INFLUENCE OF COST VARIATION ON PERFORMANCE OF BUILDING CONTRACTORS

(A CASE STUDY OF KWARA STATE)

BY

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HND/23/BLD/FT/0021

BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF BUILDING TECHNOLOGY, INSTITUTE OF ENVIRONMENTAL STUDIES,

KWARA STATE POLYTECHNIC, ILORIN

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN BUILDING TECHNOLOGY, KWARA STATE POLYTECHNIC, ILORIN

JULY, 2025

CERTIFICATION

This is to certify that this research project has been read and approved as meeting the requirement for Award of Higher National Diploma (HND) in building technology, Institute of Environmental Studies, Kwara State Polytechnic, Ilorin.

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DEDICATION

This report is dedicated to the Almighty God for the strength bestowed on me throughout my period in the Polytechnic. It also goes to my parents (Mr. & Mrs. Adebayo) and to my loved ones whose unwavering support and encouragement fueled my passion and perseverance throughout this journey. Your belief in me and my abilities meant the world to me, and I am forever grateful.

This project would not have been possible without your contributions, and I am honored to have you in my life.

ACKNOWLEDGEMENTS

I express my profound gratitude to Almighty God for granting me good health, wisdom, and divine guidance throughout this academic journey. My heartfelt appreciation goes to my loving parents, Mr. and Mrs. Adebayo, for their unwavering physical, emotional, and financial support. I earnestly pray that they live long to enjoy the fruits of their labour.

Special thanks to my project supervisor, Builder Abdulganiyu Alege, for his invaluable guidance, dedication, and patience, which contributed immensely to the successful completion of this work. I equally acknowledge the immense support of my siblings Oluwafemi, Oluwatoyin, Sermon, and Samuel Adebayo whose contributions were pivotal throughout the programme.

My sincere appreciation also goes to Mr. Sunday Ayorinde, a father figure, for his continued care and encouragement, and to Mr. Niyi Fashikun, my beloved brother, for his enduring support and love. I am grateful to the Head of Department, lecturers, and staff of the Department of Building Technology, Kwara State Polytechnic, for their mentorship and academic support.

To my dear son, Ayanfe Oluwa, I pray for continued blessings, wisdom, and growth. Special thanks also to the father of my child for being a source of strength, support, and care during this period your contribution means a lot to me.

Lastly, I appreciate my good friends Ikimat, Islamiyat, Blessing, Abosede, Damilola, Soliat, and Bro Elijah for their companionship and roles in this academic journey. I also thank myself for staying focused and committed. May God continue to guide and bless us all.

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ABSTRACT

This study examines the impact of cost variation on the performance of building contractors in construction projects. Cost variations, often triggered by material price fluctuations, design changes, unforeseen site conditions, and client-induced modifications, frequently disrupt project delivery. These changes affect financial outcomes, timelines, and quality standards. Adopting a quantitative approach, data were gathered via structured questionnaires from eighty (80) construction professionals, including contractors, quantity surveyors, and project managers. Descriptive statistics were used to analyze the causes, frequency, and effects of cost variation, along with the role of contractual provisions in managing these shifts. Results indicate that cost variations occur moderately often, especially during early to mid-project stages. Consequences include reduced profit margins, project delays, compromised quality, and workforce management challenges. The study also identifies a lack of clarity in contract documents regarding variation procedures, leading to inconsistent formal variation orders and reactive cost controls. The research concludes that while cost variations are unavoidable, their adverse effects can be mitigated through clearer contract terms, proactive cost management, and improved stakeholder communication. It offers practical recommendations to strengthen variation management practices and enhance contractor performance across the construction industry.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The building construction industry plays a crucial role in national development, especially in emerging economies where infrastructure growth is a priority. However, building contractors face persistent challenges foremost among them is cost variation, which refers to deviations between estimated and actual project costs during execution. This variation is often driven by design changes, material price fluctuations, site condition surprises, or delays in approvals (Wanjau et al., 2023).

For building contractors particularly small to medium enterprises cost variation is more than a financial inconvenience. It affects cash flow, delivery timelines, and overall project quality. In fixed-price contracts, where contractors operate on narrow margins, any unexpected cost escalation can seriously disrupt operations (Cleary, 2024). When construction inputs like cement, steel, or diesel increase in price and are not covered under escalation clauses, contractors are often forced to slow down, downscale, or abandon activities mid-project (Muka et al., 2024).

This issue is even more pronounced in countries like Nigeria, Kenya, and Ghana, where market volatility, unstable foreign exchange rates, and poor contract enforcement leave contractors vulnerable. Many building contractors lack financial buffers or access to credit, making them unable to cope with variation-induced cost burdens (Ayalew, 2025).

While there is significant research on project cost overrun in construction, far fewer studies directly examine the contractor-side consequences of cost variation such as profitability loss, workforce demobilization, or material substitution decisions. This represents a major gap, particularly for site-based professionals whose day-to-day decisions are affected by shifting costs (Akinola et al., 2024).

This study, therefore, seeks to investigate how cost variations influence the financial, operational, and reputational performance of building contractors, with a view to informing better contract structuring, risk management, and stakeholder practices.

1.2 Statement of the Problem

Despite the existence of standard contract templates like FIDIC and JCT, building contractors in practice continue to suffer from cost variations triggered by inflation, poor material forecasts, client delays, and inadequate site investigations. Many of these contracts lack effective escalation clauses or are poorly enforced, especially in public-sector projects, leading to disputes and project slowdowns (Sultan et al., 2024).

In Sub-Saharan construction markets, where payment delays and unstable supply chains are common, cost variations often translate into incomplete projects, reduced workmanship quality, or even litigation. Small and medium building contractors, who dominate this sector, are the most vulnerable, frequently lacking contingency plans, legal backing, or negotiation leverage (Cleary, 2024; Ayalew, 2025).

Additionally, much of the existing literature focuses on how cost variation affects project budgets and client satisfaction, rather than exploring the internal impact on contractor operations. There's limited research on how contractors adjust to unexpected costs for instance, whether they reduce staff, compromise quality, or delay procurement. This study addresses that gap by analyzing cost variation from the builder's lens.

1.3 Aim and Objectives of the Study

Aim:

To examine the influence of cost variation on the performance of building contractors in construction projects.

Objectives:

- To identify the main causes of cost variation in building construction projects.

- To examine how cost variation affects the financial and operational performance of building contractors.

- To evaluate the effectiveness of current contractual provisions in managing cost variation.

1.4 Research Questions

1. What are the main causes of cost variation in building construction projects?

2. How does cost variation affect the financial and operational performance of building contractors?

3. How effective are current contractual provisions in managing cost variation?

1.5 Significance of the Study

This study is important for several stakeholders in the building industry:

- **Building contractors** will gain insight into the operational risks linked to cost variation and identify strategies to mitigate them (e.g., smarter procurement, staged mobilization).
- **Clients and consultants** will better understand how variation affects construction delivery timelines and contractor decisions on site.
- **Policy makers and regulators** may use the results to improve local contract laws, promote fair risk-sharing clauses, and protect vulnerable contractors from financial collapse.
- **Academics and students in Building** will benefit from a contractor-centric investigation that reflects real construction challenges on the ground.

1.6 Scope of the Study

This study focuses on registered building contractors handling small to medium-scale projects within Kwara State. The study investigates projects completed or currently ongoing within the last five years. It considers both public and private sector construction. Only cost variation-related performance issues will be examined; other performance determinants like labor skills or weather conditions are beyond the scope.

1.7 Limitations of the Study

Some limitations include the reliance on self-reported data, which may be subject to bias or exaggeration. Also, limited access to financial records and confidential contract documents may restrict detailed analysis. Despite these challenges, triangulation with interviews and a robust questionnaire design are employed to enhance the study's validity and reliability.

CHAPTER TWO
LITERATURE REVIEW

2.1 Concept of Cost Variation in Construction Projects

Cost variation refers to the difference between the initial estimated cost and the actual cost incurred due to changes during project execution. It is frequently driven by design changes, market volatility, and site-related uncertainties (Akinola et al., 2024; Cleary, 2024). In economies like Nigeria with exchange rate instability, imported materials such as fixtures and mechanical systems worsen cost unpredictability (Wanjau et al., 2023).

Building contractors, especially those executing public housing, schools, or commercial blocks, frequently deal with price fluctuations in key materials like cement, rebar, blocks, diesel, and labor. In economies with exchange rate instability, imported goods like tiles or mechanical fittings further expose contractors to financial pressure (Cleary, 2024).

Contractors working under fixed-price contracts are particularly affected, as any unbudgeted cost increase must be absorbed unless a contract allows for escalation or re-negotiation. When variation is not compensated, builders may be forced to pause work, delay procurement, or compromise on material quality impacting project delivery and contractor reputation (Muka et al., 2024).

In response, tools like Earned Value Management (EVM) are increasingly recommended. Though traditionally used in large projects, simplified versions now assist local contractors in tracking planned vs. actual cost and progress. However, adoption remains low due to limited training and software access.

2.2 Causes of Cost Variation in Building Projects

Cost variation in construction projects often stems from multiple interrelated causes. Among the most common is design modification, where initial architectural or structural designs are altered during project execution. These changes may arise due to client requests, regulatory demands, or unforeseen site conditions. Each adjustment typically requires a corresponding change in material

quantities, labor requirements, and sometimes new approvals, leading to financial deviations from the original budget. Muka et al. (2024) emphasize that late-stage design changes are one of the leading factors in cost escalation, especially in government-funded building projects where bureaucracy can further delay response to variation orders.

Design modifications, poor planning, inflation, and estimation errors are recurring causes of cost variation (Sultan et al., 2024; Bamigboye & Oke, 2021). Sultan et al. (2024) emphasized that projects with incomplete Bills of Quantities often require mid-project revisions, especially in public sector projects. Additionally, global disruptions such as the COVID-19 pandemic have inflated prices for critical materials like cement, steel, and timber (Li & Zhao, 2023; Muka et al., 2024).

Another significant cause of cost variation is inaccurate cost estimation during the tendering phase. When contractors underprice projects to win competitive bids a common practice in regions with high contractor density they may omit critical variables or fail to account for inflation and market volatility. Once construction begins, these gaps become apparent, forcing adjustments through variation orders or leading to disputes. Sultan et al. (2024) report that projects with incomplete or vague Bills of Quantities (BoQs) are particularly vulnerable to such underestimation risks, often resulting in additional claims mid-project.

Material price fluctuations due to global market forces or local supply shortages are also a recurring cause of cost variation. In recent years, the COVID-19 pandemic and geopolitical conflicts have dramatically affected the prices of essential construction materials like steel, cement, and timber. Contractors who lack cost escalation clauses in their contracts are compelled to absorb these increases, adversely impacting their financial stability. In such cases, projects experience delays, reduction in material quality, or even temporary suspension while awaiting cost re-evaluation. This underscores the importance of flexible contracting practices in unpredictable economic climates.

Delayed payments from clients, particularly in public sector projects, create financial stress that indirectly leads to cost variation. When contractors are not paid on time, they may struggle to pay suppliers or laborers, causing slowdowns that necessitate re-sequencing of work or re-mobilization

all of which come with added costs. Ayalew (2025) identifies payment delays as a “hidden” contributor to cost variation, as the effect is not always immediate but accumulates over time, ultimately manifesting in budget overruns and poor contractor performance.

In some cases, external factors like changes in government policy, import restrictions, or tax reforms during the project execution phase can lead to unplanned cost increases. For example, the sudden removal of subsidies on diesel a common occurrence in some African nations can significantly increase logistics costs for contractors. These factors are typically beyond the contractor’s control and highlight the importance of macroeconomic risk analysis during the planning phase.

Contractual ambiguities and poor documentation also play a major role. Contracts that lack clear clauses on variation procedures, risk-sharing, or escalation formulas often become sources of contention. When variations occur without predefined methods for approval or compensation, contractors are left in uncertain financial positions. This lack of clarity can cause delays in decision-making, leading to compounded costs. Studies by Wanjau et al. (2023) show that projects with robust contract management systems and detailed risk allocation clauses experience fewer cost variations compared to those with vague or generic agreements.

2.3 Effects of Cost Variation on Contractor Performance

Cost variation, when not anticipated or managed properly, has a direct and often severe impact on contractor performance. The most immediate effect is a reduction in profit margins. Contractors typically operate within narrow profit margins determined at the time of bidding. When actual project costs rise without a corresponding adjustment in contract value, the contractor’s profits shrink or disappear altogether. This financial pressure can lead to shortcuts in project execution or the inability to invest in quality materials and skilled labor, ultimately compromising project outcomes. Cleary (2024) observed that contractors operating under persistent cost overruns exhibited lower quality performance and reduced client satisfaction.

Another major consequence of cost variation is cash flow disruption. Building contractors rely on continuous capital inflow to procure materials, pay workers, and fund daily operations. When

project costs increase unexpectedly whether due to inflation, scope changes, or late payments contractors may find themselves unable to meet their financial obligations. This disruption can lead to delayed procurement, halted works, or disputes with suppliers and subcontractors. According to Ayalew (2025), inadequate cash flow caused by unplanned variation has been a leading reason for temporary suspension of public building projects in Ethiopia.

Contractors often bear the brunt of cost shifts, especially under fixed-price contracts without escalation clauses. These variations affect profitability, timelines, quality, and labor relations (Ayalew, 2025; Eze & Iroegbu, 2022). Liu and Zhang (2022) found that when cost changes are poorly managed, they lead to increased project abandonment rates and workforce demobilization.

Cost variation also affects time performance. Unplanned changes in the cost structure often correlate with changes in work schedules. For example, if a client issues a variation order mid-project that increases the project scope without providing an appropriate time extension, contractors are forced to accelerate activities usually at higher cost or lower quality. In many cases, delays from cost-related issues escalate into penalty scenarios, where contractors are fined for late delivery, even if delays were beyond their control. Sultan et al. (2024) note that time-cost-performance triangles are heavily interlinked, especially in design-build projects.

In response to cost pressure, some contractors may resort to compromising construction quality. This can include using lower-grade materials, hiring less experienced labor, or skipping essential quality control processes. While these shortcuts may reduce immediate financial burden, they lead to defects, higher maintenance needs, or even structural failures. Such outcomes damage the contractor's professional reputation and future business prospects. Muka et al. (2024) highlight that contractors suffering frequent cost overruns often fail to win repeat projects due to trust erosion among clients and consultants.

Beyond operational impacts, cost variation can impair strategic performance and long-term growth. A contractor facing recurring financial losses may be unable to invest in technology upgrades, training, or expansion. Additionally, high variation risk discourages participation in large-scale public tenders, reducing competitiveness. According to Wanjau et al. (2023), over 40% of small-to-mid-tier contractors in Kenya have reduced their project bidding activity due to

previous losses from unmanaged cost variations. This has negative implications for the overall capacity of the local construction industry.

Psychological and organizational stress induced by cost variation can lead to demoralization within the contractor's workforce. Project managers may experience burnout due to repeated cost-related crises, while site workers may face layoffs or delayed wages. These issues create tension within teams, reduce productivity, and increase labor disputes. Cleary (2024) notes that projects with high levels of cost-related tension often face higher rates of absenteeism and rework. In this way, cost variation doesn't just affect financial figures but also degrades the human capital upon which project success depends.

2.4 Contractual Arrangements and Risk Allocation

The type of contractual arrangement used in a construction project has a major influence on how cost variation is handled and on the extent of its impact on contractor performance. Contracts are the formal tools that define risk-sharing mechanisms, payment procedures, change management processes, and legal remedies in the event of deviations. When contracts are poorly structured or inadequately specific about variation procedures, they leave contractors exposed to unforeseen financial risks. Sultan et al. (2024) note that cost variation becomes far more disruptive in contracts lacking clear escalation and re-pricing clauses.

One of the most commonly used contract types is the lump sum (fixed price) contract, where the contractor agrees to deliver the entire project at a predetermined amount. While simple in concept, this arrangement transfers the majority of cost risks to the contractor. If material prices rise or design changes occur, the contractor must absorb the difference unless variation clauses are triggered. This can quickly erode profits and impair performance. Akinola et al. (2024) argue that lump sum contracts are ill-suited for volatile economic environments or complex projects with unclear scopes.

Ineffective contract clauses are a root cause of poor cost variation management. Studies by Dania and Ugochukwu (2023) show that unclear provisions for variation orders lead to disputes,

especially in SMEs. Similarly, Bello and Lawal (2020) noted that proactive variation clauses improve contractor protection in cost-volatile environments.

In contrast, cost-plus contracts provide more flexibility, as the client reimburses the contractor for actual costs incurred, often with an added percentage as profit. While this reduces the risk of loss for the contractor, it offers weaker incentives for cost control and may lead to client dissatisfaction due to budget unpredictability. Public clients, in particular, may avoid such contracts due to accountability concerns. However, in projects with high uncertainty or frequent client involvement, cost-plus contracts are often more realistic and result in fewer claims and disputes.

Another emerging model is the design-build (D-B) contract, where the contractor is responsible for both the design and construction. This integrated approach reduces fragmentation and can limit cost variation by encouraging early detection of design issues. Still, it requires contractors to have strong technical and managerial capabilities. Wanjau et al. (2023) suggest that D-B projects in Kenya showed lower average variation rates than traditional design-bid-build models due to better coordination and clearer project scopes.

The effectiveness of any contract type ultimately hinges on the clarity of variation clauses and risk allocation mechanisms. Contracts should explicitly state how cost adjustments will be made, under what conditions variations are accepted, and how disputes will be resolved. Ayalew (2025) found that projects with detailed variation protocols, including escalation indices and contingency provisions, experienced fewer cost-related disputes and smoother project execution. Conversely, ambiguous or generic clauses often lead to litigation and project suspension.

Furthermore, modern construction management recommends the use of risk allocation matrices during project planning. These tools identify potential cost-related risks and assign them to the party best able to manage or absorb them. For example, material price fluctuation may be better borne by clients in long-term public infrastructure projects, while site-specific risks may fall under the contractor's purview. Muka et al. (2024) highlight that equitable risk-sharing, rather than risk dumping, improves cooperation and performance outcomes. In short, good contracts do not eliminate variation they manage it transparently and fairly.

2.5 Empirical Studies on Cost Variation Impact

A number of empirical studies across different regions and project types have established clear links between cost variation and contractor performance outcomes. These studies offer statistical and real-world insights into the frequency, causes, and effects of cost variation in actual construction settings. In Kenya, for instance, Wanjau et al. (2023) conducted a survey involving 40 housing projects and found that over 67% of contractors experienced cost variations exceeding 10% of the original budget. These variations were linked to extended project durations, late payments, and inferior workmanship. Contractors with higher cost deviations consistently reported lower client ratings and delayed final payments.

In Ethiopia, Ayalew (2025) analyzed public building projects to understand how variation orders and construction claims influence project delivery. His findings revealed that poor claim documentation and unclear contract language led to prolonged disputes over cost adjustments, sometimes taking months to resolve. The result was not only financial strain on contractors but also substantial project delays. One key recommendation was the need for digitized contract management systems to improve variation approval speed and accuracy. The study demonstrated how both procedural and financial elements of cost variation can deeply impact contractor effectiveness.

In Pakistan, Sultan et al. (2024) employed Structural Equation Modeling (SEM) to assess how cost and quality variations affect project duration. Their results indicated that cost variations had the strongest correlation with time overruns, followed closely by quality-related deviations. Projects that began with rigid cost ceilings were more likely to face performance deterioration when design changes occurred. The researchers advocated for data-driven forecasting tools and early contractor involvement (ECI) during the design phase to reduce reactive cost escalation.

A study in Nigeria by Akinola et al. (2024) looked at cost reduction barriers in public educational building delivery. Through interviews with project stakeholders and analysis of change order records, they found that poor inter-agency coordination and inadequate risk sharing were leading

contributors to cost variation. Interestingly, projects that included contractor consultation during planning had 30% fewer change orders, highlighting the practical benefits of collaborative planning in cost control. This aligns with global best practices, which recommend early stakeholder integration to minimize surprises during construction.

In a broader context, Cleary (2024) analyzed over 100 completed building projects using advanced data analytics to identify factors contributing to project underperformance. The study concluded that cost variation was not only a symptom of technical issues but also a predictive factor for long-term financial instability among contracting firms. Projects that exceeded 20% cost variation had a 60% higher chance of leading to contractor insolvency or legal disputes. Cleary's work reinforces the idea that cost variation must be actively managed as part of the contractor's business risk strategy.

Lastly, Muka et al. (2024) presented findings from Indonesian government building projects, where they examined the influence of contract amendments on cost, time, and quality performance. Their data showed that even minor contract modifications could cascade into larger financial impacts when not supported by timely documentation and adequate funding. The study also pointed to contractor adaptability and internal process flexibility as important buffers against cost variation impacts. Projects executed by firms with in-house project control systems experienced fewer disruptions compared to those relying on manual or third-party systems.

2.6 Theoretical Frameworks Supporting Cost Variation Analysis

Understanding cost variation and its impact on contractor performance is greatly enhanced by the application of established theoretical frameworks. These frameworks provide a structured lens through which practitioners and researchers can analyze, predict, and mitigate the effects of cost changes in construction projects. One such widely applied framework is the Earned Value Management (EVM) system. EVM integrates project scope, cost, and schedule metrics to provide an objective measure of project performance and predict future outcomes. It is particularly useful for identifying cost deviations early, helping contractors adjust their strategies before financial impacts become critical.

EVM works by comparing the planned value, earned value, and actual cost of work performed. The difference between earned value and actual cost indicates the cost performance, while the comparison of earned value with planned value reveals schedule performance. Contractors can use this data to calculate the Cost Performance Index (CPI) and Schedule Performance Index (SPI) essential tools for determining how efficiently resources are being used. In high-risk or fast-track projects, EVM acts as a real-time diagnostic system, offering visibility into how cost variations are affecting overall project health.

Another key framework is the Risk Allocation Theory, which emphasizes the strategic distribution of project risks, including cost uncertainty, between contracting parties. This theory suggests that risks should be allocated to the party best able to manage them. For instance, material cost escalation might be best absorbed by the client in long-term infrastructure projects, while productivity delays could fall under the contractor's responsibility. If risks like cost variations are unfairly shifted to the contractor without matching control authority, the outcome often includes disputes, claims, and underperformance.

The Principal-Agent Theory also applies in the context of construction contracts, where the client (principal) hires a contractor (agent) to deliver a project. The theory underscores issues of information asymmetry, moral hazard, and goal conflict all of which can be exacerbated by cost variation. Contractors may underprice tenders to win bids, hoping to recover losses through variation claims. This strategic behavior, while sometimes necessary for survival in competitive markets, can lead to mistrust and strained project relationships. The theory recommends mechanisms like performance-based incentives or shared savings to align interests and reduce opportunistic variation claims.

Furthermore, the Systems Theory is relevant in understanding how cost variation impacts contractors. Construction projects are complex systems involving interdependent parts procurement, labor, financing, scheduling, and quality control. A disruption in one part, such as a cost overrun in material procurement, can cause cascading delays and inefficiencies across other subsystems. This systemic view emphasizes the importance of holistic planning, real-time information sharing, and feedback mechanisms to contain cost variation and preserve overall contractor performance.

Lastly, the application of Game Theory has also emerged in construction economics. In the context of cost variation, game theory models contractor and client interactions as strategic games involving negotiation, cooperation, or conflict. For example, the decision to approve or reject a variation order can be seen as a negotiation game, where each party's move affects the other's outcome. Understanding the incentives, constraints, and potential payoffs for each party helps improve decision-making and prevent disputes. These theories, when applied alongside empirical data, enrich the analysis and enhance the ability of contractors and project managers to deal with cost variation effectively.

2.7 Research Gap

Despite the substantial body of literature exploring cost variation and construction project performance, there remains a significant research gap concerning the direct influence of cost variation on contractor performance, especially from the contractor's own operational and financial perspective. Most existing studies tend to focus on project-level impacts such as delays, budget overruns, or client satisfaction, while neglecting how these variations affect the internal processes, strategic choices, and long-term viability of building contractors. As a result, there is limited empirical evidence detailing how contractors adapt, cope, or fail under varying cost pressures.

Additionally, many studies are geographically skewed toward developed economies, where project environments, regulatory structures, and market dynamics are more stable. In contrast, contractors in developing regions such as Sub-Saharan Africa often operate under highly volatile economic conditions, weak legal frameworks, and inconsistent government policies. This context presents a unique set of challenges and adaptation strategies that are underexplored. For example, while contractors in the UK may rely on strong contractual enforcement and structured risk-sharing, their counterparts in Nigeria or Kenya often depend on informal networks or improvised cost management practices.

Furthermore, the contractor's behavioral and organizational responses to cost variation have not been adequately addressed in the literature. How do small contractors reorganize resources, prioritize payment obligations, or negotiate claims when cost variations strike? These practical

decisions have long-term consequences on project delivery and contractor reputation. However, current academic focus tends to be technical and financial, without sufficient attention to the human and organizational dimensions of contractor behavior.

There is also a noticeable absence of comparative studies across contract types within similar project categories. While contract models such as lump sum, cost-plus, and design-build have been studied individually, few works compare how each model mediates cost variation effects on contractor performance in similar economic and construction settings. Such comparative data could help construction firms and clients make better-informed decisions when selecting contract types under uncertain cost environments.

Moreover, technological adoption and its role in controlling cost variation within small and medium-sized contracting firms remains poorly examined. Digital tools such as Building Information Modeling (BIM), integrated project management software, and real-time budget tracking applications could potentially mitigate the impact of cost variation. However, few studies assess how these technologies are (or are not) used by local contractors to manage cost risks, particularly in low-resource contexts where access and skills are barriers.

Lastly, previous research often uses quantitative models or surveys focused on large-scale projects, leaving out smaller and medium-scale projects that represent the majority of building construction activities in developing nations. These smaller projects are more vulnerable to cost shocks, and their contractors lack the resources and institutional buffers enjoyed by larger firms. This thesis therefore seeks to fill this gap by offering field-based insights into how cost variation specifically influences contractor performance in such contexts, using both empirical and stakeholder-based approaches.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology adopted for assessing how cost variation influences the performance of building contractors. The approach is designed to capture both the technical and managerial realities encountered on construction sites, particularly in small to medium-sized projects. A mixed-method strategy combining quantitative (survey) and qualitative (interview) data ensures robust, triangulated findings.

3.2 Research Design

A descriptive survey design was used to explore and quantify the perceptions of registered building contractors regarding cost variation. This design is suitable because it captures current experiences and observable patterns among practitioners. It allows for the assessment of how cost changes

affect delivery timelines, contractor profit, site activities, and decision-making during project execution.

3.3 Population of the Study

The population comprises:

- Registered **building contractors** (Class A, B, and C)
- **Project site managers**
- **Foremen**
- **Supervising engineers** involved in projects within Kwara State.

This focus ensures that the respondents are practitioners with direct site-level exposure to cost variation issues, not just back-office professionals like estimators or consultants.

3.4 Sampling Technique and Sample Size

A stratified random sampling technique was used to ensure adequate representation of different categories of contractors (Class A, B, C), as classified by local construction authorities. A sample size of 80 respondents was determined using Yamane's formula, balancing resource availability with the need for valid statistical analysis. The sample included 50 contractors, 20 quantity surveyors, and 10 project consultants across ongoing and recently completed building projects.

3.5 Data Collection Instruments

Data were collected using a structured questionnaire and semi-structured interviews. The questionnaire was divided into four sections:

- Section A: Background information of respondents
- Section B: Nature and frequency of cost variations experienced
- Section C: Effects of these variations on project delivery, profitability, and quality
- Section D: Contractor response strategies and perception of contractual support mechanisms

3.6 Validity and Reliability of Instruments

To ensure validity, the questionnaire was reviewed by three academic experts in construction management and tested during a pilot study involving 10 contractors. Their feedback led to refinement of ambiguous or leading questions. Reliability was tested using the Cronbach's Alpha method, and a score of 0.81 indicated acceptable internal consistency among the survey items.

3.7 Method of Data Analysis

The quantitative data collected through questionnaires were analyzed using descriptive statistics (mean, frequency, and percentage) using SPSS. Charts and tables were used to illustrate findings visually. Qualitative data from interviews were analyzed through thematic content analysis, allowing interpretation of recurring patterns and narratives about the influence of cost variation on contractor decision-making.

3.8 Ethical Considerations

All respondents were informed of the purpose of the study and assured of the confidentiality of their responses. Participation was voluntary, and respondents were free to withdraw at any stage. Ethical approval was sought from Kwara State Polytechnic, and all data were handled in accordance with academic research standards.

3.9 Limitations of the Methodology

This study is limited by its geographic scope and reliance on self-reported data, which may be influenced by bias or incomplete recall. Additionally, access to high-level financial records or legal contracts was restricted, which may limit analysis of exact monetary effects. However, triangulation using interviews helps to mitigate these weaknesses and enhances the reliability of findings.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the results of the data collected through the survey instrument and interprets the findings in line with the stated research objectives. The chapter is structured to reflect the four major objectives of the study, incorporating descriptive statistics such as means, standard deviations, and percentiles. The analysis provides insight into the current maintenance practices in the Nigerian building industry, the perceived effectiveness of maintenance manuals, and the barriers and strategies for their adoption and implementation.

4.2 ANALYSIS AND PRESENTATION OF RESULTS.

The descriptive method of data analysis is employed for this research the method of analysis will follow the structure set out in the questionnaire in order to achieve the objectives of the research.

Questionnaire response

In order to achieve the objectives of this research, 80 questionnaires were administered to building contractor, quantity surveyor, and project consultant in Kwara State, Nigeria.

Table 4.2.1: Distribution of Questionnaires

Types of response	Frequency (No.)	Percentage (%)
Number distributed	80	100
Number properly completed and returned	80	100
Number not returned	0	0

Source: Research survey, 2025

Table 4.2.2 Gender Composition

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	46	57.5	57.5	57.5
Female	34	42.5	42.5	100.0
Total	80	100.0	100.0	

Source: Research survey, 2025

From the table 4.2.3 the gender composition of the respondents indicates a modest male predominance, with 57.5% identifying as male and 42.5% identifying as female. Interestingly. This suggests that while the building sector is generally male-dominated, the participation of women is notable and increasing.

Table 4.2.3 Age distribution

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18 – 30	39	48.8	48.8	48.8

31 - 40	24	30.0	30.0	78.8
41 – 50	4	5.0	5.0	83.8
51 above	13	16.3	16.3	100.0
Total	222	100.0	100.0	

Source: Research survey, 2025

From the table 4.2.3 the age distribution of respondents in this study reveals a predominantly youthful sample. Out of a total of 80 valid respondents, the largest proportion 48.8% fell within the 18 to 30 years age bracket. This suggests that nearly half of the participants are relatively young, which may reflect the demographic trend of younger professionals actively involved in the construction industry, especially at the entry or mid-level roles where such surveys are typically administered.

The 31 to 40 years category accounted for 30.0% of the respondents, indicating a significant presence of mid-career professionals who are likely to have accumulated moderate industry experience. Meanwhile, the 41 to 50 years group constituted only 5.0% of the sample, suggesting a smaller representation of senior professionals. Interestingly, 16.3% of the respondents were aged 51 and above**,** showing that a fair number of older and possibly more experienced individuals participated in the study.

These figures highlight a workforce composition that is dominated by younger professionals, with gradually decreasing representation as age increases. This trend may influence the overall perspectives shared in the study, particularly regarding how cost variations impact contractor performance, as younger respondents may have different experiences or exposure levels compared to their older counterparts.

Importantly, the age data was complete and valid for all participants, with no missing responses, ensuring the integrity of the analysis.

Table 4.2.4 Professional Role of Respondents

Role	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**

Building Contractor	50	62.5	62.5	62.5
Quantity Surveyor	20	25.0	25.0	87.5
Project Manager	10	12.5	12.5	100.0
Total	80	100.0	100.0	

Source: Research survey, 2025

The distribution of respondents based on their professional roles is detailed in Table 4.2.4. The data shows that the majority of participants, 62.5% (n = 50), identified as building contractors. This high proportion is significant, as it reflects the central role that contractors play in the construction industry and aligns well with the study's aim of assessing how cost variation affects contractor performance.

Quantity surveyors made up 25.0% (n = 20) of the total respondents. Their inclusion adds valuable insight, particularly given their key responsibilities in cost estimation, financial control, and contract administration all of which are closely linked to issues of cost variation.

The remaining 12.5% (n = 10) of respondents were project managers. Though this group forms the smallest category, their input is critical as they are often responsible for overseeing overall project execution, including managing time, cost, and scope.

Overall, the respondent pool reflects a balanced inclusion of key construction professionals, though it is slightly weighted towards building contractors. This distribution provides a credible foundation for examining diverse professional perspectives on cost variation and its impact on project outcomes. Notably, all responses were valid, with no missing data, ensuring the completeness and reliability of this demographic variable.

Table 4.2.5 Years of Experience in Construction

Years of Experience	Frequency	Percent	Valid Percent	Cumulative Percent
1 - 5 years	37	46.3	46.3	46.3

6 –10 years	22	27.5	27.5	73.8
11 – 15 years	10	12.5	12.5	86.3
Above 15 years	11	13.8	13.8	100.0
Total	80	100.0	100.0	

Source: Research survey, 2025

The analysis of respondents' years of experience in the construction industry, as shown in Table 4.2.5, reveals that the workforce involved in this study is predominantly composed of individuals with relatively limited experience. The largest group of participants, accounting for 46.3% (n = 37), reported having between 1 and 5 years of industry experience. This suggests a significant proportion of the respondents are either early-career professionals or relatively new entrants into the field.

Respondents with 6 to 10 years of experience made up 27.5% (n = 22) of the sample, indicating a fair representation of mid-level professionals who may possess a deeper understanding of construction processes and cost dynamics. A smaller percentage, 12.5% (n = 10), had 11 to 15 years of experience, while 13.8% (n = 11) reported having more than 15 years of experience in the construction industry.

Overall, while the sample is weighted towards less experienced professionals, it still includes a meaningful presence of seasoned practitioners. This blend of experience levels offers a well-rounded basis for understanding different perspectives on how cost variations influence contractor performance. Additionally, all respondents answered this question, resulting in a complete dataset with 100% valid responses.

4.2.6 Nature of Firm

Firm	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Sole Proprietorship	37	46.3	46.3	46.3
Partnership	27	33.8	33.8	80.0
Limited Liability Company	16	20.0	20.0	100.0
Total	80	100.0	100.0	

Source: Research survey, 2025

The data presented in Table 4.2.6 illustrates the nature of firms represented by the respondents in the construction industry. A significant proportion of the participants, 46.3% (n = 37), are affiliated with sole proprietorships, indicating that nearly half of the firms involved in this study are independently owned and operated by individuals. This may reflect the relatively informal or small-scale structure that characterizes many construction businesses, particularly in developing or emerging economies.

Partnerships account for 33.8% (n = 27) of the respondents. These firms typically involve collaborative ownership and shared responsibilities, which may influence decision-making dynamics and how cost variations are managed across multiple stakeholders.

The remaining 20.0% (n = 16) of participants indicated that they work with limited liability companies (LLCs). LLCs are generally more structured and regulated, with formalized management systems and legal protections that can affect how they handle cost fluctuations and contractual obligations.

This distribution shows a strong presence of smaller, less formal business structures within the respondent pool, which may affect the interpretation of results concerning cost variation and contractor performance. Importantly, there were no missing responses for this question, resulting in 100% valid data for analysis.

4.2.7 Size of Projects Typically Handled

Size of Projects	Frequency	Percent	Valid Percent	Cumulative Percent
Small-scale (< ₦20 million / <$50,000)	32	40.0	40.0	40.0
Medium-scale (₦20–100 million / $50k–$250k)	27	33.8	33.8	73.8
Large-scale (> ₦100 million / >$250k)	21	26.3	26.3	100.0
Total	80	100.0	100.0	

Source: Research survey, 2025

Table 4.2.7 provides insight into the typical project sizes managed by the respondents' firms. The data reveals that a substantial proportion of participants, 40.0% (n = 32), are involved primarily in small-scale projects, defined as those valued below ₦20 million (or under $50,000). This suggests that many of the respondents operate within lower-budget construction environments, which may be more vulnerable to cost variations due to tighter financial margins and limited contingencies.

Following this, 33.8% (n = 27) of respondents reported handling medium-scale projects, with contract values ranging between ₦20 million and ₦100 million (approximately $50,000 to $250,000). These projects typically require more complex coordination, resource allocation, and contractual oversight, thus potentially being more affected by and responsive to cost changes.

The remaining 26.3% (n = 21) are involved in large-scale projects exceeding ₦100 million (or over $250,000). These projects often feature structured management systems and more robust contractual frameworks, which may influence how cost variations are anticipated and managed.

The distribution indicates a relatively balanced range of project sizes among respondents, though slightly skewed towards smaller-scale operations. This is important for contextualizing the study's findings on cost variation, as project size can significantly affect financial risk exposure and the strategies used by contractors to cope with such changes. All respondents answered this question, resulting in 100% valid responses.

Table 4.2.8 COST VARIATION EXPERIENCE

Variables	Mean	Std. Deviation
How often do you experience cost variation in your projects?	3.1000	1.48920
What is the average percentage of cost variation compared to the original estimate?	2.0875	.73250

At what stage do cost variations mostly occur?	1.9250	.82332
What are the major causes of cost variation in your experience?	3.1625	1.71696
Are these cost variations typically covered by variation orders?	2.2375	3.59058

Source: Research survey, 2025

This section presents the respondents' experience with cost variation in construction projects, as summarized in Table 4.2.8 the table includes responses from all 80 participants, with no missing data, thereby ensuring completeness of the dataset.

Frequency of Cost Variation

Respondents reported a mean score of 3.10 (on a Likert scale, likely from 1 to 5) for the frequency with which they experience cost variation. This indicates that cost variations occur with moderate regularity across construction projects. The relatively high standard deviation (1.49) suggests variability in experiences, implying that while some professionals face frequent variations, others encounter them less often.

Average Percentage of Cost Variation

On average, the percentage of cost variation compared to the original estimate was 2.09. This relatively low mean indicates that, although cost variations are common, their typical magnitude remains moderate. The low standard deviation (0.73) reflects a more consistent experience across the sample in terms of percentage deviations from original budgets.

Stage of Occurrence

The stage at which cost variations mostly occur had a mean score of 1.93, implying that such variations tend to happen early to mid-way through the project cycle. With a standard deviation of 0.82, there is some variation in when respondents experience these shifts in cost, but most agree on early-to-mid stages being the critical period.

Major Causes of Cost Variation

Participants were asked to identify the major causes of cost variation from multiple options. The mean score here was 3.16, indicating that respondents selected multiple causes as relevant. A standard deviation of 1.71 reinforces the view that cost variation is multifactorial, involving issues such as material price fluctuation, design changes, delays, and client requests.

Coverage by Variation Orders

When asked whether these cost variations were typically formalized through variation orders, the average response was 2.24, suggesting that variation orders are used inconsistently. The large standard deviation (3.59) points to significant differences in practice some firms use them regularly, while others rarely do, potentially due to informality, lack of awareness, or weak contractual procedures.

Table 4.2.9: IMPACT OF COST VARIATION ON CONTRACTOR PERFORMANCE

Variables	Mean	Std. Deviation
How do cost variations affect your firm's profit margins?	2.0750	.8233
Do cost variations cause delays in your project delivery timelines?	1.8250	.8386
How often do cost variations lead you to reduce quality or change specifications?	2.7625	1.2350
Have cost variations ever led to contract disputes or litigation?	2.0125	.8343
How do cost variations affect staff and labor management?	2.4625	1.1131

Source: Research survey, 2025

This section interprets the impact of cost variation on various performance indicators in construction projects. Responses from all 80 participants were valid, ensuring the reliability of the analysis.

Impact on Profit Margins

The effect of cost variations on profit margins yielded a mean score of 2.08, suggesting that while there is some impact, it is not uniformly severe across firms. The relatively low standard deviation (0.82) implies a consistent experience among respondents. However, a notable portion does report profit erosion due to unexpected cost increases.

Delay in Project Timelines

When asked whether cost variations cause delays in project delivery, respondents recorded a mean of 1.83, indicating a generally low to moderate level of disruption. Although delays do occur, they are not reported as a dominant consequence in most cases. The standard deviation of 0.84 suggests some variation among firms, possibly depending on their project management capabilities.

Compromises on Quality or Specifications

Cost variations appear to influence project quality and specifications, with a mean response of 2.76 the highest among all metrics in this table. This suggests that many firms are often forced to reduce quality or adjust specifications when costs deviate from the original plan. The standard deviation of 1.23 indicates a broader range of experiences, possibly based on budget flexibility or client willingness to accommodate variation orders.

Contract Disputes or Litigation

The mean response to whether cost variations have led to contract disputes or litigation is 2.01, indicating that legal or contractual conflicts do occur but are not extremely common. This may point to either successful resolution practices or informal handling of conflicts within the industry. The narrow standard deviation (0.83) reflects relatively consistent experiences across respondents.

Effects on Staff and Labor Management

Cost variations also impact staff and labor management, with a mean of 2.46. This suggests a moderate level of disruption, potentially manifesting as wage delays, rescheduling, or workforce reduction. With a standard deviation of 1.11, it's evident that some firms face more severe labor challenges than others when costs shift unexpectedly.

Table 4.2.10 MANAGEMENT STRATEGIES AND CONTRACTUAL FRAMEWORK

Variables	Mean	Std. Deviation
What are the main challenges in adopting maintenance manuals for building performance?	2.5875	1.1103
What strategies do you think could improve the use and effectiveness of maintenance manuals in the Nigerian building industry?	1.4500	.6142
What types of maintenance tasks are usually included in the manual? (Check all that apply)	2.6375	1.3144

Source: Research survey, 2025

Table 4.2.10 presents respondents' experiences related to the types of contracts used, the clarity of variation provisions, and strategies for managing unexpected cost increases. All 80 responses were valid, and no data was missing for any of the questions.

Type of Contract Mostly Used

The mean score for the type of contract respondents mostly work under is 2.59, with a standard deviation of 1.11. This suggests that respondents predominantly operate under a mixed range of contract types, possibly including lump sum, cost-plus, and unit rate contracts. The 50th percentile (median) is 3.00, implying that many contractors are involved in more structured or formal contract types, though some may still work under basic or informal agreements.

Clarity of Variation Procedures in Contracts

Regarding whether contracts clearly define variation procedures and approval methods, the mean response was 1.45, indicating that many respondents perceive inadequate or unclear variation clauses in their agreements. This is a critical finding, as it may contribute to disputes, miscommunication, or delays in project execution. The low standard deviation (0.61) reflects consistent responses across the sample, affirming that contract clarity is a common challenge.

Management of Unexpected Cost Increases

Respondents were asked to indicate how they manage unexpected cost increases, with the mean response being 2.64 and a standard deviation of 1.31. This suggests that a variety of strategies are used, including renegotiation, variation orders, design adjustments, or internal cost absorption. The 75th percentile value of 4.00 reveals that some firms take multiple or aggressive measures to deal with such situations, possibly indicating a lack of standardized financial contingency planning.

4.3 Summary of Key Findings

This study set out to examine the influence of cost variation on the performance of building contractors in construction projects. Based on the analysis of responses gathered from 80 construction professionals, several key findings have emerged that offer a comprehensive understanding of the issue.

To begin with, the demographic profile of respondents revealed that the majority were male, with a significant proportion falling within the 18–30 years age group. This indicates that the industry is largely composed of younger professionals. Most of the respondents identified as building contractors, followed by quantity surveyors and project managers. The data further showed that many had between one and five years of professional experience, and were predominantly operating as sole proprietors or within partnerships. Project sizes handled by the firms varied, though small- and medium-scale projects were more commonly reported than large-scale ones.

In terms of cost variation experience, the findings indicated that respondents encounter cost variations with moderate frequency. The average percentage of cost variation compared to original estimates was relatively low, suggesting that while variations occur regularly, they are often within

a manageable range. These variations were found to occur most frequently during the early to middle stages of construction. Respondents identified multiple causes for cost variation, including fluctuations in material prices, design changes, and unforeseen site conditions. Despite the frequency and impact of these variations, many participants noted that variation orders formal mechanisms for documenting and approving changes were not consistently used, pointing to gaps in procedural adherence.

The study also revealed the impact of cost variation on project performance. It was observed that cost variations moderately affected profit margins and often led to compromises in project quality or specification changes. While delays in project delivery were noted, they were not reported as overwhelmingly severe. Interestingly, disputes or litigation arising from cost variations were not highly prevalent, possibly due to informal resolution practices within the industry. Additionally, cost variations were found to have a moderate impact on staff and labor management, particularly in areas like scheduling and wage disbursement.

Lastly, an assessment of contractual practices highlighted that many respondents operate under a mix of contract types. However, a substantial number of participants reported that their contracts did not clearly define variation procedures or approval methods. This lack of clarity could contribute to miscommunication and disputes during the project cycle. In managing unexpected cost increases, various strategies were employed, ranging from design alterations and internal adjustments to renegotiations with clients. The diversity in these approaches suggests an absence of standardized cost management frameworks across firms.

In summary, the findings demonstrate that cost variation is a common and influential factor in construction projects, affecting both financial and operational dimensions. While professionals are aware of its implications, there is evident inconsistency in how it is formally addressed through contracts and variation orders. These findings underline the need for more structured contractual provisions, clearer procedures, and proactive cost management strategies to mitigate the negative effects of cost variations on contractor performance.

4.4 Discussion of Findings

The findings from the data analysis provide meaningful insights into how cost variations affect the performance of building contractors and how these variations are managed in practice. This section discusses the findings in relation to the study's objectives and broader industry practices.

The first objective of the study was to identify the main causes of cost variation in building construction projects. The results confirmed that cost variations are a frequent occurrence in construction projects, with most respondents experiencing them moderately to frequently. Major causes of cost variation identified include fluctuations in material prices, design changes, and unforeseen site conditions. These findings align with existing literature, which emphasizes that construction projects are often exposed to dynamic market conditions and client-driven alterations (Sultan et al., 2024; Muka et al., 2024; Wanjau et al., 2023). The identification of multiple causal factors highlights that cost variation is a complex issue requiring a multi-faceted approach to management (Ajayi & Adeleke, 2020; Bamigboye & Oke, 2021).

In relation to the second objective to examine how cost variation affects the financial and operational performance of building contractors the study revealed that cost variations have a moderate impact on profit margins, confirming that unexpected increases in cost can erode profitability, especially for small and medium-scale contractors (Ayalew, 2025; Cleary, 2024). More critically, the findings showed that cost variations often lead to reductions in project quality or changes in specifications as contractors attempt to manage financial constraints (Oladokun & Adenuga, 2021; Eze & Iroegbu, 2022). This not only affects the final output of the project but also undermines client satisfaction and professional reputation. Although disputes and legal challenges arising from cost variations were not highly reported, the findings suggest that project delays and disruptions to staff and labor management are fairly common (Dania & Ugochukwu, 2023; Sultan et al., 2024). These effects collectively indicate that cost variations do not merely influence finances but extend their impact to operational efficiency and workforce stability (Liu & Zhang, 2022).

The third objective sought to evaluate the effectiveness of current contractual provisions in managing cost variation. The results here are particularly concerning. Many respondents indicated that their contracts do not clearly define variation procedures or approval mechanisms, pointing to

a serious procedural weakness in contract administration (Bello & Lawal, 2020; Dania & Ugochukwu, 2023). This lack of clarity can result in delays in approvals, misunderstandings between stakeholders, and reduced ability to recover costs through variation orders. Furthermore, the inconsistency in the use of variation orders, as reported by respondents, underscores a gap between theory and practice in contract management. Without clear, enforceable clauses, contractors are left to navigate cost increases informally, often absorbing the costs or compromising on project quality (Li & Zhao, 2023).

Moreover, the discussion reveals that most contractors operate under a mix of contract types, but there is no standardization in how unexpected costs are managed. Strategies varied widely from absorbing costs internally to adjusting project designs or negotiating with clients indicating that contractors are reacting to variations rather than proactively planning for them (Oladokun & Adenuga, 2021; Ajayi & Adeleke, 2020). This reactive approach is a potential risk area that highlights the need for stronger cost control systems and training on contractual best practices, especially among small and medium-sized enterprises (SMEs) operating in economically unstable environments (Cleary, 2024; Wanjau et al., 2023).

Overall, the study highlights a disconnect between the frequency and impact of cost variation and the preparedness of contractors to manage such issues through structured contractual and managerial responses. Younger professionals and smaller firms, which formed a large portion of the sample, may be more vulnerable due to limited experience, weaker negotiation leverage, and less formal organizational frameworks (Akinola et al., 2024; Bamigboye & Oke, 2021). These findings affirm the urgent need for industry-wide reforms in variation order management, contract clarity, and cost escalation preparedness.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study was conducted to examine the influence of cost variation on the performance of building contractors in construction projects. The primary aim was to understand how fluctuations in cost affect both the financial and operational aspects of contractor performance, and to assess how effectively these variations are managed through existing contractual mechanisms.

The study adopted a quantitative survey approach, involving 80 respondents drawn from various professional roles including building contractors, quantity surveyors, and project managers. The data collected was analyzed using descriptive statistics, and findings were discussed in relation to the study's objectives.

The results revealed that cost variation is a frequent challenge in construction projects, often caused by material price changes, design alterations, and unforeseen site conditions. These variations were found to significantly affect profit margins, project timelines, quality of work, and labor management. While variation orders are a formal mechanism to manage cost changes, they are not consistently applied, largely due to the lack of clarity in contract documents. It was also found that many contractors operate without clearly defined procedures for handling cost changes, making them vulnerable to financial and operational risks.

5.2 Conclusion

From the findings of this study, it is evident that cost variation poses a substantial challenge to building contractors, affecting project delivery and overall performance. Although most construction professionals are familiar with the occurrence of cost variations, there appears to be a lack of structured, proactive strategies to manage them effectively.

The study concludes that many firms, especially small and medium-sized ones, do not have clear contractual provisions or documented variation procedures, leading to reactive and inconsistent

handling of cost increases. As a result, cost variations frequently lead to profit reduction, delays, reduced quality, and disruptions in workforce planning. Moreover, while disputes and litigation are not highly prevalent, the operational consequences of unmanaged cost changes can accumulate over time, affecting firm sustainability and project outcomes.

Therefore, enhancing contractual practices and building capacity in cost control mechanisms are essential for improving contractor performance in the face of cost variation.

5.3 Recommendations

Based on the findings, the following recommendations are proposed:

Based on the findings and conclusion of this research, the following recommendations are proposed:

1. **Standardize Variation Clauses in Contracts**: All construction contracts should include clearly defined clauses outlining procedures for initiating, approving, and compensating for cost variations. These clauses should be transparent and easily enforceable.
2. **Promote the Consistent Use of Variation Orders**: Contractors and project stakeholders should be trained and encouraged to document all cost changes formally through variation orders. This will improve accountability and legal enforceability.
3. **Implement Cost Control Training and Tools**: Professional development programs should be introduced to train contractors, especially sole proprietors and young professionals, in cost forecasting, risk management, and budget monitoring.
4. **Encourage Early Risk Assessment**: Contractors should be encouraged to conduct detailed risk assessments at the design and planning stages to identify potential cost drivers and prepare for them in advance.
5. **Strengthen Communication Among Stakeholders**: Improved communication between clients, contractors, and consultants is critical to managing client-initiated changes and coordinating timely decisions that minimize variation-related delays.

6. **Establish a Contingency Budget Framework**: Projects should include contingency allowances within the budget to accommodate unforeseen cost variations, reducing the pressure on profit margins.
7. **Policy Intervention and Regulatory Support**: Industry regulators and professional bodies should enforce minimum standards for contract documentation and promote best practices in variation management across all tiers of the construction sector.

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Kwara State Polytechnic,

P.M.B 1375,

Ilorin.

Kwara State.

13th January, 2025

Dear Sir,

QUESTIONNAIRE ON INFLUENCE OF COST VARIATION ON THE PERFORMANCE OF BUILDING CONTRACTORS

I am a final year student Higher National Diploma in the above mentioned department and institution. As part of the requirement for the award of Higher National diploma in Building technology, I am conducting a research work on the topic.

I hereby request some information from you that will help me in my research work.

I promise that all materials, facts and information supplied will be treated in absolute confidence and for academic purpose only.

Thanks for your anticipated cooperation.

Yours faithfully,

ADEBAYO DORCAS

QUESTIONAIRE TO CONTRACTORS, QUANTITY SURVEYORS, PROJECT MANAGERS

ON

INFLUENCE OF COST VARIATION ON THE PERFORMANCE OF BUILDING CONTRACTORS

QUESTIONNAIRE

SECTION A: RESPONDENT'S BACKGROUND INFORMATION

1. Gender:
   ☐ Male ☐ Female
2. Age:
   ☐ 18–30 ☐ 31–40 ☐ 41–50 ☐ 51 and above
3. Professional Role:
   ☐ Building Contractor ☐ Quantity Surveyor ☐ Project Manager ☐ Consultant
4. Years of Experience in Construction:
   ☐ 1–5 ☐ 6–10 ☐ 11–15 ☐ Above 15
5. Nature of Firm:
   ☐ Sole Proprietorship ☐ Partnership ☐ Limited Liability Company
6. Size of Projects Typically Handled:
   ☐ Small-scale (< ₦20 million / <$50,000)
   ☐ Medium-scale (₦20–100 million / $50k–$250k)
   ☐ Large-scale (> ₦100 million / >$250k)

SECTION B: COST VARIATION EXPERIENCE

7. How often do you experience cost variation in your projects?
   ☐ Rarely ☐ Occasionally ☐ Frequently ☐ Always
8. What is the average percentage of cost variation compared to the original estimate?
   ☐ <5% ☐ 5–10% ☐ 11–20% ☐ Above 20%
9. At what stage do cost variations mostly occur?
   ☐ Pre-construction ☐ Mid-construction ☐ Completion stage
10. What are the major causes of cost variation in your experience? (Tick all that apply)
    ☐ Design changes
    ☐ Fluctuation in material prices
    ☐ Poor initial estimation

☐ Client changes

☐ Delay in payment

☐ Others (please specify): _____

11. Are these cost variations typically covered by variation orders?

☐ Yes ☐ No ☐ Sometimes

SECTION C: IMPACT OF COST VARIATION ON CONTRACTOR PERFORMANCE

12. How do cost variations affect your firm's profit margins?

☐ No effect ☐ Slight effect ☐ Significant effect ☐ Severe loss

13. Do cost variations cause delays in your project delivery timelines?

☐ Yes ☐ No ☐ Sometimes

14. How often do cost variations lead you to reduce quality or change specifications?

☐ Never ☐ Occasionally ☐ Frequently ☐ Always

15. Have cost variations ever led to contract disputes or litigation?

☐ Yes ☐ No ☐ Rarely

16. How do cost variations affect staff and labor management?

☐ No effect ☐ Delays in salary ☐ Layoffs ☐ Reduced morale

SECTION D: MANAGEMENT STRATEGIES AND CONTRACTUAL FRAMEWORK

17. What type of contract do you mostly work under?

☐ Lump sum ☐ Cost-plus ☐ Design-build ☐ Others: _____

18. Do your contracts clearly define variation procedures and approval methods?

☐ Yes ☐ No ☐ Partially

19. How do you manage unexpected cost increases? (Tick all that apply)

☐ Renegotiation with client

☐ Absorb the loss

☐ Reduce project quality

☐ Apply for variation approval

☐ Borrow funds

Declaration:

All information provided in this questionnaire will be used strictly for academic purposes and treated with confidentiality.