, whose seminal work "Risk, Uncertainty, and Profit", published in 1921, laid the

groundwork for understanding the role of risk and uncertainty in economic decision-making. Harry Markowitz subsequently advanced the field through his groundbreaking paper "Portfolio Selection" (1952), introducing diversification as a strategy to mitigate investment risks.

The overarching premise of Risk Management Theory emphasizes the systematic identification, assessment, mitigation, and monitoring of risks that could potentially impede an organization's ability to achieve its objectives (Tewari & Ramanlal, 2022). Risk Management Theory is underpinned by four main components that directly support this study's focus on construction risk management practices.

Risk identification supports risk identification practices by providing a theoretical foundation for systematically recognizing potential threats that could detrimentally impact an organization's operations or performance. This process necessitates a comprehensive understanding of the firm's environment, both internal and external, utilizing tools such as SWOT analysis, PESTEL analysis, or brainstorming sessions (Minhui, 2019). Risk evaluation provides theoretical grounding for risk evaluation practices by focusing on quantifying or qualitatively assessing identified risks, determining the likelihood of occurrence and estimating potential impact using tools such as risk matrices or decision trees (Hashmi, 2020).

Risk mitigation offers a theoretical foundation for risk mitigation practices by focusing on devising strategies to manage identified and evaluated risks through avoiding, transferring, mitigating, or accepting risks based on their nature and organizational risk tolerance. Risk monitoring provides theoretical support for risk monitoring practices through ongoing processes involving continuous tracking of identified risks, evaluating the effectiveness of risk response strategies, and identifying new risks as they emerge.

The relevance of Risk Management Theory to this research study is substantial, as it provides a robust theoretical foundation to guide the investigation of how each risk management component influences construction firm performance in Nairobi County, Kenya.

4. Empirical Literature Review

Soh *et al.* (2023) conducted research on quantitative risk assessment in various building types, focusing on reducing accidents through effective safety management. Their methodology included data collection and classification, Bayesian probability-based accident probability calculation, accident cost estimation, risk ranking using normalization methods, and risk level classification through k-means clustering. Findings revealed that Bayesian probability utilization aids accurate accident probability estimation, while comprehensive accident cost calculation provides crucial insights into potential incident economic impact.

The normalization method allows risk prioritization based on severity, and k-means clustering facilitates risk level classification in different building types. The study

underscores quantitative risk assessment significance in formulating targeted safety measures and minimizing accidents, demonstrating efficacy in enhancing safety management practices for various building types.

Ha *et al.* (2018) conducted a comprehensive study focusing on developing an advanced risk evaluation framework for construction projects, leveraging Artificial Neural Network (ANN) techniques. Researchers dedicated particular attention to crucial risk evaluation phases, ensuring robust and data-driven approaches. During risk management phases, researchers diligently identified and categorized diverse potential construction project risks.

By assembling comprehensive risk databases and consulting domain experts, they laid the groundwork for rigorous risk evaluation processes. In subsequent ANN training phases, researchers fed past construction project data into artificial neural networks. Through machine learning, ANNs became adept at recognizing intricate patterns and associations between various risk factors and their potential impacts, equipping ANNs with the ability to conduct accurate real-world construction scenario risk evaluations.

Awuni (2019) conducted an empirical study focusing on risk assessment during construction project design phases in Ghana, including 114 professionals from various construction disciplines. The study evaluated risks at different design stages using both qualitative and quantitative approaches. Qualitative evaluation involved measuring risk levels against predetermined criteria, considering severity, likelihood, and potential impacts. Quantitative evaluation compared risks numerically, using specific criteria like fatality, frequency, or monetary value.

The study highlighted the importance of integrating both qualitative and quantitative methods in risk assessment to enhance decision-making and risk management during design phases, showcasing the value of combining approaches to comprehensively evaluate risks and aid construction professionals in making informed decisions.

5. Conceptual Framework

A conceptual framework is a theoretical model that provides structure to a research study. In this study on the influence of risk management practices on the performance of construction firms in Nairobi County, Kenya, the framework depicts the relationships between different variables. The independent variables in this study are the risk management practices used by construction firms in Nairobi County, including risk identification, risk evaluation, risk mitigation, and risk monitoring.

Figure 2.1: Conceptual Framework

Risk evaluation methods assess the severity and likelihood of identified risks. Risk mitigation strategies involve developing and implementing responses to address identified risks. Risk monitoring strategies involve tracking and supervising risks throughout the project lifecycle. The dependent variable is the overall performance of the construction firms in Nairobi County, measured using indicators such as financial performance, project completion time, customer satisfaction, and project success rates.

6. Research Design

In this research, a well-structured plan guided the study towards achieving specific objectives. The chosen research design is descriptive, which means it aims to accurately depict the phenomenon without manipulating variables or establishing cause-and-effect relationships (Chinelo Igwenagu, 2016). It is commonly used in social sciences and business studies to understand and describe existing characteristics within a population(Ranjit, 2019). The research focuses on how risk identification, evaluation, monitoring, and management practices impact the performance of construction firms in Nairobi County, Kenya. The descriptive research design allows for an objective and comprehensive view of these risk management practices without bias (Gathii *et al.*, 2019). The applicability of the descriptive research design lies in its ability to provide an all-encompassing view of risk management practices in various construction firms in Nairobi County, considering practical constraints such as time and resources. The study's findings are presented coherently, serving as a basis for future research and more in-depth investigations into risk management practices. In conclusion, the descriptive research design is a suitable choice for this study, enabling an impartial understanding of the effects of risk management practices on construction firm performance in Nairobi County, Kenya.

6.1 Location of the Study

The chosen location for this study was Nairobi County, Kenya. Nairobi County, being the capital and largest city of Kenya, is a bustling economic center with significant construction activities. The construction industry encompasses a wide range of projects, from residential buildings to commercial establishments and infrastructure development. The diversity of construction firms in the region, varying in size and

specialization, offers a valuable opportunity to explore risk management practices comprehensively.

Nairobi County's prominence in the Kenyan construction sector makes it an ideal location for this research. The dynamic business environment and availability of data sources enhance the feasibility of collecting relevant information. Moreover, being a major hub, the findings from this study may have implications beyond the local context, potentially informing policies and practices in similar regions.

By conducting this study in Nairobi County, researchers can gain valuable insights into the effects of risk identification, evaluation, monitoring, and management practices on construction firm performance. The city's vibrant construction landscape provides a rich foundation to understand how these practices impact the industry's overall performance. The study's outcomes hold the potential to contribute to the existing body of knowledge and offer practical insights for construction firms and policymakers in Kenya.

6.2 Target Population

The target population for this study comprised individuals from construction firms operating in Nairobi County, Kenya. From the accessible population of these firms, a carefully selected group of 495 individuals was included in the research. This approach ensures that the study encompasses a well-balanced representation of various roles within the construction industry.

Table 1: Target Population

Description	Frequency	Percentage (%)
Finance Manager	115	23.2%
Project Manager	90	18.2%
Project Engineers	99	20.0%
Contractors	191	38.6%
Total	495	100.0%

The target population included Finance Managers, Project Managers, Project Engineers, and Contractors. Among them, there were 115 Finance Managers, 90 Project Managers, 99 Project Engineers, and 191 Contractors participating in the study. Each of these individuals contributes valuable insights from their unique perspectives and roles within the construction firms. The inclusion of Finance Managers, Project Managers, Project Engineers, and Contractors in the target population is well-justified for several reasons.

These individuals occupy critical positions within construction firms, making them essential in the decision-making processes related to risk management. Finance Managers contribute their financial acumen, offering insights into the fiscal implications of risk management decisions. Project Managers oversee project execution and coordination, possessing a comprehensive understanding of project-specific risks. Project Engineers bring technical expertise, shedding light on the technical risks inherent in construction projects. Contractors are directly involved in executing the construction

work, managing operational risks at the ground level. Their diverse roles and expertise ensure a comprehensive analysis of risk management practices.

Including these key players in risk management allows the study to capture insights from different hierarchical levels within construction firms. Each role brings unique perspectives on how risk management strategies are perceived, implemented, and executed within the organization.

Moreover, the selected roles provide valuable and practical insights into the effectiveness of risk management in the construction industry. They deal with risk-related challenges on a daily basis, offering real-world perspectives relevant to the research objectives. The research aims to examine the effect of risk management practices on construction firm performance, making the participation of these individuals highly relevant. They are directly involved in formulating and executing risk management strategies that impact firm performance.

6.3 Sample Size and Sampling Procedure

Sampling was a fundamental aspect of the research, involving the selection of a subset of individuals or elements from the larger population to draw meaningful inferences about the entire group (Giedre *et al.*, 2020). As it was impractical and time-consuming to study the entire population, sampling allows the researchers to gather data efficiently while making valid conclusions about the target population.

To determine the appropriate sample size using the Taro Yamane formula (Year), the researcher used the information from the target population table:

N = Total population size = 495
e = Desired level of precision (sampling error) = 0.05 (5%)
n = N / (1 + N(e)^2)
n = 495 / (1 + 495(0.05)^2)
n = 495 / (1 + 495(0.0025))
n = 495 / (1 + 1.2375)
n = 495 / 2.2375
n ≈ 221.24

Since a whole number was needed for the sample size, the value was rounded up to 222.

Proportionate random sampling was an effective approach to ensure a fair representation of different segments of the population (Gama & Alves, 2021). Given the target population's distribution across Finance Managers, Project Managers, Project Engineers, and Contractors, proportionate random sampling will ensure that each group is represented appropriately in the sample.

The use of proportionate random sampling in this study was justified because it allows for a representative sample that reflects the diversity of roles within the construction firms. Finance Managers, Project Managers, Project Engineers, and Contractors will have varying percentages in the target population. By proportionally

allocating the sample size to each group, the study will capture insights from each role in a balanced manner, enhancing the study's validity and ensuring meaningful results.

Table 2: Sample Size

Description	Frequency	Percentage (%)
Finance Manager	52	23.2%
Project Manager	41	18.2%
Project Engineer	45	20.0%
Contractors	84	38.6%
Total	222	100.0%

In the table, the sample size for each population member was proportionately allocated based on the total population and the desired sample size. The resulting distribution will ensure an equitable representation of Finance Managers, Project Managers, Project Engineers, and Contractors in the sample. This approach will enhance the study's comprehensiveness and validity, facilitating robust conclusions about the effect of risk management practices on construction firm performance in Nairobi County, Kenya.

6.4 Instrumentation

In this research study on the effects of risk management practices on construction firm performance in Nairobi County, Kenya, the researcher collected data through primary sources using structured questionnaires. The target population comprised Finance Managers, Project Managers, Project Engineers, and Contractors employed in construction firms in the county.

Structured questionnaires, a common data collection tool, were utilized to obtain primary data on various aspects related to risk identification, evaluation, monitoring, and management practices, as well as the performance of construction firms.

Using structured questionnaires offered several advantages for this research. It ensures consistency in data collection, as all participants were asked the same set of questions with predetermined response options, reducing bias and ensuring comparable data (Balwan *et al.*, 2022). Additionally, structured questionnaires generate quantitative data that can be easily analyzed using statistical methods, enabling straightforward interpretation and comparison of the results (Tsouroufli *et al.*, 2021).

The Likert scale was used in this study to measure the respondents' agreement levels with statements related to various aspects of risk management practices and construction firm performance(Machado & Davim, 2020). Likert-based questions allow the participants to indicate their levels of agreement or disagreement with specific statements, making data collection efficient and facilitating analysis.

By employing structured questionnaires with Likert-based questions, the researcher aims to efficiently collect valuable data and gain a comprehensive understanding of risk management dynamics in the construction industry. The findings will contribute to the existing body of knowledge and shed light on the relationship

between risk management practices and construction firm performance in Nairobi County, Kenya.

6.4.1 Pilot Study

A pilot study is a preliminary investigation conducted before the main research to assess the feasibility, methodology, and potential challenges of the study(Tsouroufli *et al.*, 2021). In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, a pilot study was undertaken to ensure the questionnaire's appropriateness and test the data collection process.

The pilot study's purpose was to identify and address any issues with the structured questionnaire and data collection procedures, ensuring that the main study runs smoothly and produces reliable results (Pagadala, 2018). By issuing the questionnaire to a smaller sample of 22 members from the target population of construction firms in Nakuru City, which share similar traits with Nairobi City, the researcher gauged the suitability of the questionnaire and data collection process in a context that closely resembled the main study location. According to Mugenda and Mugenda (2019), advocates for the use of at least 10% of the sample size for piloting.

The results of the pilot study were crucial in refining the questionnaire and ensured its effectiveness in capturing the participants' perspectives on risk management practices and construction firm performance. Any necessary adjustments or clarifications were made based on the feedback from the pilot study, enhancing the validity and reliability of the main study.

Conducting the pilot study in Nakuru City provided valuable insights into potential challenges and allowed the researcher to make necessary adjustments to the study's implementation. By adhering to the recommendations of Gathii *et al.* (2019) and using 10% of the main study's sample size for the pilot study, the researcher optimized the data collection process, leading to a successful and impactful research outcome in Nairobi County.

6.4.2 Validity of the Instrument

Validity is a crucial aspect of research that ensures the accuracy and appropriateness of the study's findings and conclusions (Kielmann *et al.*, 2012). It refers to the extent to which a research study measures what it intends to measure and accurately represents the concepts under investigation. In other words, validity examines whether the research instruments and methods effectively capture the true meaning and essence of the variables being studied (Camarinha-Matos, 2019).

In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, content validity was used to assess the quality and relevance of the structured questionnaire. Content validity ensures that the questionnaire includes relevant and comprehensive items that adequately represent the constructs being examined (Pandey & Pandey, 2021).

Content validity was achieved through expert judgment. Experts in the field of risk management and the construction industry will review the questionnaire to assess its relevance, clarity, and comprehensiveness (Saha & Paul, 2020). They will evaluate whether the questions appropriately capture the different aspects of risk management practices and construction firm performance. The researchers sought feedback from these experts and made any necessary modifications to the questionnaire based on their recommendations.

To calculate the Content Validity Index (CVI), the researchers considered the proportion of experts who agreed on the relevance of each item in the questionnaire. The CVI is calculated by dividing the number of items rated as relevant by the total number of items in the questionnaire (Gathii *et al.*, 2019). The CVI can range from 0 to 1, with higher values indicating a higher degree of content validity.

The threshold for the Content Validity Index in this study was set at 0.80 or 80%. This means that for an item to be considered content valid, at least 80% of the experts must agree on its relevance (Gathii *et al.*, 2019). Items that do not meet this threshold was carefully reviewed, and necessary adjustments was made to enhance their content validity.

By employing content validity and calculating the Content Validity Index, this research aimed to ensure that the structured questionnaire accurately captures the essential aspects of risk management practices and construction firm performance.

6.5 Data Collection Procedures

In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, the data collection procedures adhered to ethical guidelines and prioritize the protection of participants' rights and privacy.

The researcher obtained authorization from the Institute of Postgraduate Studies of Kabarak University, ensuring that the study is officially sanctioned and aligns with the university's guidelines. Additionally, the research project was submitted for ethical review and approval by relevant bodies, such as Kabarak University Research Ethics Committee and the National Commission for Science, Technology, and Innovation (NACOSTI).

Participant recruitment involved approaching potential participants, including Finance Managers, Project Managers, Project Engineers, and Contractors working in construction firms in Nairobi County, Kenya. Informed consent was obtained from all participants, wherein they were fully informed of the study's objectives, procedures, potential risks, and benefits. Participants had the option to provide voluntary consent before participating in the research.

Structured questionnaires were used for data collection, which was distributed to the participants. The questionnaires contained items pertaining to risk identification, evaluation, monitoring, and management practices, as well as construction firm performance. Participants will have the option of completing the questionnaires on-site or utilizing a drop-off and pick-up method. In the drop-off component, the

questionnaires were distributed to the participants who completed them at their convenience and then returned them later to a designated location or via a secure means. In the pick-up component, the researcher collected the completed questionnaires from the participants at a later agreed-upon time.

By implementing these data collection procedures, including obtaining necessary authorizations and ensuring informed consent, the researchers upheld ethical standards and safeguarded the participants' rights and confidentiality. The structured questionnaires facilitated the gathering of valuable data, enabling a comprehensive exploration of the relationship between risk management practices and construction firm performance in Nairobi County, Kenya.

6.6 Data Analysis and Presentation

This research focused on the effect of risk management practices on construction firm performance in Nairobi County, Kenya. Data analysis was conducted using IBM SPSS software. Descriptive statistics, such as frequency, mean, and standard deviation, provide an overview of the data and the characteristics of risk management practices and construction firm performance.

Assumption testing involved checking for normality using the Shapiro-Wilk test. The data was considered normally distributed if the p-value obtained from the Shapiro-Wilk test is greater than 0.05 (Lee & Lee, 2015).

For correlation analysis, Pearson's correlation coefficient was calculated to explore the relationships between risk management practices and construction firm performance. Stronger relationships were indicated by correlation coefficients closer to +1 or -1, while weaker relationships were indicated by coefficients closer to 0 (Stigum, 2016).

The primary data analysis involved multiple linear regression to investigate the effect of risk management practices on construction firm performance. The regression model was as follows:

$$Y = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \varepsilon$$

Where:
Y= Construction Firm Performance,
X_1 = Risk Identification,
X_2 = Risk Evaluation,
X_3 = Risk Mitigation,
X_4 = Risk Monitoring,
ε = Error.

In this model:

Construction Firm Performance is the dependent variable representing the performance of construction firms.

β_0 is the intercept, representing the expected value of the dependent variable when all risk management practices are zero.

β_1, β_2, β_3, and β_4 are the regression coefficients, indicating the change in the dependent variable associated with a one-unit change in each respective risk management practice.

β_1 (Risk Identification) represents the impact of risk identification practices on construction firm performance.

β_2 (Risk Evaluation) represents the impact of risk evaluation practices on construction firm performance.

β_3 (Risk Mitigation) represents the impact of risk mitigation practices on construction firm performance.

β_4 (Risk Monitoring) represents the impact of risk monitoring practices on construction firm performance.

ε is the error term, representing the unexplained variance in the dependent variable.

The researcher analysed the regression coefficients (β_1, β_2, β_3, β_4) to understand the direction and significance of the relationships between the risk management practices and the performance of construction firms. A significant p-value (less than 0.05) for each regression coefficient indicates a statistically significant impact of the respective risk management practice on construction firm performance.

Additionally, the researcher assessed the overall fit of the multiple linear regression model using the coefficient of determination (R-squared)(Maina, 2021). R-squared indicates the proportion of variance in the dependent variable that is explained by the independent variables. A higher R-squared value suggests a better fit of the model to the data and indicates how well the risk management practices explain the variability in construction firm performance.

By employing these data analysis techniques and interpreting the regression model, the study aimed to explore the relationships between risk management practices and construction firm performance, identify significant factors influencing performance, and provide valuable insights to the construction industry for informed decision-making and improved risk management strategies

6.7 Ethical Considerations

In this study, ethical considerations were rigorously applied to protect participants' rights and privacy.

The researcher began by obtaining authorization from the Institute of Postgraduate Studies of Kabarak University, ensuring that the study is officially sanctioned and aligned with the university's guidelines. Additionally, the research proposal was submitted for ethical review and approval by relevant bodies, such as the Kabarak University Research Ethics Committee and the National Commission for Science, Technology, and Innovation (NACOSTI).

Informed consent was the cornerstone of the ethical framework. Participants were thoroughly informed about the study's purpose, procedures, and potential risks through the letter accompanying the questionnaire. Ample time was provided for questions and

clarifications. Participants were encouraged to review the consent form carefully before deciding to participate, emphasizing the voluntary nature of their involvement. Throughout the study, participants were reminded of their right to withdraw at any time without consequences.

All collected data was stored securely on password-protected devices and encrypted cloud storage, with physical documents kept in locked cabinets accessible only to the principal investigator. Participants' identities were protected through anonymization, using unique identification codes for all data. Any personally identifiable information was removed before analysis.

The integrity and completeness of data during collection were ensured through a comprehensive data monitoring plan. Questionnaires were reviewed for completeness immediately after submission, with prompt follow-up on any missing or unclear responses. Two separate researchers input the data independently to catch any discrepancies.

Data will be retained for five years after the study's completion, as per university guidelines, after which it will be securely destroyed. When reporting results, care has been taken to ensure that no individual or company can be identified from the presented data. Digital data will be erased at the end of the retention period, while physical documents will be shredded and incinerated.

By implementing these comprehensive ethical considerations, the research maintained high standards of integrity, protecting participants' rights and privacy while ensuring the validity and reliability of the study's findings. This ethical approach will not only safeguard participants' well-being but also contribute to the credibility and value of the insights gained for the construction industry in Nairobi County and beyond.

6.8 Response Rate

The study response rate was examined and presented in Table 3 below.

Table 3: Response Rate

Questionnaires Distributed	Questionnaires Returned	Response Rate
222	185	83.3%

The study targeted 222 respondents from construction firms in Nairobi County. Out of these, 185 questionnaires were successfully filled out and returned, representing a response rate of 83.3%. According to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting, 60% is good, and 70% and above is excellent. Therefore, the response rate of 83.3% in this study is considered excellent and provides a strong basis for concluding the population.

6.9 Reliability and Validity

6.9.1 Reliability Analysis

The reliability analysis was examined and presented in Table 4 below.

Table 4: Reliability Test Results

Variable	Cronbach's Alpha	Number of Items
Risk Identification	0.857	5
Risk Evaluation	0.872	5
Risk Mitigation	0.863	5
Risk Monitoring	0.845	5
Financial Performance	0.889	5

Cronbach's alpha coefficient was used to assess the internal consistency and reliability of the research instrument. This measure indicates how closely related a set of items is as a group, with higher values indicating greater reliability. George and Mallery (2003) provide guidelines for interpreting Cronbach's alpha coefficients. They suggest that alpha values greater than 0.9 are considered excellent, those greater than 0.8 are good, values exceeding 0.7 are acceptable, those greater than 0.6 are questionable, values above 0.5 are poor, and any value less than 0.5 is considered unacceptable. These guidelines help researchers assess the strength of internal consistency in their measurements.

In this study, all variables showed Cronbach's alpha coefficients above 0.8, indicating good to excellent reliability. Risk Identification yielded an alpha of 0.857, Risk Evaluation 0.872, Risk Mitigation 0.863, Risk Monitoring 0.845, and Financial Performance 0.889. These results suggest that the items within each construct are closely related and consistently measure the intended concept. The high-reliability coefficients provide confidence in the internal consistency of the research instrument and the stability of the measures (Sekaran & Bougie, 2016).

6.9.2 Content Validity Index (CVI)

The validity of the instrument was examined, and results are provided in Table 5 below.

Table 4: Content Validity Index

Variable	Items Rated Relevant	Total Items	I-CVI
Risk Identification	5	5	1.00
Risk Evaluation	5	5	1.00
Risk Mitigation	4	5	0.80
Risk Monitoring	5	5	1.00
Financial Performance	5	5	1.00

S-CVI/Ave = 0.96

The Content Validity Index (CVI) is a widely used method to quantify content validity for multi-item scales. In this study, the CVI was calculated to ensure that the instrument adequately represented the constructs being measured. The process involved a panel of

experts evaluating the relevance of each item to its intended construct on a 4-point scale: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant.

For each item, the I-CVI (Item-level Content Validity Index) was computed as the number of experts giving a rating of either 3 or 4 (thus dichotomizing the ordinal scale into relevant and not relevant), divided by the total number of experts. The S-CVI/Ave (Scale-level Content Validity Index, Average method) was then calculated as the average of the I-CVIs for all items on the scale.

As shown in Table 5, the I-CVI for most variables is 1.00, indicating perfect agreement among experts on the relevance of these items. The Risk Mitigation variable has an I-CVI of 0.80, which is still above the recommended threshold. According to Lynn (1986), for a scale to be judged as having excellent content validity, it should be composed of items with I-CVIs that meet the following criteria:

- 3 to 5 experts: I-CVI should be 1.00 for each item
- 6 to 10 experts: I-CVI should be ≥ 0.78 for each item

The S-CVI/Ave for the entire instrument is 0.96, which exceeds the recommended minimum of 0.90 for excellent content validity (Polit & Beck, 2006). This high S-CVI/Ave indicates that the instrument as a whole has excellent content validity, suggesting that the items adequately represent the constructs being measured in the study. These results provide strong evidence for the content validity of the research instrument, indicating that it comprehensively covers the domain of each construct (risk identification, risk evaluation, risk mitigation, risk monitoring, and financial performance) in the context of construction firms in Nairobi County, Kenya.

6.10 Descriptive Statistics

6.10.1 Risk Evaluation

Risk evaluation involves assessing the likelihood and potential impact of identified risks. This section examines how construction firms in Nairobi County approach risk evaluation.

Table 5: Descriptive Statistics for Risk Evaluation

Statement	NE	SE	ME	LE	VLE	Mean	SD
The firm assesses the likelihood of identified risks	2 (1.1%)	22 (11.9%)	68 (36.8%)	65 (35.1%)	28 (15.1%)	3.51	0.928
The firm evaluates the potential impact of risks	1 (0.5%)	20 (10.8%)	66 (35.7%)	70 (37.8%)	28 (15.1%)	3.56	0.897
The firm prioritizes risks based on assessment	2 (1.1%)	23 (12.4%)	65 (35.1%)	67 (36.2%)	28 (15.1%)	3.52	0.934
The firm uses quantitative methods for evaluation	3 (1.6%)	25 (13.5%)	70 (37.8%)	63 (34.1%)	24 (13.0%)	3.43	0.936
The firm regularly reviews risk evaluations	1 (0.5%)	21 (11.4%)	67 (36.2%)	68 (36.8%)	28 (15.1%)	3.55	0.904
Overall						**3.52**	**0.920**

The results in Table 7 indicate that construction firms in Nairobi County generally engage in risk evaluation practices to a moderate extent. The statement "The firm evaluates potential impact of risks" received the highest mean score of 3.56 (SD = 0.897), with 52.9% of respondents indicating large or very large extent. This suggests that firms place significant emphasis on understanding the potential consequences of identified risks. This finding is consistent with the work of Iqbal *et al.* (2015), who highlighted the importance of impact assessment in construction risk management.

The assessment of risk likelihood (Mean = 3.51, SD = 0.928) and prioritization of risks based on assessment (Mean = 3.52, SD = 0.934) also received relatively high scores. This indicates that firms are generally diligent in evaluating the probability of risks occurring and using this information to prioritize their risk management efforts. These practices align with the recommendations of Hwang *et al.* (2014), who emphasized the importance of systematic risk assessment and prioritization in construction projects.

The use of quantitative methods for risk evaluation received the lowest mean score (3.43, SD = 0.936), suggesting that while firms engage in risk evaluation, there might be room for improvement in employing more sophisticated quantitative techniques. This aligns with the findings of Taroun (2014), who noted that the adoption of advanced quantitative risk assessment methods is an area where many construction firms could enhance their practices.

The overall mean score for risk evaluation (3.52, SD = 0.920) indicates that construction firms in Nairobi County implement risk evaluation practices to a moderate extent. However, there is potential for improvement, particularly in the use of quantitative methods and ensuring regular reviews of risk evaluations.

6.10.2 Firm's Performance

The firm's performance is the dependent variable in this study, representing the outcome that risk management practices aim to affect. This section examines how construction firms in Nairobi County perceive their firm's performance.

Table 6: Descriptive Statistics for Performance

Statement	NE	SE	ME	LE	VLE	Mean	SD
The firm has consistently achieved profitability in the financial results	18 (9.7%)	32 (17.3%)	51 (27.6%)	54 (29.2%)	30 (16.2%)	3.25	1.201
Positive feedback is received regarding the quality of our products and services.	15 (8.1%)	28 (15.1%)	55 (29.7%)	57 (30.8%)	30 (16.2%)	3.32	1.158
The ensures open communication and timely responsiveness to the customer needs	20 (10.8%)	35 (18.9%)	53 (28.6%)	50 (27.0%)	27 (14.6%)	3.16	1.209
The firm regularly monitored to identify areas for improvement and capitalize on growth opportunities	12 (6.5%)	25 (13.5%)	58 (31.4%)	60 (32.4%)	30 (16.2%)	3.38	1.106
The firms Feedback from customers and stakeholders is	22 (11.9%)	38 (20.5%)	50 (27.0%)	48 (25.9%)	27 (14.6%)	3.11	1.233

actively sought to continuously enhance our products, services							
Overall						**3.14**	**1.181**

The results in Table 10 indicate that construction firms in Nairobi County perceive their firm's performance to be moderate. The statement " firm regularly monitored to identify areas for improvement and capitalize on growth opportunities " received the highest mean score of 3.38 (SD = 1.106), with 48.6% of respondents indicating a large or very large extent. This suggests that firms place significant emphasis on areas of improvement effectively. This finding aligns with the research of Carvalho and Rabechini Jr (2015), who emphasized the importance emphasis areas for improvement in construction project success.

Positive feedback is received regarding the quality of our products and services. (Mean = 3.32, SD = 1.158) and consistent profitability in financial results (Mean = 3.25, SD = 1.201) also received relatively high scores. This indicates that firms that received positive feedback regarding the quality of our products have achieved profitability in the long run. These results are consistent with the findings of Kibunja and Mbiti (2018), who noted moderate growth in the Kenyan construction sector despite economic challenges.

Open communication and timely responsiveness to the customer needs (Mean = 3.16, SD = 1.209) and firms' feedback from customers and stakeholders is actively sought to continuously enhance our products (Mean = 3.11, SD = 1.233), receiving the lowest scores, suggesting areas where firms might be struggling and key challenges facing Kenyan construction firms.

The overall mean score for the firm's performance (3.14, SD = 1.181) indicates that construction firms in Nairobi County perceive their firm's performance to be moderate. This suggests that while firms are managing to maintain stability, there is room for improvement in various aspects of firms' performance.

6.10.3 Multiple Linear Regression Analysis

This section presents the regression analysis to determine the effect of risk management practices (Risk Identification, Risk Evaluation, Risk Mitigation, and Risk Monitoring) on the performance of construction firms in Nairobi County, Kenya. The analysis uses multiple linear regression to establish the relationships between the independent variables and the dependent variable. The results are presented in SPSS format, including the Model Summary Table, ANOVA Table, and Coefficients Table.

6.11 Model Summary

The model summary provides key indicators of how well the regression model fits the data. It presents the coefficient of determination (R^2), multiple correlation coefficient (R), adjusted R^2, and the standard error of the estimate. These metrics help assess the overall fit and predictive power of the regression model in the current study.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.732[a]	.536	.525	.5873

[a] Predictors: (Constant), Risk Monitoring, Risk Identification, Risk Evaluation, Risk Mitigation.

The multiple correlation coefficient (R) represents the strength of the relationship between the independent variables and the dependent variable (Hair *et al.*, 2019). This coefficient is crucial in regression analysis as it indicates the degree of association between the predictor variables and the outcome variable (Field, 2018). In the current study, the achieved R value of 0.732 demonstrates a strong positive relationship between risk management practices and firms' performance in construction firms. This suggests that the four risk management practices collectively have a substantial association with the outcomes of construction firms in Nairobi County.

The adjusted coefficient of determination (Adjusted R^2) is a modified version of R^2 that accounts for the number of predictors in the model, providing a more accurate measure of model fit in multiple regression analysis (Tabachnick & Fidell, 2019). Unlike the standard R^2, the adjusted R^2 increases only if the added terms improve the model more than would be expected by chance, making it particularly valuable in multiple regression models with several predictors (Cohen *et al.*, 2013). The current study achieved an adjusted R^2 value of 0.525, indicating that approximately 52.5% of the variance in performance can be explained by the combined effect of risk identification, evaluation, mitigation, and monitoring practices.

According to Pallant (2020), adjusted R^2 values above 0.5 represent a substantial explanatory power in social science research. The achieved value of 0.525, therefore, suggests that the model has considerable predictive ability for explaining performance variations. This finding aligns with the theoretical perspective that comprehensive risk management significantly influences organizational performance outcomes (Frigo & Anderson, 2014).

The substantial explanatory power demonstrated by this model supports the conceptual framework established in Chapter Two, which posited that systematic risk management practices are fundamental determinants of performance in high-risk industries such as construction (Olechowski *et al.*, 2016; Zhao *et al.*, 2014). The theoretical foundation of enterprise risk management (ERM) emphasizes that integrating multiple risk management dimensions creates a robust framework for organizational resilience and performance enhancement (Lundqvist, 2014; Brustbauer, 2016; Sax & Andersen, 2019). The current study's findings reinforce this theoretical position, demonstrating that when construction firms implement comprehensive risk management practices, they achieve measurable improvements in the firm's outcomes.

These results converge with previous empirical studies that have established significant relationships between risk management capabilities and organizational performance. For instance, Kishk and Ukaga (2018), Tummala *et al.* (2011), and Wong (2019) all reported similar coefficients of determination when examining risk management effects in construction contexts. Particularly, the current study's findings

are consistent with Liu and Zhang's (2017) research, which identified that well-structured risk management systems explained approximately 49% of performance variation in medium to large construction projects. Similarly, Serpella *et al.* (2014) and Hwang *et al.* (2015) demonstrated that integrated risk management approaches account for between 47% and 55% of the variation in project success factors, closely aligning with the current study's explanatory power of 52.5%.

6.12 ANOVA Results

The Analysis of Variance (ANOVA) in regression analysis examines whether the model as a whole has statistically significant predictive capability. It tests whether the regression model provides a better fit to the data than a model with no predictors. In the current study, ANOVA assesses if the risk management practices collectively have a significant effect on performance.

Table 8*:* ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	71.429	4	17.857	51.724	.000[b]
	Residual	61.783	180	.345		
	Total	133.212	184			

[a] Dependent Variable: Firms' Performance

[b] Predictors: (Constant), Risk Monitoring, Risk Identification, Risk Evaluation, Risk Mitigation

The ANOVA results for the regression model show an F-statistic of 51.724 with 4 and 180 degrees of freedom, and a significance level of $p < .001$, as presented in Table 4.17. According to Tabachnick and Fidell (2019), the F-test determines whether the set of independent variables collectively predicts the dependent variable, with p-values below 0.05 indicating statistical significance. The extremely low p-value ($p < .001$) in the current study indicates that the regression model significantly predicts performance better than the mean model. This confirms that risk management practices, when considered together, have a statistically significant effect on the performance of construction firms in Nairobi County. The model demonstrates a good fit for the data and provides reliable predictive capability for understanding how risk management practices influence outcomes in the construction industry.

6.13 Coefficients Results

The coefficients table presents the specific relationship between each independent variable and the dependent variable, controlling for other predictors in the model. It shows the unstandardized coefficients (B), standard errors, standardized coefficients (Beta), t-values, and significance levels for each predictor variable. In the current study, these statistics help determine the individual contribution of each risk management practice to performance.

Table 9: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.218	0.231		0.944	0.347
	Risk Identification	0.174	0.082	0.128	2.122	0.035
	Risk Evaluation	0.152	0.077	0.113	1.974	0.050
	Risk Mitigation	0.268	0.086	0.199	3.116	0.002
	Risk Monitoring	0.331	0.089	0.247	3.719	0.000

[a] Dependent Variable: Firms' Performance

7. Conclusions And Recommendations

7.1 Conclusions

This study examined the effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya, and established a statistically significant positive relationship between these variables. The findings revealed that construction firms implement risk evaluation practices to a moderate extent, with firms demonstrating strong capabilities in evaluating risk impacts but showing weaknesses in adopting quantitative evaluation methods. The research confirms that systematic risk evaluation contributes meaningfully to organizational performance outcomes, thereby validating Risk Management Theory's premise that comprehensive risk assessment enhances organizational effectiveness.

7.2 Recommendations

Based on these findings, construction firms should prioritize enhancing their quantitative risk evaluation capabilities through investment in advanced analytical tools and specialized training. Industry stakeholders should develop comprehensive training programs and establish standards for risk evaluation practices, while government agencies should create supportive regulatory frameworks that encourage superior risk management capabilities. Academic institutions should enhance construction management curricula to include advanced risk evaluation methodologies and conduct further research to track the long-term impacts of improved risk practices.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

Joseph Mberia is a Master of Business Administration student specializing in Strategic Management at Kabarak University, Kenya, with research interests focusing on risk management practices in the construction industry.

Prof. Mongare Omare and **Dr. Ezra Ronoh** are faculty members at Kisii and Kabarak University, respectively, with expertise in strategic management, organizational performance, research methodology, and statistical analysis, who have supervised

numerous graduate research projects and contributed to advancing empirical understanding of management practices in the Kenyan business environment.

References

Adinyira, E., Agyekum, K., Danku, J. C., Addison, P., & Kukah, A. S. (2020). Effect of subcontractor risk management on quality performance of building construction projects in Ghana. *Journal of Construction in Developing Countries*, 25(2), 175-197. http://dx.doi.org/10.21315/jcdc2020.25.2.7

Aghazadeh, H., Abadi, E. B. J., & Zandi, F. (2022). Branding advantage of agri-food companies in competitive export markets: A resource-based theory. *British Food Journal*, *124*(7), 2039-2060. https://doi.org/10.1108/BFJ-08-2021-0952

Ankamah-Yeboah, I., Nielsen, R., & Llorente, I. (2021). Capital structure and firm performance: Agency theory application to Mediterranean aquaculture firms. *Aquaculture Economics & Management*, *25*(4), 367-387. https://doi.org/10.1080/13657305.2021.1976884

Anggoro, H. D., & Yulianto, A. (2019). Agency theory: Ownership structure and capital structure as determinants of dividend policy. *Management Analysis Journal*, 8(4), 379-387. Retrieved from https://journal.unnes.ac.id/sju/maj/article/view/34313

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. Retrieved from https://josephmahoney.web.illinois.edu/BA545_Fall%202022/Barney%20(1991).pdf

Bonareri, T. O. (2024). Construction project risk management in developing economies: Evidence from East Africa. *African Journal of Construction Management*, 15(3), 45-62.

Ahmed, V., Opoku, A., & Aziz, Z. (2016). *Research methodology in the built environment: A selection of case studies*. CRC Press. Retrieved from https://www.routledge.com/Research-Methodology-in-the-Built-Environment-A-Selection-of-Case-Studies/Ahmed-Opoku-Aziz/p/book/9781138849471?srsltid=AfmBOopDK7gCKfbYrbIoIAZxDV9XdkHU6a13bftOTVPl7RE7a6d340Zo

Al-Bahar, J. F., & Crandall, K. C. (2010). Systematic risk management approach for construction projects. *Journal of Construction Engineering and Management*, 116(3), 533-546. Retrieved from https://ascelibrary.org/doi/10.1061/%28ASCE%290733-9364%281990%29116%3A3%28533%29

Algremazy, N. A., Ideris, Z., Alferjany, M. A., & Akram, A. (2023). The effect of risk management practices on project performance: A case study of the Libyan construction industry. *International Journal of Professional Business Review*, 8(6), 1-20. http://dx.doi.org/10.26668/businessreview/2023.v8i6.1420

Amoo, M. E., Rambo, C. M., & Mbugua, J. M. (2023). Credit risk management practices and performance of real estate construction housing projects in Kenya: A case of

real estate construction housing projects in Busia County. *Journal of Entrepreneurship and Project Management*, 8(2), 29-48. http://dx.doi.org/10.47941/jepm.1468

Anggraini, D., Hatmoko, J. U. D., & Handajani, M. (2019). Quantifying delay risk potential of road projects during the construction phase: A case study. *MATEC Web of Conferences*, 280(05009), 1-9. Retrieved from https://www.matec-conferences.org/articles/matecconf/pdf/2019/29/matecconf_icsbe2019_05009.pdf

Antonio, P., & Gattermann Perin, M. (2020). The international marketing and the resource-based theory: An analysis of the theory contribution to the international marketing field. *Revista Eletrônica de Estratégia & Negócios*, 12(2), 142-156. Retrieved from http://dx.doi.org/10.19177/reen.v12e22019142-170

Awuni, M. A. (2019). Risk assessment at the design phase of construction projects in Ghana. *Journal of Building Construction and Planning Research*, 7(2), 39-58. Retrieved from https://doi.org/10.4236/jbcpr.2019.72004

Badin, P., & Hamid, H. (2022). Risk management theory and model in teacher characters building course: A literature review. *ANP Journal of Social Science and Humanities*, 3(1), 10-18. http://dx.doi.org/10.53797/anp.jssh.v3i1.2.2022

Baghdadi, A., & Kishk, M. (2015). Saudi Arabian aviation construction projects: Identification of risks and their consequences. *Procedia Engineering*, 123, 32-40. https://doi.org/10.1016/j.proeng.2015.10.054

Balwan, A. K., Balwan, W. K., & Saba, N. (2022). Glance of research methodology for researchers: A logical assessment. *Scholars Bulletin*, 8(3), 95-100. http://dx.doi.org/10.36348/sb.2022.v08i03.004

Banaitiene, N., & Banaitis, A. (2012). Risk management in construction projects. In *Risk management-current issues and challenges* (pp. 429-448). InTech. Retrieved from http://dx.doi.org/10.5772/51460

Brustbauer, J. (2016). Enterprise risk management in SMEs: Towards a structural model. *International Small Business Journal*, 34(1), 70-85. http://dx.doi.org/10.1177/0266242614542853

Bu Qammaz, A. S., & AlMaian, R. Y. (2020). A critical success factors model for the effective implementation of the risk management process in construction projects. *Journal of Engineering Research (Kuwait)*, 8(3), 50-70. Retrieved from http://dx.doi.org/10.36909/jer.v8i3.7877

Camarinha-Matos, L. M. (2019). *Introduction to research methodology in electrical engineering*. Tun Hussein Onn University of Malaysia.

Carvalho, M. M., & Rabechini Jr, R. (2015). Impact of risk management on project performance: The importance of soft skills. *International Journal of Production Research*, 53(2), 321-340. https://doi.org/10.1080/00207543.2014.919423

Chen, S., & Ji, Y. (2022). Do corporate social responsibility categories distinctly affect innovation? A resource-based theory perspective. *Sustainability*, 14(6), 3154-3179. https://doi.org/10.3390/su14063154

Chileshe, N., & Kikwasi, G. J. (2014). Critical success factors for the implementation of risk assessment and management practices within the Tanzanian construction industry. *Engineering, Construction and Architectural Management*, 21(3), 291-319. http://dx.doi.org/10.1108/ECAM-01-2013-0001

Chinelo I. (2016). *Fundamentals of research methodology and data collection*. LAP Lambert Academic Publishing. Retrieved from https://www.researchgate.net/publication/303381524_Fundamentals_of_research_methodology_and_data_collection

Choudhry, R. M., & Iqbal, K. (2013). Identification of risk management systems in the construction industry in Pakistan. *Journal of Management in Engineering*, 29(1), 42-49. http://dx.doi.org/10.1061/(ASCE)ME.1943-5479.0000122.

Ciuri, S. (2023). Inside Kenya's land buying con games. *Daily Nation*. Retrieved from https://nation.africa/kenya/news/kenya-s-land-buying-con-games

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Routledge. Retrieved from https://eli.johogo.com/Class/CCU/SEM/_Applied%20Multiple%20Regression-Correlation%20Analysis%20for%20the%20Behavioral%20Sciences_Cohen.pdf

de Bakker, K., Boonstra, A., & Wortmann, H. (2010). Does risk management contribute to IT project success? A meta-analysis of empirical evidence. *International Journal of Project Management*, 28(5), 493-503. Retrieved from https://doi.org/10.1016/j.ijproman.2009.07.002

de Bakker, K., Boonstra, A., & Wortmann, H. (2012). Risk management affecting IS/IT project success through communicative action. *Project Management Journal*, 43(4), 75-90. https://doi.org/10.1002/pmj.20242

de Carvalho, M. M., & Rabechini Junior, R. (2015). Impact of risk management on project performance: The importance of soft skills. *International Journal of Production Research*, 53(2), 321-340. https://doi.org/10.1080/00207543.2014.919423

Enyioko, N. (2020). *Effectiveness of risk monitoring: The project life cycle of a construction project in Port Harcourt, Nigeria*. GRIN Verlag. Retrieved from https://www.grin.com/document/537306?srsltid=AfmBOopp1FsA_aPFxhthTrjhuNnhiLUnbLe7w8Uk2n7WaPL2G60cyvT8

Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). SAGE Publications. Retrieved from http://repo.darmajaya.ac.id/5678/1/Discovering%20Statistics%20Using%20IBM%20SPSS%20Statistics%20(%20PDFDrive%20).pdf

Field, A. (2023). *Discovering statistics using IBM SPSS Statistics* (6th ed.). SAGE Publications.

Frigo, M. L., & Anderson, R. J. (2014). Strategic risk management: A foundation for improving enterprise risk management and governance. *Journal of Corporate Accounting & Finance*, 25(3), 81-88. https://doi.org/10.1002/jcaf.20677

Gama, A. P. M., & Alves, C. A. (2021). *Research methodology in accounting, finance, sustainability, governance and fraud*. Springer. Retrieved from https://link.springer.com/chapter/10.1007/978-981-33-4846-2_5

Gathii, K. J., Wamukuru, D. K., Karanja, D., Muriithi, W., & Maina, K. (2019). *Research methods, data analysis & defences (Building competences in education and social sciences research)*. Education and Social Sciences Research Association of Kenya (ESSRAK).

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference* (4th ed.). Allyn & Bacon. Retrieved from https://books.google.ro/books/about/SPSS_for_Windows_Step_by_Step.html?id=AghHAAAAMAAJ&redir_esc=y

Giedre, V. O., Sliogeriene, J., Valunaite Oleskeviciene, G., & Sliogeriene, J. (2020). Research methodology. *Numanities - Arts and Humanities in Progress*, 13(1), 39-52. http://dx.doi.org/10.1007/978-3-030-37727-4_2

Ha, L. H., Hung, L., & Trung, L. Q. (2018). A risk assessment framework for construction projects using an artificial neural network. *Journal of Science and Technology in Civil Engineering (STCE) - NUCE*, 12(5), 51-62. http://dx.doi.org/10.31814/stce.nuce2018-12(5)-06

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning. Retrieved from https://eli.johogo.com/Class/CCU/SEM/_Multivariate%20Data%20Analysis_Hair.pdf

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2021). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hashmi, S. A. (2020). *Risk management theory versus practice: A report on United Bank Limited corporate banking group* [Unpublished thesis]. Institute of Business Administration Karachi, Pakistan.

Henrik, N., & Amna, A. (2022). *Sustainable competitive advantage: The impact of sustainable resources on businesses-an analysis of resource-based theory* [Unpublished thesis]. Halmstad University. Retrieved from https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1672759&dswid=-2002

Hwang, B. G., Zhao, X., & Toh, L. P. (2014). Risk management in small construction projects in Singapore: Status, barriers and impact. *International Journal of Project Management*, 32(1), 116-124. https://doi.org/10.1016/j.ijproman.2013.01.007

Hwang, B. G., Zhao, X., & Yang, K. W. (2015). Effect of BIM maturity on construction project performance. *Engineering, Construction and Architectural Management*, 22(4), 424-445.

Iqbal, S., Choudhry, R. M., Holschemacher, K., Ali, A., & Tamošaitienė, J. (2015). Risk management in construction projects. *Technological and Economic Development of Economy*, 21(1), 65-78. http://dx.doi.org/10.3846/20294913.2014.994582

Issa, U. H., Mosaad, S. A. A., & Hassan, M. S. (2020). Evaluation and selection of construction projects based on risk analysis. *Structures*, 27, 361-370. https://doi.org/10.1016/j.istruc.2020.05.049

Jiang, W., Martek, I., Hosseini, M. R., & Chen, C. (2019). Political risk management of foreign direct investment in infrastructure projects: Bibliometric-qualitative analyses of research in developing countries. *Engineering, Construction and Architectural Management*, 28(1), 125-153. https://doi.org/10.1108/ECAM-05-2019-0270

Kankaew, K., & Pongsapak, T. (2020). Contingency theory: The analysis in air transportation before, during, and after the pandemic in Thailand. *IOP Conference Series: Materials Science and Engineering*, 918, 1-5. Retrieved from https://iopscience.iop.org/article/10.1088/1757-899X/918/1/012047

Keshk, A. M., Maarouf, I., & Annany, Y. (2018). Special studies in management of construction project risks, risk concept, plan building, risk quantitative and qualitative analysis, risk response strategies. *Alexandria Engineering Journal*, 57(4), 3179-3187. https://doi.org/10.1016/j.aej.2017.12.003

Khameneh, A. H., Taheri, A., & Ershadi, M. (2016). Offering a framework for evaluating the performance of project risk management system. *Procedia-Social and Behavioral Sciences*, 226, 82-90. https://doi.org/10.1016/j.sbspro.2016.06.165

Kibunja, P., & Mbiti, T. (2018). Factors affecting performance of construction firms in Kenya: A case of Nairobi County. *International Academic Journal of Information Sciences and Project Management*, 3(2), 148-171.

Kielmann, K., Cataldo, F., & Seeley, J. (2012). *Introduction to qualitative research methodology: A training manual*. Retrieved from https://ds.amu.edu.et/xmlui/bitstream/handle/123456789/18047/Introduction%20to%20Qualitative%20Research%20Methodology%20-%20A%20Training%20Manual.pdf?sequence=1&isAllowed=y

Kishk, M., & Ukaga, C. (2018). The impact of effective risk management on project success in the Nigerian construction industry. *Engineering, Construction and Architectural Management*, 15(6), 545-563. Retrieved from https://www.researchgate.net/publication/266065458_The_impact_of_effective_risk_management_on_project_success

Knight, F. H. (1921). *Risk, uncertainty, and profit*. Houghton Mifflin. Retrieved from https://fraser.stlouisfed.org/files/docs/publications/books/risk/riskuncertaintyprofit.pdf

Kumar, K. S., & Narayanan, R. M. (2021). Review on construction risk and development of risk management procedural index–A case study from Chennai construction sector. *Materials Today: Proceedings*, 43, 1141-1146. Retrieved from https://doi.org/10.1016/j.matpr.2020.08.606

Kuo, Y. C., & Lu, S. T. (2013). Using fuzzy multiple criteria decision-making approach to enhance risk assessment for metropolitan construction projects. *International Journal of Project Management*, 31(4), 602-614. https://doi.org/10.1016/j.ijproman.2012.10.003

Kutsch, E., & Hall, M. (2010). Deliberate ignorance in project risk management. *International Journal of Project Management*, 28(3), 245-255. Retrieved from https://doi.org/10.1016/j.ijproman.2009.05.003

Lawrence, P. R., & Lorsch, J. W. (1967). *Organization and environment: Managing differentiation and integration*. Harvard Business School Press. https://doi.org/10.2307/2391270

Lee, C., & Lee, J. C. (2015). *Handbook of financial econometrics and statistics*. Springer. Retrieved from https://link.springer.com/referencework/10.1007/978-1-4614-7750-1

Li, B., & Zou, P. X. (2012). Identification of key factors affecting Chinese construction companies' international market entry decisions. *Engineering, Construction and Architectural Management*, 19(5), 532-547.

Liu, J., & Zhang, S. (2017). The impacts of soft project management on construction project success. *Engineering, Construction and Architectural Management*, 24(3), 447-462.

Liu, J., Zhao, X., & Yan, P. (2015). Risk paths in international construction projects: Case study from Chinese contractors. *Journal of Construction Engineering and Management*, 142(6). Retrieved from https://ascelibrary.org/doi/10.1061/%28ASCE%29CO.1943-7862.0001116

Lundqvist, S. A. (2014). An exploratory study of enterprise risk management: Pillars of ERM. *Journal of Accounting, Auditing & Finance*, 29(3), 393-429. Retrieved from http://dx.doi.org/10.1177/0148558X14535780

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, 35(6), 382-385. Retrieved from https://pubmed.ncbi.nlm.nih.gov/3640358/

Machado, C., & Davim, J. P. (2020). *Research methodology in management and industrial engineering*. Springer International Publishing. Retrieved from https://link.springer.com/book/10.1007/978-3-030-40896-1

Maina, K. (2021). *A guide to linear regression analysis in thesis writing for social sciences* (1st ed.). African Online School of Applied Research Skills. Retrieved from https://aosars.com/product/a-guide-to-linear-regression-analysis-in-thesis-writing-for-social-sciences/

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77-91. Retrieved from https://doi.org/10.2307/2975974

Minhui, Z. (2019). Innovation of risk management theory: from enterprise risk management to resilient risk management. *Scientific Decision Making*, 9, 1-24.

Mostafiz, M. I., Sambasivan, M., & Goh, S. K. (2022). Impacts of dynamic managerial capability and international opportunity identification on firm performance. *Multinational Business Review*, 30(4), 521-546. http://dx.doi.org/10.1108/MBR-09-2018-0061

Mugenda, O., & Mugenda, A. (2003). *Research methods: Qualitative, quantitative & mixed methods approaches* (3rd ed.). Africa Centre for Transformative and Inclusive Leadership (ACTIL). Retrieved from

https://www.ucg.ac.me/skladiste/blog_609332/objava_105202/fajlovi/Creswell.pdf

Mugenda, O., & Mugenda, A. (2019). *Research methods: Qualitative, quantitative & mixed methods approaches* (5th ed.). ACTS Press.

Nabawy, M., Ofori, G., Morcos, M., & Egbu, C. (2021). Risk identification framework in the construction of Egyptian mega housing projects. *Ain Shams Engineering Journal*, 12(2), 2047-2056. https://doi.org/10.1016/j.asej.2020.09.016

Obondi, K. C. (2020). *The relationship between project risk monitoring, control practices, and project success in construction projects* [Unpublished doctoral dissertation]. Northcentral University. Retrieved from https://search.proquest.com/openview/1b5c230077edf74b6ef0fb3178b3cd0e/1?pq-origsite=gscholar&cbl=18750&diss=y

Odimabo, O. O., & Oduoza, C. F. (2013). Risk assessment framework for building construction projects in developing countries. *International Journal of Construction Engineering and Management*, 2(5), 143-154. Retrieved from http://article.sapub.org/10.5923.j.ijcem.20130205.02.html

Olechowski, A., Oehmen, J., Seering, W., & Ben-Daya, M. (2016). The professionalization of risk management: What role can the ISO 31000 risk management principles play? *International Journal of Project Management*, 34(8), 1568-1578. Retrieved from https://doi.org/10.1016/j.ijproman.2016.08.002

Osipova, E., & Eriksson, P. E. (2013). Balancing control and flexibility in joint risk management: Lessons learned from two construction projects. *International Journal of Project Management*, 31(3), 391-399. Retrieved from https://doi.org/10.1016/j.ijproman.2012.09.007

Pagadala, S. D. (2018). *Research methodology: A handbook for beginners*. Notion Press. Retrieved from https://books.google.ro/books/about/Research_Methodology.html?id=IW4zDwAAQBAJ&redir_esc=y

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). McGraw-Hill Education. https://doi.org/10.4324/9781003117452

Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center. Retrieved from https://www.euacademic.org/BookUpload/9.pdf

Pinto, J. K. (2014). Project management, governance, and the normalization of deviance. *International Journal of Project Management*, 32(3), 376-387. Retrieved from https://doi.org/10.1016/j.ijproman.2013.06.004

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), 489-497. https://doi.org/10.1002/nur.20147

Qazi, A., Quigley, J., Dickson, A., & Ekici, Ş. Ö. (2016). Exploring dependency-based probabilistic supply chain risk measures for prioritising interdependent risks and strategies. *European Journal of Operational Research*, 259(1), 189-204. https://doi.org/10.1016/j.ejor.2016.10.023

Ranjit, K. (2019). *Research methodology: A step-by-step guide for beginners*. SAGE. Retrieved from https://uk.sagepub.com/en-gb/eur/research-methodology/book257990

Razi, P. Z., Ali, M. I., & Ramli, N. I. (2021). Exploring risks associated to public road infrastructure construction projects. *IOP Conference Series: Earth and Environmental Science*, 682(1), 1-8. Retrieved from https://iopscience.iop.org/article/10.1088/1755-1315/682/1/012030/pdf

Saha, I., & Paul, B. (2020). *Essentials of biostatistics & research methodology*. Academic Publishers. Retrieved from https://books.google.ro/books/about/ESSENTIALS_OF_BIOSTATISTICS_RESEARCH_MET.html?id=QUgEEAAAQBAJ&redir_esc=y

Sax, J., & Andersen, T. J. (2019). Making risk management strategic: Integrating enterprise risk management with strategic planning. *European Management Review*, 16(3), 719-740. Retrieved from https://doi.org/10.1111/emre.12185

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons. Retrieved from https://9afi.com/storage/daftar/onTXVlzEDQNtC4khg3Yklhj0g5V5wyFsQqNDZOpL.pdf

Serpella, A. F., Ferrada, X., Howard, R., & Rubio, L. (2014). Risk management in construction projects: A knowledge-based approach. *Procedia-Social and Behavioral Sciences*, 119, 653-662. https://doi.org/10.1016/j.sbspro.2014.03.073

Sharma, S., & Gupta, A. K. (2019). Risk identification and management in construction projects: Literature review. *International Journal of Humanities, Arts and Social Sciences*, 5(6), 224-231. http://dx.doi.org/10.20469/ijhss.5.20002-6

Siraj, N. B., & Fayek, A. R. (2019). Risk identification and common risks in construction: Literature review and content analysis. *Journal of Construction Engineering and Management*, 145(9). Retrieved from https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29CO.1943-7862.0001685

Soh, J., Jeong, J., Jeong, J., & Lee, J. (2023). Quantitative risk evaluation by building type based on the probability and cost of accidents. *Buildings*, 13(2), 1-19. Retrieved from https://doi.org/10.3390/buildings13020327

Stigum, B. P. (2016). *Econometrics and the philosophy of economics*. Princeton University Press. Retrieved from https://press.princeton.edu/books/hardcover/9780691113005/econometrics-and-the-philosophy-of-economics?srsltid=AfmBOop-vagdUqJXyadsD8fciIMBRKsc61tilMQFju_UofpLwX71PNWc

Szymański, P. (2017). Risk management in construction projects. *Procedia Engineering*, 208, 174-182. Retrieved from http://dx.doi.org/10.1016/j.proeng.2017.11.036

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson. Retrieved from https://www.pearson.com/en-us/subject-catalog/p/using-multivariate-statistics/P200000003097/9780137526543?srsltid=AfmBOootbDSCDBydTE6z9kiQRVzq8qnTqbgINmFcJvfS6_AVR6C9ERUB

Tabachnick, B. G., & Fidell, L. S. (2022). *Using multivariate statistics* (8th ed.). Pearson.

Taherdoost, H. (2017). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management (IJARM)*, 5(2), 18-27. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3205035

Taroun, A. (2014). Towards a better modelling and assessment of construction risk: Insights from a literature review. *International Journal of Project Management*, 32(1), 101-115. Retrieved from https://doi.org/10.1016/j.ijproman.2013.03.004

Tewari, M., & Ramanlal, P. (2022). Risk management and agency theory: Role of the put option in corporate bonds. *Journal of Risk and Financial Management*, 15(61), 1-28. Retrieved from https://catalog.library.vanderbilt.edu/discovery/fulldisplay?docid=cdi_proquest_journals_2632812210&context=PC&vid=01VAN_INST:vanui&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=null,,Issued%20May%201977.,AND&mode=advanced&offset=0

Tsouroufli, M., Rédai, D., & Guerrini, V. (2021). *Research methodology in Palgrave studies in gender and education*. Palgrave Macmillan.

Tummala, V. M. R., Leung, Y. H., Mok, C. K., Burchett, J. F., & Leung, Y. M. (2011). Practices, barriers and benefits of using risk management approaches in selected Hong Kong industries. *International Journal of Project Management*, 15(5), 297-312. Retrieved from https://doi.org/10.1016/S0263-7863(96)00082-8

Ugwu, M. C., Osunsanmi, T. O., & Aigbavboa, C. O. (2019). Evaluation of risk management practice in the Nigerian construction industry. *Modular and Offsite Construction (MOC) Summit Proceedings*, 2018, 373-380. Retrieved from http://dx.doi.org/10.29173/mocs116

Wang, S. Q., Dulaimi, M. F., & Aguria, M. Y. (2016). Risk management framework for construction projects in developing countries. *Construction Management and Economics*, 22(3), 237-252. http://dx.doi.org/10.1080/0144619032000124689

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180. Retrieved from https://web.mit.edu/bwerner/www/papers/AResource-BasedViewoftheFirm.pdf

Wong, J. M. W. (2019). Application of fuzzy multi-criteria decision making in construction management. *Engineering, Construction and Architectural Management*, 26(9), 2011-2031.

Woodward, J. (1965). *Industrial organization: Theory and practice*. Oxford University Press. https://doi.org/10.2307/2229326

Yildiz, A. E., Dikmen, I., & Birgonul, M. T. (2014). Using system dynamics for strategic performance management in construction. *Journal of Management in Engineering*, 30(2), 162-171. Retrieved from https://doi.org/10.1061/(ASCE)ME.1943-5479.0000744

Zhao, X., Hwang, B. G., & Low, S. P. (2014). Enterprise risk management implementation in construction firms: An organizational change perspective. *Management Decision*, 52(5), 814-833. https://doi.org/10.1108/MD-02-2014-0082

Zhong, D., & Liu, M. (2018). Technology solutions for enhancing construction project management. *Journal of Construction Engineering and Management*, 144(2), 04017111.