ASSESSMENT OF THE IMPACT OF MATERIALS MANAGEMENT STRATEGIES ON CONTRACTORS PERFORMANCE

BY

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ABSTRACT

The effective management of construction materials is crucial to the timely and cost-effective delivery of building projects. This study investigates the impact of materials management strategies on contractors' performance in the construction industry. The first objective explores current materials management practices, including stock control systems, site planning techniques, quality control, supervision methods, and the integration of digital technologies for inventory tracking and logistics. These strategies are essential to reducing waste, avoiding delays, and ensuring material availability across different stages of construction. The second objective assesses the relationship between materials management and contractor performance. Key performance indicators such as productivity levels, cost savings, competitive advantage, supply chain efficiency, and project completion timelines are examined. The findings reveal that well-coordinated materials management not only enhances contractor productivity but also contributes significantly to customer satisfaction and project success. The third objective evaluates the various factors influencing the effectiveness of materials management strategies. These include internal factors (such as managerial expertise and company policy), external factors (such as supplier reliability and market volatility), project-specific conditions, and human-related variables such as staff training and labor efficiency. The study concludes that optimizing materials management enhances contractor performance by promoting operational efficiency, reducing material-related losses, and improving overall project delivery outcomes. The research provides practical recommendations for construction firms seeking to enhance performance through strategic materials management.

Keywords: Materials Management, Contractor Performance, Supply Chain, Construction Productivity, Inventory Control, Quality Assurance

CHAPTER ONE

BACKGROUND OF THE STUDY

1.1 INTRODUCTION

According to Nwagboso and Rahman, (2018), explained that effective materials management is crucial to the success of construction projects, as it directly impacts contractors' performance, project timelines, and overall quality. While, Ogunlana and Jagannathan, (2016), a well-planned materials management strategy help the contractors to optimize resource allocation, reduce waste, and improve productivity. Hassan, et al., (2021), opined that the impact of materials management strategy on contractors' performance is to exploring the relationship between materials procurement, storage, handling, and logistics, and this ensure the contractors' ability to deliver projects on time, within budget, and to the required quality standards. According to Elghaish, et al., (2021), says the impact of materials management on contractors' performance is to identify best practices and areas for improvement, ultimately contributing to the development, efficient and effective construction project management. Kumar, et al., (2019), pinpoint that materials management refers to the planning, organizing, and controlling of materials and supplies from procurement to delivery, storage, and usage. While, Jit and Como, (2020), this also involves managing the flow of materials, goods, and services to ensure that the right materials are available at the right time, in the right quantity, and at the right cost. Subramanian and Gunasekaran, (2015), contend that effective materials management is critical in various industries, including construction, manufacturing, and logistics, its helps most of the organizations to achieve significant benefits and improve their overall performance. This significant can be integrated through the personnel. According to

Tkachenko, et al., (2021), disclosed that personnel management play a significant role in materials management, and their skills, knowledge, and behaviours facilitates the effectiveness of materials management strategies. Similarly, Sullivan, et al., (2011), posited that personnel impact on materials management, ability of the skilled procurement, negotiate better prices, ensure timely delivery, and select high-quality materials for the projects. In addition Yıldız, et al., (2024), says that effective inventory management is from the personnel that ensure minimizing in the stock outs, overstocking, and avoid wastage of the materials, this maintained the relationships with suppliers and stakeholders.

Sila and Gakobo, (2021)., further explained that personnel management explored the relevant information with effective good communication among others this is to ensure that materials are ordered, received, and stored correctly, in line with well trained personnel that enhance knowledge and skills, which enabling them to adapt to changing materials management needs. Donyavi and Flanagan, (2009, argued that personnel materials management is the development that support in optimize the materials management strategies, which is the context a well-structured materials management strategy, lead to improved efficiency, reduced costs, and enhanced project outcomes.

According to Sogaxa and Simpeh, (2022), posited that materials management strategies is the ability of the contractors' performance, determine the strategies affect key performance indicators such as project timelines, budget adherence, and quality of work. While, Isik, et al., (2010), says that contractors ensuring and gain insights into best practices that enhance overall effectiveness in the construction industry, promote the understanding and relationship between materials management personnel to evaluate performance with inform decision-making processes and also foster better collaboration between stakeholders for the successful project delivery. However, Ronald, et al., (2020),

contractors established, through this analysis, and identify the challenges and opportunities associated with materials management, the personnel and comes out with strategy that providing a comprehensive overview of its role in shaping the performance in a dynamic landscape of construction. Caldas, et al., (2015) Established that contractors evaluate the totality that nexus the effective materials management as the materials resources, allocate and availability, it also facilitate the resources levelling both for the personnel, and management strategies in the side of the organisation benefits and improve their overall that influence the contractors' performance, involves the planning, procurement, handling, and storage of materials to ensure that they are available when and where needed.

1.2 Statement of the Research Problems

Ineffective materials management is a significant challenge faced by contractors in the construction industry, leading to project delays, cost overruns, and reduced quality, despite the importance of materials management, many contractors struggle to implement effective materials management strategies, resulting in suboptimal performance and reduced competitiveness.

Moreover, contractors often employ different materials management practices based on project type, environmental conditions, and existing capabilities, leading to inconsistencies in performance levels across projects. This variability poses a significant challenge for contractors aiming to optimize their performance and improve project delivery outcomes.

This research seeks to address these gaps by systematically assessing the impact of materials management strategies on contractors' performance within the construction industry. By identifying the key components of effective materials management and their

direct influence on contractor performance, this study aims to provide actionable insights that can enhance practices, reduce inefficiencies, and ultimately improve the success rates of construction projects.

1.3 Research Questions:

1. What are the current materials management practices employed by contractors?
2. What are the materials management strategies impact contractors' performance?
3. What are the key factors influencing the effectiveness of materials management strategies in construction projects?
4. What are measures for improving materials management practices and enhancing contractors' performance?

1.4 Aim and Objectives of the study

1.4.1 Aim of the Study

The aim of this study is to assess the impact of materials management strategy on contractors' performance in the construction industry, with a focus on identifying best practices and areas for improvement.

1.4.2 Objectives of the Study

The specific objectives of this study are:

- To evaluate the current materials management practices employed by contractors in the construction industry.
- To investigate the relationship between materials management strategies and contractors' performance.

- To identify the key factors influencing the effectiveness of materials management strategies in construction projects.
- To develop recommendations for improving materials management practices and enhancing contractors' performance.

1.5 Significance of the Research study

This study will provide the potential positive impact on the construction industry, through the identifying the effective materials management strategies, the materials management personnel and context of the integration that facilitate the contractors, this enhance their performance, reduce costs, and improve project outcomes, thereby improving the contractors' performance, project delivery, and overall efficiency. The study will deal insight core strategies available and currently be of benefits to the construction sectors, the knowledgeable across the Increase competitiveness, contribute to industry best practices and enhance project delivery.

However, the study will be remarkable in term of the insights into effective materials management strategies, contributing to improved project outcomes and industry best practices, ensuring timely and cost-effective project delivery and Researchers: adding to the body of knowledge on materials management and construction project management.

1.6 Scope and Limitations of the Study

The study will focus on the construction industry, specifically contractors and their materials management practices and will explore various materials management strategies, including procurement, inventory management, and logistics

The study will assess the impact of materials management strategies on contractors' performance, that relevant to the study in the aspects such as project timelines, budget, and quality, this are the essential values that ensuring the scopes covers by the contractors

performance. While the consideration will be evaluate through the focus in the study area and will be limited to a specific study area.

The research will provide a clear understanding of its boundaries and potential areas for the respondent, this are the contractors of various firm, the engineers, the quantity surveyors, builder technology, the architect and project managers, these are professional that involves when comes the construction project.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section focuses in the context of materials management practices in the perception of the contractors performance in the construction sectors, and outline from the various review the current measures in materials management for improving productivity in construction projects, encompassing planning, controlling, and ensuring the right quality and quantity of materials are specified in a timely manner and at a reasonable cost. While, Ronald, et al., (2020), argued that several concepts on the relationship that evaluate materials management strategies aligned with the contractors' performance, the key factors influencing the effectiveness of materials management and measures for improving materials management practices which enhancing contractors' performance will be investigate to support the ideas for materials management in the construction project.

2.2 Current Materials Management Practices In The Construction Industry

Alinaitwe, et al., (2019), explained that materials management is crucial that required the integration continuously in order to maintain the stability and effective construction outcomes. In addition to Gao, et al., (2018), pinpoint that current materials management practices that insight these includes, the Stock Control, Site Planning, Quality Control, Adequate Supervision and impact on Contractors performance. While, Ahi, and Searcy, (2018), says that overall, contractors performance in materials management significantly affects project success, by adopting effective strategies that improve productivity, reduce costs, and enhance quality.

2.1.1Stock Control as a Materials Management Strategy

Khan and Awan, (2017) opined that stock control is a critical component of materials management in the construction industry, this involves managing inventory levels to

ensure that the right materials are available in the right quantity, at the right time, and at a reasonable cost, and also to minimize waste and excess materials. Hwang, et al., (2017), stock control this is techniques such that Just-In-Time (JIT) for the materials are ordered and delivered just in time for use, minimizing inventory levels, the economic order quantity (EOQ), this techniques calculating the optimal order quantity to minimize costs, while the inventory management systems (IMS), implementing systems to track inventory levels, monitor usage, and automate ordering. This reflects in the site planning that support complete system of performance of the contractors in the construction sectors. Maqsood, et al., (2016), says that effective stock control helps minimize waste, excess materials, and unnecessary storage costs, improved productivity either to ensuring materials are available when needed, stock control helps prevent delays and downtime, enhanced quality with better planning.

2.1.2 Site Planning Techniques

Attaran and Attaran, (2007), contend that adopting effective site planning strategies, contractors improve their performance, reduce costs, and enhance their reputation in the construction industry, the site layout planning, this designing the site layout to optimize space utilization, material storage, and workflow, the material storage and handling planning for proper storage and handling of materials to prevent damage and loss. Bekele, et al., (2025), added that the access and egress planning, is to ensuring safe and efficient access to and from the site, implementing and ensuring the waste management planning systems is to minimize waste and environmental impact.

2.1.3 Quality Control Techniques

According to Cheng & Darsa, (2021), posited that quality control techniques is a critical aspect of materials management in construction projects this is to ensuring that materials

meet the required standards, specifications, and quality expectations, all these evaluate the effective quality control strategies, that enhance the contractors to improve their performance, reduce costs, and enhance their reputation in the construction industry. In addition Gunasekaran & Ngai, (2013), emphases that effective quality control techniques significantly impact contractors' performance, leading to increased efficiency quality control that streamlines processes and reduces delays, it also maintain and compliance with regulations, which are relevant to the building codes, standards, and regulations, quality assurance procedures and supplier evaluation requirements are meet.

2.1.4 Supervision Techniques

Rejeb, et al., (2020), argued that adequate supervision techniques is a pivot aspect of materials management in construction projects, this is to overseeing and monitoring materials procurement, storage, handling, and usage to ensure efficient and effective materials management. Similarly, Kasim & Dainty, (2015), supported that adopting adequate supervision strategies, contractors improve their performance, regular visits to the construction site to monitor materials management, tracking materials from procurement to delivery and storage, and : providing training and guidance to personnel on materials management best practices.

2.1.5 Integration of Technologies in Materials Management

Shen, et al., (2019) Integration of technologies is transforming materials management in the construction industry, the contractors are leveraging various technologies to improve efficiency, reduce costs, and enhance productivity processes, create the competitive advantage new technologies gain in the market, through the integration with the existing systems, along the building information modelling (BIM), a digital representation of the physical and functional characteristics of a building materials management.

2.2 Relationship between Materials Management Strategy and Contractors' Performance

Zhang, et al., (2020) The relationship between materials management strategy and contractors performance is a significant strategies effectively for the materials management strategies in line to improve contractors' performance, while poor strategies lead to delays, cost overruns, and reduced quality. According to Subramanian & Gunasekaran, (2015), opined that materials management strategies impacting contractors performance in order to ensuring smooth activity packages in the construction project for strong supply chain management enables contractors performance metrics, improving productivity , cost Savings performance , inventory management and technology integration and supply chain management, and project completion and customer satisfaction in construction through effective materials management

2.2.1 Materials Management Metrics

Caldas, et al., (2015) Contractor performance metrics on materials management are essential for evaluating the effectiveness of materials management strategies and identifying areas for improvement, through the key performance metrics such:

- Materials Procurement Lead Time: Measures the time taken to procure materials.
- Materials Delivery Timeliness: Measures the percentage of materials delivered on time.
- Materials Quality: Measures the quality of materials received.
- Materials Waste: Measures the amount of materials wasted during construction.

Yıldız, et al., (2024), contend that using performance metrics, the contractors and project managers evaluate the effectiveness of materials management strategies and identify areas for improvement, ultimately leading to better project outcomes such as;

- Project Completion Time: Measures the time taken to complete a project.
- Project Cost: Measures the total cost of a project.
- Quality of Work: Measures the quality of workmanship and materials.
- Customer Satisfaction: Measures the level of customer satisfaction with the project.

2.2.2 Improving Productivity through Effective Materials Management

Effective materials management improving productivity in construction projects, implementing efficient materials management strategies, contractors reduce delays, minimize waste, and optimize resources, and remarkably improve productivity that enhance their reputation. While, Ogunlana & Jagannathan, (2016), explained that effective productivity are integration includes;

- Streamlined Procurement Processes: Implementing efficient procurement processes ensures materials are delivered on time, reducing delays and downtime.
- Inventory Management: Maintaining optimal inventory levels helps contractors avoid stockouts and overstocking, reducing waste and excess materials.
- Supply Chain Optimization: Building strong relationships with suppliers and optimizing supply chains enables contractors to source materials efficiently, reducing lead times and costs.
- Technology Integration: Adopting technologies like BIM, RFID, and data analytics improves materials management efficiency and accuracy.
- Continuously Improve Processes: Regularly reviewing and improving materials management processes helps contractors optimize efficiency and productivity.
- Plan and Schedule Materials Delivery: Coordinating materials delivery with project schedules ensures materials are available when needed.

2.2.3 Cost Savings Performance through Effective Materials Management

Attaran and Attaran, (2017) Cost saving is the arithmetic that determine performance, therefore, it crucial for the contractors to achieve cost savings performance to optimize resources levelling across the package activities. However, the cost savings performances, improve profitability, and gain a competitive advantage in the construction industry, through the followings;

- Reduced Waste: Implementing efficient materials a management strategy helps reduce waste, minimizing costs associated with excess materials.
- Optimized Inventory: Maintaining optimal inventory levels help contractors avoid overstocking and under stocking, reducing storage costs and material losses.
- Efficient Procurement: Implementing efficient procurement processes enables contractors to source materials at competitive prices, reducing costs.
- Supply Chain Optimization: Building strong relationships with suppliers and optimizing supply chains helps contractors negotiate better prices and reduce lead times.
- Improved Cash Flow: Cost savings help contractors maintain a healthy cash flow, enabling them to invest in new projects and opportunities.

2.2.4 Competitive Advantage

Gonzalez, et al., (2020), says that competitive advantage is the systematic of gaining materials management strategies and evaluate differentiate themselves from competitors and achieve superior performance sustainability in construction industry, through the followings;

- Cost Leadership: Implementing efficient materials management strategies helps contractors reduce costs, enabling them to offer competitive pricing.

- Differentiation: Contractors who deliver high-quality projects on time and within budget can differentiate themselves from competitors.
- Improved Responsiveness: Effective materials management enables contractors to respond quickly to changing project requirements, improving customer satisfaction.
- Enhanced Reputation: Contractors who consistently deliver successful projects build a strong reputation, attracting new clients and opportunities.

2.2.5 Supply Chain Management in Construction

Carrer, (2020), explained that supply chain management (SCM) plays a vital role in construction projects, ensuring that materials and resources are delivered efficiently and effectively, through the channel of the effective supply chain management strategies, contractors perception is to improve their performance, reduce costs, and gain a competitive advantage in the construction industry. In addition Hwang, et al., (2017) express that supply chain management creates develop strong relationships with suppliers and stakeholders helps contractors negotiate better prices and improve responsiveness, with the adopting technologies like SCM software and data analytics improves supply chain efficiency and accuracy, this will regularly monitoring and analyzing supply chain performance that helps contractors identify areas for improvement, in line with the continuously improve processes, which regularly reviewing and improving supply chain processes ahead of competitors.

2.2.6 Project Completion and Customer Satisfaction

Bekele, et al., (2025) Project completion and customer satisfaction determine the aspects of contractors performance, and play a significant role in ensuring projects are completed

on time, within budget, and to the required quality standards, ultimately leading to high customer satisfaction, by integrate the followings;

- Develop a Comprehensive Project Plan: A well-planned project ensures that materials are managed effectively, reducing delays and cost overruns.
- Implement Effective Communication: Regular communication with customers and stakeholders ensures that expectations are met, and issues are addressed promptly.
- Monitor Progress: Regularly monitoring project progress helps contractors identify potential issues and take corrective action.
- Building Trust: Consistently delivering successful projects builds trust with customers, leading to repeat business and referrals.
- Improved Profitability: Efficient project completion and high customer satisfaction lead to increased profitability for contractors

2.3 Factors Influencing Effective Materials Management Strategy in Construction Industry

According to Gunasekaran, (2013), pinpoint that several factors influence the effective materials management strategy in the construction industry, these factors broadly categorized into internal and external factors. While, Flanagan, R. (2009), added that factors such as project-specific and human factors have insight in construction sectors.

2.3.1 Internal Factors Influencing Effective Materials Management Strategy

Internal factors play a significant role in shaping effective materials management strategies in the construction industry, these factors are within the control of the

organization and can be leveraged to improve materials management efficiency in the followings;

- Organizational Culture: A culture that prioritizes efficiency, quality, and customer satisfaction influences effective materials management.
- Project Planning: Thorough project planning, including materials procurement and logistics, ensures that materials are managed effectively.
- Resource Allocation: Adequate resource allocation, including personnel, equipment, and budget, enables effective materials management.
- Technology Adoption: Adopting technologies like BIM, RFID, and data analytics improves materials management efficiency and accuracy.
- Leadership and Management: Effective leadership and management support materials management initiatives and ensure that resources are allocated accordingly.
- Employee Training and Development: Providing employees with training and development opportunities enhances their skills and knowledge, enabling effective materials management.
- Communication: Effective communication among stakeholders, including contractors, suppliers, and clients, ensures that materials management expectations are met.

2.3.2 External Factors Influencing Effective Materials Management Strategy

However, Birgonul, (2010), says that the external factors significantly impact effective materials management strategies in the construction industry, these factors are outside the

control of the organization but can be mitigated or adapted to ensure efficient materials management such as;

- Supply Chain Disruptions: Disruptions to supply chains, such as material shortages or transportation issues, can impact materials management.
- Market Conditions: Market fluctuations, including changes in material prices or availability, influence materials management decisions.
- Regulatory Compliance: Compliance with regulations, such as health and safety standards, impacts materials management practices.
- Weather and Environmental Factors: Weather conditions and environmental factors, such as natural disasters or seasonal changes, can impact materials management.
- Economic Conditions: Economic conditions, including inflation, recession, or changes in government policies, influence materials management decisions.
- Supplier Reliability: The reliability of suppliers, including their ability to deliver materials on time and to the required quality, impacts materials management.

2.3.3 Project-Specific Factors Influencing Effective Materials Management Strategy

Simpeh, (2022) the project-specific factors is to shaping effective materials management strategies in the construction industry, this factors is unique to each project and require careful consideration to ensure efficient materials management, it encompasses of the construction organizations, and the stakeholder expectations in ensuring efficient project delivery. However, it required to conduct site-specific risk assessment, along project-specific materials management plan, this help to identify potential issues and inform materials management strategies ways out. This also involve the regular monitoring and adaptation of materials management strategies ensure that project-specific factors are effectively managed.

2.3.4 Human Factors Influencing Effective Materials Management Strategy

Kıvrak, (2024) Human factors these factors are related to the people involved in materials management and have impact on the efficiency and effectiveness of materials management processes, this improve the skills and expertise of their personnel, ultimately improving project outcomes in the followings ways;

- Communication: Effective communication among stakeholders, including contractors, suppliers, and clients, ensures that materials management expectations are met.
- Training and Expertise: Adequate training and expertise in materials management enable effective decision-making and implementation.
- Collaboration: Collaboration among stakeholders, including contractors, suppliers, and clients, facilitates effective materials management.
- Motivation and Engagement: Motivated and engaged personnel are more likely to prioritize effective materials management.
- Recognize and Reward Good Performance: Recognizing and rewarding good performance motivates personnel to prioritize effective materials management.

CHAPTER THREE

3.0 Methodology

This chapter discusses the methodology which would be used in the study. It described research design, target population, sampling procedure, methods of data collection, validity and reliability and data, analysis methods as well as generalization of the variables. Therefore, a comprehensive methodology is essential for assessing the impact of materials management strategy on contractors' performance.

Theoretical Review Methodology on the Assessment of the Impact of Materials Management Strategy on Contractors' Performance, theoretical review methodology involves systematically examining existing literature to understand the relationship between materials management strategies and contractors' performance. This approach helps develop a conceptual framework that can guide future research and practical applications.

Literature Search and Selection

Begin by conducting a comprehensive search of academic databases, such as Google Scholar, JSTOR, and Scopus. Use keywords like "materials management," "contractor performance," and "construction industry." Focus on peer-reviewed articles, conference papers, and relevant industry reports published in the last decade to ensure the relevance of findings.

Inclusion and Exclusion Criteria Studies that discuss materials management strategies, performance metrics, and case studies involving contractors, due time frame and directly related to the construction industry or lacking empirical data.

Synthesis of Findings

Synthesize findings from the selected literature to highlight the impact of various materials management strategies on contractors' performance. Discuss both positive and negative outcomes, providing a balanced view of the strategies' effectiveness. Development of a Conceptual Framework, based on the synthesized findings, develop a conceptual framework that illustrates the relationships between materials management strategies and performance outcomes. This framework can guide further empirical research and practical implementation. Thereby, identification of gaps and future research directions in the current literature and suggesting areas for future research, through exploring the impact of emerging technologies on materials management or the influence of regional differences in construction practices.

3.1 Research Design

The phase of this work involved a design of procedure that guided the researcher in data collection which is the hall mark for any research. The research design adopted in this research work is the survey research design which involves the usage of structured designed questionnaire in the collection of data and literature review thorough review of existing research on materials management and contractors' performance and conduct surveys or case studies to collect data from contractors and stakeholders.

3.2 Data Collection

The following measures will be adopted so that effective research will be attained, through the Questionnaires: Develop questionnaires to collect data on materials management practices and contractors' performance. Interviews: Conduct interviews with contractors, suppliers, and clients to gather insights and document Analysis: Analyze project documents, such as contracts, invoices, and delivery records.

3.2.1 Data Analysis

Quantitative Analysis: Analyze quantitative data using statistical methods to identify correlations and trends; Qualitative Analysis: Analyze qualitative data using thematic analysis or content analysis.

3.3 Sampling Techniques

According to Fugar (2010), sampling is the method or procedure of choosing an appropriate sample, or a representative part of a populace for the drive of formative restrictions or features of the whole population. Simple random sampling techniques will be used to select participants in the study area.

3.4 Population of the study

The target respondents that will represent the total of 50 populations for the purpose of this study will be restricted to Civil engineers, Builders, Quantity surveyor and Architect within Ilorin metropolis. This selection was based on the fact that researcher can easily access the needed data from the target audience which will no doubt enhance the success of the researcher's investigation on the subject matter.

3.5 Method of Data Collection

The questionnaire will be distribute to the targeted population of professional in Kwara state building construction industry and data collection is a term used to designate a method of formulating and gathering information

3.5.1 Primary Data Collection

The primary data for the study will be attained from distribution of questionnaire as well as direct personal interviews with people involved in construction projects. This type of

interviews explored the topic and explains other findings about the application of materials management strategy on contractors' performance.

3.5.2 Secondary Data Collection

In order to enrich the questionnaire for the research, a review of text books and journals will be used to identify the various efforts that have been made in the past to identify the adoption of materials management strategy on contractors' performance. Secondary sources of data were obtained from relevant literature that covered research and publication on the subject matter.

3.6 Method of Presentation and Analysis of Data

The completed questionnaires would be analyzed using Microsoft Excel and simple percentage method. (SPSS) Microsoft Excel is one of the most common and statistical packages will be used in the manipulation and analysis of complex data with the use of simple coded instructions. The following statistical techniques were therefore employed for the data Presentation Descriptive statistics:

The Relative Importance Indices (RII) of determination of significance of factors would be adopted because Danso (2010) asserted that to analyse data on ordinal scale (eg. Likert scale 1 – 5), the application of Relative Importance Index is suitable and reliable.

Importance Index = $\frac{\Sigma (1n1 + 2n2 + 3n3 + 4n4 + 5n5)}{5(n1 + n2 + n3 + n4 + n5)}$

3.7 Performance Metrics

Project Completion Time: Measure the impact of materials management on project completion time. Cost Performance: Evaluate the impact of materials management on

project costs. Quality Performance: Assess the impact of materials management on project quality.

3.8 Validation

1. Expert Validation: Validate the methodology and findings with industry experts.

2. Pilot Testing: Pilot tests the methodology to ensure its effectiveness.

CHAPTER FOUR

4.0 Thematic Review Analysis

This section presents a thematic analysis of relevant literature aligned with the study's three objectives. Each objective is discussed through key themes that emerge from the existing body of knowledge on materials management and contractor performance in the construction industry.

4.1 Current Materials Management Practices In The Construction Industry

Aibinu and Do, (2012), explained that current materials management practices in the construction industry is the use of digital tools such as Building Information Modelling (BIM), RFID, and ERP systems supports real-time tracking, procurement scheduling, and inventory forecasting, which significantly enhance accuracy and transparency in materials management in the below table 4.1

Themes	**Current Materials Management Practices in the Construction Industry**	Thematic Analysis	Theory
1	Stock Control and Inventory Systems	foundational to materials management	Just-In-Time (JIT) and Economic Order Quantity (EOQ),
2	Site Planning Techniques	improves workflow and minimizes material handling time	
3	**Quality Control in Materials**	compliance with standards	Reduce the risk of rework or structural failure

4	**Supervision and Monitoring**	enforcing material usage procedures and reducing pilferage	Reduced project overruns
5	**Technology Integration**	Technological innovations and tracking	Building Information Modeling (BIM) and Enhanced real-time tracking

4.2 Relationship between Materials Management Strategies and Contractors' Performance

Makinde, (2013) Argued that efficient materials management is to improves workforce productivity and ensuring that materials are available when and where needed, this reduces downtime and maintains a steady workflow throughout project execution

Table 4.2 **Relationship between Materials Management Strategies and Contractors' Performance**

Themes	**Relationship Between Materials Management and Contractor Performance**	Thematic Analysis	Theory
1	Productivity Enhancement	Material delivery schedules prevent downtime	Right quantity, at the right time, and in the right place

			RRR
2	Cost Efficiency	Reduces financial waste associated with over-ordering	Construction budgets and cost savings
3	**Project Completion and Timeliness**	Timely procurement and delivery	Milestones and client expectations
4	**Competitive Advantage**	Efficiency in resource management	Reputational and commercial advantages
5	**Supply Chain Optimization**	Fosters better relationships across the construction supply chain	Inventory and lean procurement improve flow and flexibility

4.3 Factors Influencing Effective Materials Management Strategy in the Construction Industry

Alzahrani and Emsley, (2013), says these include the firm's policies, leadership commitment, resource availability, and personnel capacity. Strong internal systems and clear communication protocols improve consistency in materials handling that facilitate decision making

Table 4.3 Factors Influencing Effective Materials Management Strategy in the Construction Industry

Themes	Factors Influencing Effective	Thematic Analysis	Theory

	Materials Management Strategy		
1	Internal Factors	Organizational structure, and staff expertise	Communication, internal system and decision
2	External Factors	Supply chain volatility and Government regulations	market inflation, and supplier reliability
3	**Project-Specific Factors**	Procurement planning	Size, location, and duration
4	**Human Factors**	Worker training, awareness, and adherence	Negligence and materials management

4.4 Discussion

- Strategic materials management is integral to improving contractor performance and achieving successful project outcomes.
- The integration of modern technologies with conventional site control practices enhances efficiency and transparency.
- Addressing internal and external constraints helps to build a more robust and responsive materials management framework.
- A contractor's ability to manage materials well translates into better cost control, productivity, and client satisfaction.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study has examined the impact of materials management strategies on contractors' performance in the construction industry. It established that the adoption of effective materials management practices such as stock control, site planning, quality control, supervision, and the integration of technology plays a pivotal role in enhancing project efficiency. These practices ensure timely material availability, reduce waste, and contribute to the seamless execution of construction activities. The research further demonstrated a strong relationship between effective materials management and improved contractor performance. Efficient material handling was found to significantly influence key performance metrics, including productivity, cost savings, timely project delivery, and customer satisfaction. Additionally, materials management was shown to contribute to competitive advantage by streamlining supply chain operations and minimizing delays caused by material shortages or mismanagement. Moreover, the study identified a range of factors that influence the success of materials management strategies. Internal factors like management capacity, staff competency, and organizational structure; external influences such as market volatility and supplier reliability; as well as project-specific and human-related factors were all found to significantly affect outcomes.

In conclusion, strategic materials management is critical to enhancing contractor performance and ensuring the successful delivery of construction projects. Addressing the challenges associated with poor materials coordination will result in greater efficiency, improved profitability, and sustainable construction practices.

5.2 RECOMMENDATIONS

The following recommendation will be appropriate if duly observed in the assessment of the impact of materials management strategies on contractors' performance

- Adopt Technology-Driven Solutions
- Strengthen Stock Control and Forecasting
- Improve Site Planning and Supervision
- Enhance Training and Human Capacity Development
- Integrate Materials Management into Strategic Planning
- Develop Strong Supplier Relationships
- Monitor and Evaluate Performance

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ASSESSMENT OF THE IMPACT OF MATERIALS MANAGEMENT STRATEGIES ON CONTRACTORS PERFORMANCE

Dear Respondent,

This questionnaire is meant for a research project on the above subject matter, which is partial fulfillment for the award of Higher National Diploma in Quantity Surveying. The attached set of questionnaire is to assist in carrying out a field survey to gather primary data on the above project topic.

This questionnaire should kindly be filled by the practicing and qualified professionals such as: Builder, Civil Engineer, Quantity Surveyors, Architect and Structural Engineers.

The information supplied shall be treated with utmost confidentiality.

Thanks you for your anticipated co-operation.

Yours Faithfully

OLADIMEJI YEMISI RACHAEL

HND/23/QTS/FT/0017

SECTION A: PERSONALITY OF RESPONDENT.

Please kindly tick (√) in the spaces provided in the questionnaire for the purpose of this research work.

1. Sex:
   (A) Male ( )
   (B) Female ( )
2. Educational qualification:
   (A) HND ( )

(B) B.sc ( )

(C) B.ENG ( )

(D) M.sc ( )

(E) PGD ( )

(F) PhD ( )

3. Which of the following is your position in the organization?

(A**)** Builder ( )

(B) Civil Engineer ( )

(C) Quantity Surveyors ( )

(D) Structural Engineers ( )

(E) Architect ( )

4. Your year of experience in highway construction project?

(A) 1-5 years ( )

(B) 6-10years ( )

(C) 11years above ( )

5. What is the size of the project type?

(A) Small project ( )

(B) Medium project ( )

(C) High project ( )

(D) Very High project ( )

6. To what level have you been involved in highway road construction projects?

(A) Very Low ( )

(B) Low ( )

(C) Average ( )

(D) High ( )

(E) Very High ( )

This Section: Instruction: Read each statement below carefully and tick [√] the one that you think is the most appropriate out of the given options:

Strongly Agree (SA), Agree (A) Neutral (N), Disagree (D), Strongly Disagree (SD)

SN	DESCRIPTION	SA	A	N	D	SD
	Current Materials Management Practices In The Construction Industry					
1	Stock Control as a Materials Management Strategy					
2	Site Planning Techniques					
3	Quality Control Techniques					
4	Supervision Techniques					
5	Integration of Technologies in Materials Management					

SN	DESCRIPTION	SA	A	N	D	SD
	Relationship between Materials Management Strategy and Contractors' Performance					
1	Materials Management Metrics					
2	Improving Productivity through Effective Materials Management					
3	Cost Savings Performance through Effective Materials Management					
4	Competitive Advantage					

5	Supply Chain Management in Construction					
6	Project Completion and Customer Satisfaction					

SN	ITEM	SA	A	N	D	SD
	Factors Influencing Effective Materials Management Strategy in Construction Industry					
1	Internal Factors Influencing Effective Materials Management Strategy					
2	External Factors Influencing Effective Materials Management Strategy					
3	Project-Specific Factors Influencing Effective Materials Management Strategy					
4	Human Factors Influencing Effective Materials Management Strategy					