THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

COST MANAGEMENT: PIVOTAL IN CONSTRUCTION PROJECT MANAGEMENT AND CONTRACT ADMINISTRATION

INAUGURAL LECTURE SERIES 203

Delivered by:

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Tuesday, 28th July, 2026

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PROTOCOL

The Vice Chancellor,

Deputy Vice Chancellor (Academic),

Deputy Vice Chancellor (Development),

The Registrar,

Other Principal Officers of the University,

Provost, Deans, and Directors,

Heads of Departments and Units,

My Lords Spiritual and Temporal,

Fellow Academic and Professional Colleagues,

Distinguished Guests and Friends of the University,

Gentlemen of the Press,

Distinguished Ladies and Gentlemen,

GREAT FUTARIANS!

1.0 PREAMBLE

I give honour and glory to God Almighty for giving me the grace and privilege to stand before you today to deliver the 203rd Inaugural Lecture of this great University and the fourth in the Department of Quantity Surveying. The lecture is titled ***Cost Management: Pivotal in Construction Project Management and Contract Administration.*** Today's lecture is remarkable in the history of my career as I offer an account of my academic

stewardship culminating in my professorship in Quantity Surveying.

Today is a landmark in a career that was never my dream. After the National Youth Service in 1984, I aspired to become a successful consultant-chartered quantity surveyor in Lagos, Nigeria. I roamed the streets of Lagos for about six months without a single practitioner willing to accept my application let alone offer me employment because their response was that there had been no commissioned jobs for the past few years. One bright morning, I received an invitation from my uncle, who was one of my financial supporters in Akure. On getting to his house, he handed me a letter of appointment as a teacher in the Ondo State Teaching Service Commission. He advised me to start from somewhere and I reluctantly accepted the appointment in December 1984.

In pursuit of my ambition to practice Quantity Surveying, I secured employment as a Quantity Surveyor I in the Department of Works and Maintenance Service of Ondo State College of Education, Ikere-Ekiti in 1991. Within one year, I sat for the professional examination and passed. Consequently, I was promoted to the position of Principal Quantity Surveyor in 1996. However, in 1998, I was denied an appointment as Acting Director because I refused to lobby for the position. I was transferred to the Physical Planning Unit to allow a less qualified officer to take over. Having been rendered redundant, I then decided to join the Polytechnic Owo as Lecturer II and rose to the position of Principal Lecturer in 2008.

I obtained my M.Sc. in 2007 and joined the service of the Federal University of Technology, Akure in July 2009 as Lecturer II. I obtained my Ph.D. in 2016, rose through the ranks, and was promoted to Professor in 2024 during the tenure of Prof. Adenike Temidayo Oladiji, FAS.

Madam Vice Chancellor, my Ph.D. research focused on construction claims within the context of construction cost management. Most of my research outputs were from this viewpoint and have been disseminated in academic outlets globally. It is to the glory of God that I stand before the esteemed audience to present the 203rd inaugural lecture titled **Cost Management: Pivotal in Construction Project Management and Contract Administration.**

2.0 INTRODUCTION

Madam Vice Chancellor, Ladies and Gentlemen, cost management is an important tool in the construction industry because inefficient cost management may lead to cost overruns, delays, conflicts, abandonments, and client dissatisfaction. Cost management practices refer to all processes aimed at ensuring that a construction project is completed within budget, encompassing cost planning, estimating, budgeting, and control (Project Management Institute, 2017). The best practices for cost management involve three key processes: cost estimation, cost budgeting, and cost control. The cost estimation process is the first step, whereby costs of resources that are needed for each work package such as materials, labour, and equipment, are established. Cost budgeting, the second

step, involves totalling the established costs of individual work packages from the first step to establish the baseline for measuring cost performance.

The best practice for cost estimation and the budgeting process requires that when estimating the cost of construction projects, provision should be made for likely causes of variation in the future, including risk. This means that risks and contingency allowances should be included when establishing costs for work packages. The third process is cost control, which involves controlling the factors that create changes to the cost baseline or the budget. According to the Project Management Institute (2017), it involves the determination of the magnitude of cost variance, the identification of the causes of variance, and the selection of the corrective measures required.

Cost management is significant because it ensures that the budget is kept under control through adequate management of materials, labour and equipment costs throughout the construction process. Cost management also improves decision making in the choice of alternative materials and methods without compromising quality and standards of workmanship. Cost management protects the contractor's profit margins during execution of the projects through the application of the principles of cost control such as purchasing materials in bulk so as to guard against inflation. It also assists the contractor in ensuring labour man-hours are kept at the lowest possible level. Furthermore, the principles of cost management help the contractor in maintaining cash flow as forecasted.

Construction project management involves a series of time-consuming tasks that span from the project's conception to its eventual completion. These tasks include planning, organising, quality control, contract management, and safety administration. Construction projects management consists of scope, time and schedule, cost and quality. In scope, the team defines what is actually being built in term of drawing, specification, and deliverables. Risks must also be managed by identifying potential supply delays, design changes, and safety issues. Cost management is inextricably linked to all these areas; it acts as the thread running through them and serves as the scoreboard for every decision in construction projects management.

Contract administration (CA) has been described differently by authors and researchers. Solis (2016) identifies the CA process as comprising contract setup, document management, changes management, relationship management, and contract closure groups. Surajbali (2016) briefly summarises CA key groups as contractual relationship protocols, payment management, managing contractor's performance, managing variations or changes, contractual dispute resolution mechanisms, managing service level agreements, and risks. Cost management and contract administration are interconnected; one cannot be effectively executed without the other. Contract administration manages the legal and financial frameworks, while cost management handles quantitative tracking. In summary, contract administration establishes the regulatory framework and legal authority, whereas cost management provides the empirical data required to apply these rules equitably.

Ultimately, without cost data, construction contract administration lacks substance; conversely, without contract administration, there is no legal mechanism to redress cost and time overruns.

In all situations, the focus of both construction project management and contract administration is to ensure that costs are managed in favour of either the employer or the contractor. Therefore, cost management is crucial at all stages in construction projects because it is basically what keeps the whole process going the rails. Cost management keeps budget under control, improves decision making, protects profit margins, reduces risks, builds client trust and helps with cash flow management throughout the execution of construction projects.

3.0 CONCEPTUAL FOUNDATIONS

3.1 Concept of Cost Management

Cost management is one of the main professional functions required for the successful delivery of construction projects. It refers to the systematic process of estimating, planning, monitoring, controlling, and reporting project costs from the earliest idea of a project to its completion and use. In construction, cost management helps the client to know whether the proposed project is financially feasible, whether the design is developing within the approved budget, and whether the contractor's work is being paid for fairly based on actual progress. Banker and Byzalov (2018) explained that cost management is no longer limited to recording expenditure after it has occurred, but now supports planning, decision-making, performance

improvement, and value creation. Similarly, Wang (2019) argued that modern cost management is strategic because it links cost decisions to project objectives, available resources, quality expectations, and long-term performance.

The first major stage in construction cost management is preliminary estimating. A preliminary estimate is prepared at the early stage of a project when detailed drawings and specifications may not yet be available. It provides the client with an approximate indication of the likely cost of the proposed development so that decisions can be made on affordability, funding, scope, and project continuation. At this stage, the quantity surveyor or cost consultant may rely on historical cost data, cost per square metre, cost per functional unit, elemental cost analysis, or comparisons with similar projects. Although preliminary estimates are not as detailed as tender estimates, they are important because early design decisions usually have a strong influence on the final cost of a project. Love et al., (2020) noted that poor early cost advice is one of the factors that contributes to later cost overruns in construction and infrastructure projects.

After the preliminary estimate, the project team develops a cost plan. A cost plan is a structured financial plan that allocates the approved project budget to the different elements or components of the building or infrastructure asset. For example, in a building project, the cost plan may allocate funds to substructure, frame, roof, finishes, services, external works, professional fees, contingencies, and statutory charges. The purpose of the cost plan is to ensure that the design develops in a controlled manner and

remains within the client's financial limit. Al-Ghabbana (2021) argued that contemporary cost management techniques help organisations to move from reactive cost accounting to proactive cost planning. This means that cost planning should not wait until the project becomes too expensive. Instead, it should guide design choices from the beginning.

There are several approaches to preparing a cost plan. The elemental approach is widely used because it breaks the project into major building elements and allocates a cost target to each element. This makes it easier to compare alternative design solutions and identify where savings may be achieved without damaging the quality or function of the project. The comparative approach uses cost information from similar completed projects, adjusted for location, time, inflation, size, specification, and market conditions. The approximate quantities approach is more detailed and is usually adopted when sufficient design information is available. Life cycle costing may also be used, especially where the client is concerned about the total cost of ownership rather than only the initial construction cost. According to the International Cost Management Standards Coalition (2021), cost management should consider acquisition, construction, operation, maintenance, renewal, and disposal costs where relevant.

Cost control begins once the cost plan has been approved and continues throughout the design and construction stages. It involves comparing actual or forecast costs against the approved budget and taking corrective action where deviations occur. In practice, cost control includes

monitoring design changes, checking tender prices, valuing interim payments, assessing claims, preparing cost reports, managing contingencies, and forecasting the likely final account. Effective cost control requires accurate records, timely information, clear communication, and cooperation among the client, consultants, and contractor. Kajal et al. (2021) observed that cost management systems are useful because they provide managers with the information required for budgeting, forecasting, and performance evaluation. In construction, this information enables the project team to detect financial problems early and prevent uncontrolled cost growth.

Change orders are one of the most common causes of cost increases in construction projects. A change order occurs when the client, consultant, or project condition requires a change to the original scope, design, specification, method of construction, or programme. Such changes may arise from design omissions, client instructions, unforeseen site conditions, statutory requirements, or errors in project documentation. The correct treatment of a change order begins with proper instruction and documentation. The contractor should not proceed with additional work without a valid instruction, except where the contract allows urgent action. The cost consultant should then assess whether the change affects cost, time, quality, or risk. The valuation may be based on contract rates, new rates, quotations, dayworks, or fair valuation depending on the nature of the work and the provisions of the contract. Once assessed, the approved amount should be added to or deducted from the contract sum and reflected in the cost report. Narayan, Tan and Jack (2024)

noted that weak documentation is a major cause of claims management problems, which shows why change orders must be properly recorded and administered.

3.2 Concept of Construction Project Management

Construction project management refers to the coordinated planning, organising, directing, monitoring, and controlling of construction activities to achieve defined project objectives. These objectives usually relate to cost, time, quality, safety, scope, environmental performance, and stakeholder satisfaction (PMI 2017). Unlike routine business operations, construction projects are temporary and unique. They are carried out on specific sites, under specific contract conditions, and by temporary teams made up of clients, consultants, contractors, subcontractors, suppliers, regulators, and end users. Ofori-Kuragu et al., (2016) noted that construction project success depends on the ability of project teams to manage performance indicators such as time, cost, quality, safety, and client satisfaction. This means that construction project management is not only about completing physical work on site, but also about coordinating decisions, resources, information, risks, and relationships.

Planning is one of the most important functions of construction project management because it establishes how the project will be delivered before work begins. Planning involves defining the project scope, identifying activities, determining resources, setting responsibilities, preparing budgets, developing schedules, assessing risks, and establishing communication procedures. A good project plan helps the project team to understand what

must be done, when it must be done, who will do it, how much it will cost, and what standards must be achieved. Russell et al. (2024) explained that project management has developed as a structured discipline because complex projects require deliberate planning, resource allocation, coordination, and control. Without proper planning, construction projects are likely to suffer from delays, cost overruns, poor workmanship, duplication of effort, and disputes.

Scheduling and programming are central parts of construction planning. A construction schedule shows the sequence, duration, and timing of project activities. It identifies when each activity should start and finish, how activities depend on one another, and how the overall project completion date will be achieved. Programming is closely related to scheduling, but it is often used in construction to refer to the practical arrangement of work activities over time. For example, the programme may show when excavation, foundation work, structural framing, roofing, electrical installation, plumbing, finishes, testing, and handover will take place. Common scheduling techniques include bar charts, critical path method, milestone schedules, line of balance, and short-term look-ahead programmes. Habibi et al., (2018) emphasised that early identification of schedule and cost performance indicators is important for preventing poor project outcomes.

Construction project management also involves resource management. Resources include labour, materials, plant, equipment, finance, information, and time. The project manager must ensure that these resources are available

when needed and are allocated efficiently. Poor resource planning can lead to idle labour, delayed materials, underused equipment, increased costs, and reduced productivity. For example, if concrete is scheduled for a particular day but reinforcement work has not been completed, the concrete delivery may be wasted or postponed, which may affect both cost and time. Adejola and Ewuga (2025) observed that digital technologies are increasingly being used to improve productivity, coordination, monitoring, and decision-making in construction project management. This is important because digital tools can support better resource planning, progress tracking, and communication among project participants.

Another important aspect of construction project management is monitoring and control. Monitoring involves collecting information about actual project performance, while control involves comparing this performance with the approved plan and taking corrective action where necessary. A project manager may monitor progress through site meetings, inspection reports, progress photographs, dashboards, cost reports, quality reports, and programme updates. Where progress is behind schedule, the project manager may recommend acceleration, resequencing of activities, additional resources, or revised methods of work. Where costs are exceeding the budget, the project manager may request cost reports, review variations, examine claims, or advise on value management options. Silva et al., (2016) argued that project success is no longer assessed only by time, cost, and quality, but also by broader measures such as stakeholder satisfaction and project benefits.

Risk management is also part of construction project management because every project is exposed to uncertainty. Risks may arise from weather, design changes, ground conditions, labour shortages, late approvals, poor communication, safety incidents, price fluctuations, or contractor failure. The project manager is expected to identify possible risks, assess their likelihood and impact, allocate responsibilities, and develop response strategies. Omotayo et al. (2024) explained that construction project outcomes are strongly influenced by project complexity, stakeholder engagement, and social dynamics. This means that project managers require both technical and interpersonal skills. They must understand construction methods, contracts, cost, quality, and scheduling, but they must also manage communication, expectations, conflict, and collaboration. Therefore, construction project management is best understood as an integrated professional function that brings together planning, programming, resource coordination, monitoring, risk management, leadership, and stakeholder management to achieve successful project delivery.

3.3 Concept of Contract Administration

Contract administration is the process of managing the contract after it has been awarded to ensure that the parties perform their obligations in accordance with the agreed terms and conditions. In construction, the contract sets out the rights, duties, responsibilities, risks, payment procedures, variation procedures, dispute procedures, completion requirements, and remedies available to the parties. Contract administration therefore ensures that the contract is not treated as a document kept in a file, but as

a working management tool that guides project delivery. Gunduz and Elsherbeny (2020) described construction contract administration as a complex process that affects project performance because it deals with communication, documentation, quality, payment, change, claims, and risk. Similarly, Seboka (2025) argued that weaknesses in contract administration can contribute to poor construction performance where roles, procedures, and monitoring systems are not properly followed.

The first important aspect of contract administration is understanding the contract documents. These documents may include the conditions of contract, drawings, specifications, bills of quantities, schedules, tender documents, addenda, letters of acceptance, and any other documents forming part of the agreement. The contract administrator must understand the order of precedence of these documents and how they should be interpreted when inconsistencies arise. In practice, many construction problems occur because parties act without understanding the contract provisions that regulate their actions. For example, a contractor may fail to give notice within the required time, a consultant may issue an unclear instruction, or a client may request additional work without understanding the cost and time implications. Narayan et al., (2024) noted that poor contractual knowledge and weak claims procedures are among the recurring challenges in construction claims management.

Communication is another central function of contract administration. Construction contracts usually prescribe how instructions, notices, approvals, claims, payment

applications, and certificates should be issued. These communications should be clear, timely, traceable, and properly recorded. Verbal instructions may create confusion where they are not confirmed in writing, especially when they involve changes to the scope, cost, or programme. For this reason, contract administrators must maintain proper records of correspondence, minutes of meetings, site instructions, inspection reports, progress reports, photographs, test results, and payment documents. Gunduz and Elsherbeny (2020) identified document and record management as one of the critical areas of contract administration performance. This is because records provide evidence of what happened on the project, when it happened, who instructed it, and how it affected the contract.

Payment administration is also a major part of contract administration. In most construction projects, the contractor is paid progressively as work is completed. The contractor submits an interim payment application showing the value of work done, materials on site, variations, claims, and other amounts due under the contract. The contract administrator or quantity surveyor then assesses the application and recommends or certifies the amount payable. This process protects both the contractor and the client. The contractor receives cash flow to continue the work, while the client pays only for properly measured, valued, and certified work. Mwaiseje et al., (2024) found that procurement contract administration is linked to quality attainment because proper monitoring, inspection, and compliance procedures help to ensure that payments correspond with

acceptable work. Payment administration therefore supports fairness, accountability, and financial control.

Variation and change management are also handled through contract administration. A variation occurs when there is an authorised change to the original scope, design, quantity, specification, quality, sequence, or method of work. The contract administrator must ensure that variations are properly instructed, recorded, valued, and included in the financial records of the project. The contractor must also provide the required notices and supporting documents where the variation affects time or cost. Failure to manage variations may lead to cost overruns, payment disagreements, extension of time claims, and disputes.

Claims administration is closely related to variation management. A claim is a request by one party for additional payment, extension of time, loss and expense, or other contractual relief. Claims may arise from delays, disruption, late information, changes, unforeseen conditions, suspension, acceleration, or breach of contract. The contract administrator must assess whether the claim is valid under the contract, whether the required notice was given, whether the evidence is sufficient, and whether the claimed amount or time is reasonable. Narayan et al. (2024) argued that claims management is often weakened by poor documentation, inadequate procedures, and limited resources. Proper claims administration therefore requires fairness, consistency, contractual knowledge, and evidence-based assessment.

Contract administration ends with completion, handover, final account, and close-out. At completion, the contract administrator confirms whether the works have reached the required stage for practical completion, issues the appropriate certificate, records defects, and coordinates the defects liability or rectification process. The final account is then prepared to show the final contract sum after adjusting for variations, provisional sums, claims, fluctuations, omissions, and other contractually recognised items. Hamledari and Fischer (2021) explained that digital technologies, including blockchain-enabled smart contracts and reality capture tools, are beginning to improve transparency and automation in construction payment administration. However, technology does not remove the need for sound judgement, proper records, and compliance with contract procedures. Contract administration should therefore be understood as a disciplined professional process that ensures that construction contracts are performed, monitored, paid, changed, documented, and closed out in a fair and orderly manner.

In summary, the flowchart in Figure 1 presents a structured approach to achieving successful project outcomes in construction. It begins at the top level with three primary drivers: Quality, Cost, and Time. These fundamental constraints are prioritised and funnelled into the central process of Cost Management, emphasizing budget control as a pivotal element. The model then branches into two interconnected execution streams: Construction Project Management and Contract Administration, each with its own specialised focus.

Finally, the successful integration of these management practices converges to deliver the project values, which are defined as Value for Money, Client Satisfaction, and long-term Sustainability.

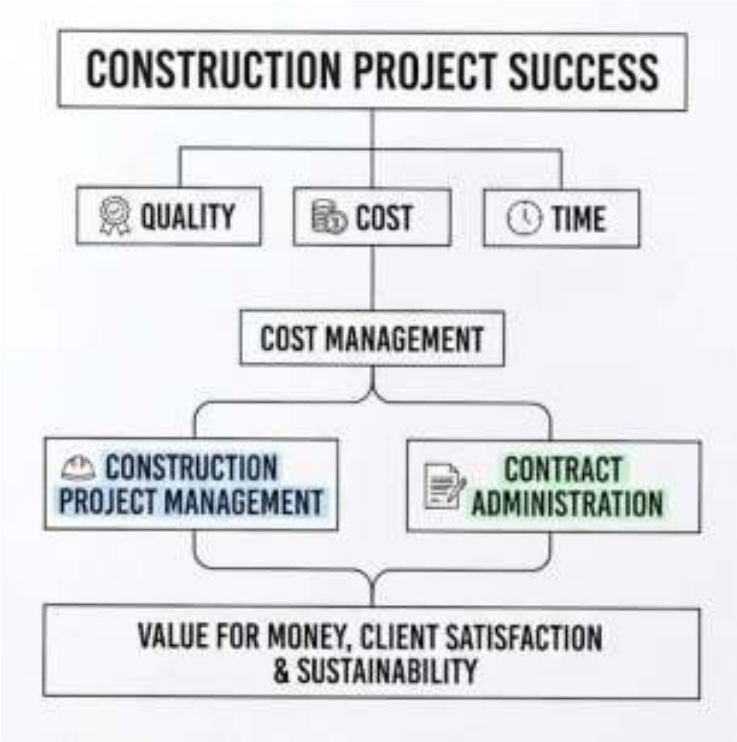


Figure 1: Construction Project Success Flow Chart

4.0 MY RESEARCH CONTRIBUTIONS

Madam Vice-Chancellor, distinguish Ladies and Gentlemen, I would like to classify my modest

contributions to ensuring efficient cost management in construction works as follows:

i) Cost management of construction works
ii) Construction projects management
iii) Contract administration

4.1 Cost Management of Construction Works

My major contributions to the construction industry in cost management of construction works are enumerated below:

4.1.1 Evaluation of Adequacy and Utilisation of Contingency in Building Projects in Nigeria

The execution phase of construction projects involves various human activities and the manipulation of a series of resources in achieving the finished product. In this complex situation, an accurate cost estimate cannot be achieved at the planning phase of the project. Therefore, there is a need for a contingency fund to cater for unforeseen conditions or deviations that may occur during the execution phase of construction projects. Contingencies have been defined in various ways by several authors. Project Management Institute (PMI, 2000) defined contingency as the amount of money needed above the cost estimate to reduce the risk overruns of project objectives to a level acceptable to the organisation. Bello and Odusami (2013) observed that the contingency fund is not intended to cover changes in scope or schedule, profit, overhead, acts of God or force majeure events (such as earthquakes). Contingency is usually included in project cost estimates to guard against

any risk that may occur during the execution of the project. According to Babalola (2022), contingency is a fixed amount usually based on a 'rule of thumb' -that is, a certain percentage of the base estimate.

Despite these contributions, there remains a gap in empirical studies that quantitatively assess both the adequacy of contingency provisions and their utilisation across different types of construction claims within a unified framework. It is within this context that **Akinradewo** and Awodele (2016) undertook a study to evaluate the adequacy and utilisation of contingency funds in building projects in Nigeria. The study examined the relationships among contingency funds, baseline estimates, and final contract sums, and analysed how contingency funds are distributed across various claim types.

The study showed that the average contingency allowance in construction projects is approximately 5% of the baseline estimate, while the average additional cost due to claims is about 18%, resulting in a shortfall of 13%. This indicates that contingency provisions are significantly inadequate in covering actual project risks. The study further revealed that contingency funds are predominantly utilised for contract ambiguity claims, which account for approximately 54% of total contingency usage, followed by change claims (24%), differing site condition claims (9%), extra works claims (9%), and acceleration claims (4%), while no allocation was made for delay claims. This suggests that contract documentation deficiencies and project changes are the primary drivers of contingency expenditure in the study area. The study also established

a strong, statistically significant positive relationship between contingency funds and both baseline estimates and final contract sums, with correlation coefficients of 0.922 and 0.905, respectively. The study therefore, rejected the null hypotheses and confirmed that contingency allocation is closely linked to project cost structures.

The study concluded that the prevalent practice of allocating contingency funds based on fixed percentages or subjective judgment is fundamentally flawed and contributes to cost overruns in construction projects. It was recommended that contingency allocation should be based on empirical cost analysis of similar completed projects rather than intuition. The study proposed that a realistic contingency provision should be approximately 20% of the baseline estimate to adequately accommodate project risks and uncertainties.

4.1.2 Construction cost performance in Nigeria: a comparative analysis of traditional and public- private partnership procured housing projects.

Housing is a basic necessity for all and to ensure the provision of decent, comfortable and adequate housing for all, there is a need for housing construction to be efficiently managed through a suitable procurement method (Adeyemi, et al., 2015). Construction procurement entails the organized process of acquiring materials and services for project activities from the conception stage to the completion stage (Perera, et al., 2019). The need to deliver construction projects within the parameters of quality, cost and time resulted in the

development of various procurement methods (Daniel, 2006).

The traditional procurement method involves authorizing design consultants to produce designs and other relevant documents for the project. These form the basis for the award and execution of the contract, with the involvement of the contractor at the project execution stage. This formed the traditional sequence which is now called Design-Bid-Build. Other variants of procurement that deviate from this sequence are termed non-conventional procurement method (Daniel, 2006). New methods of project delivery have been formulated to minimise the cost and period within which a facility can be completed. The choice of procurement method is very important in completing construction project to time and cost. Therefore, **Akinradewo** et al., (2020) compared the analyses of cost of 200 completed housing units procured using both the traditional and Public Private Partnership (PPP) route between 2014 and 2016 in Suleja, Niger State, Nigeria.

The finding showed that on the average, there exists a deviation (cost overruns) of 9.1% and 5.3% in the initial and final costs in both the traditional and PPP method respectively. The study proposed that the government in a bid to tackle the housing deficit in the country, should explore the PPP procurement option.

4.1.3 Evaluation of Problems Associated with Construction Claims Management in Ondo State, Nigeria

Disputes have become a global epidemic in the construction industry, despite the considerable efforts that have been made to avoid them. The majority of construction projects in Nigeria experience disputes due to problems associated with the construction claims management process. In recent years, only a few construction projects in Nigeria were completed on time and within budget. This is due to construction claims that are outside the control of all stakeholders, including contractors, clients, and consultants. Enshassi, et al., (2009) opined that no construction project can be shielded from a potential claim and that such a claim can lead to significant financial damages. Therefore, the owners, consultants, and contractors need to understand the problems associated with the construction claim management process to be able to manage claims effectively.

Indeed, many of these projects have cost and time overruns as a result of the complexity of construction projects, which makes claims inevitable. **Akinradewo** (2016) observed that in most cases, management of these claims always leads to disputes that may end up either in arbitration or litigation. The study also observed that this may eventually lead to a delay in the execution of the project or abandonment. Enshassi et al. (2009) postulated that the objective of the construction claim management process is to resolve problems in an efficient way, in order to avoid litigation and arbitration. To ensure amicable

settlement of construction claims, **Akinradewo,** Ogunsemi, Dada and Aje (2016) evaluated the problems associated with construction claims management process using survey approach in which questionnaire were administered on consultants, clients and contractors.

The study revealed that differences in awareness and interpretation of contract terms, too many bureaucratic procedures in claims management, and delays in client service were the top three problems associated with the construction claims management process. The study concluded that for effective management of construction claims, the identified problems need to be recognised and mitigated by the stakeholders. It was recommended that contractors should improve their site staff potentials in construction management through on-the-job training

4.1.4 A Quantitative Study on the Magnitude of Construction Claims in Construction Projects in Nigeria

The construction industry is subject to inevitable changes because of the nature and complexity of the operations and activities involved in the process of realising its final products. According to Singh and Kandan (2005), in an exegetical literature review argued that construction projects are complex because they involve many human and non-human factors and variables; they usually have a long duration, various uncertainties, and complex relationships among the participants. Therefore, the need to make changes in a construction project is a matter of practical reality. The study concluded that changes usually plague the construction industry with a wide range of

claims, and the final effect of claims on construction projects is cost and time overruns

Ogunsemi (2002) concluded that there is no gainsaying that the twin problems of cost and time overruns may not yet be over, as they still characterize construction projects in most parts of the world, especially in developing countries like Nigeria. To ascertain the magnitude of these twin problems in studied area, **Akinradewo** and Oladirin (2018) adopted a case study approach, and archival data were collected from 53 projects that had been completed with construction claims. All the projects considered were executed over a period of nine years (2006 to 2014) in Ondo State, Nigeria.

The study affirmed that the most frequent type of claim is different site conditions claims, followed by change claims, while none of the projects used for the study experienced a delay claim. The study concluded that contract ambiguity caused the highest number of claims, with an average of 13.77% of the original contract sum, while the overall claims averaged 25% of the original contract sum.

4.1.5 Revisiting Causative Factors of Project Cost Overrun in Building Construction Projects in Nigeria

Cost overrun remains one of the most persistent challenges in the construction industry, with significant implications for project performance and stakeholder satisfaction. Singh (2009) identified delays and cost overruns as critical issues affecting infrastructure projects globally, while Sambasivan and Soon (2007) argued that these challenges often stem from systemic inefficiencies

in project management. Similarly, Apolot (2011) observed that cost overruns are prevalent in public sector projects, particularly in developing countries where institutional and managerial frameworks are often weak. Supporting this position, Mbachu and Nkado (2004) emphasised that cost escalation leads to financial losses and inefficient resource utilisation, thereby undermining project viability.

Despite these contributions, many previous studies have been criticised for adopting a limited or fragmented approach to identifying causative factors, thereby necessitating a more comprehensive and integrated analysis. **Akinradewo** et al. (2019) conducted a study to revisit and appraise the causative factors of cost overrun in building construction projects in Nigeria. The study adopted a quantitative research approach, utilising a structured questionnaire administered to 156 construction professionals, including Architects, Builders, Engineers, Project Managers, and Quantity Surveyors within the South-Western region of Nigeria.

The study confirmed that additional costs arising from variations and poor financial control on site are the two most significant factors contributing to cost overrun. This highlights the critical role of cost management practices and scope control in influencing project financial outcomes. The study further revealed that contract management and contractors' previous experience are the next two major determinants of cost overrun, while the use of wrong estimation methods ranked fifth. These findings indicate that both technical and managerial competencies are crucial for controlling project costs.

The study also established that a lack of synergy among designers and contractors, the absence of construction cost data, and fluctuations in material costs are significant contributors to cost overruns, underscoring the importance of coordination, data availability, and market conditions in project delivery. Notably, all identified factors recorded Mean Item Scores above the average value, indicating that they all contribute meaningfully to cost overruns within the study context.

The study concluded that cost overruns in construction projects result from cumulative negligence and inefficiencies across all project stakeholders, encompassing client-, contractor-, economic-, political-, and technical-related factors. The study recommended that construction professionals adopt more rigorous economic and cost management practices, improve coordination among stakeholders, and proactively identify and address the underlying factors contributing to cost overruns to enhance project performance.

4.1.6 Evaluation of Effects of Unethical Practices on Cost and Time Performance of Construction Projects in Tertiary Institutions in Edo State, Nigeria

Procurement methods play a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Mukhtar (2021) argued that the provision of physical infrastructure serves as a major driver for student motivation and effective learning within higher academic institutions. Similarly, Isa and Yusoff (2015) emphasised that managing facilities appropriately is a crucial focus area for university

administrators, as severe funding shortfalls continually hinder the restoration and procurement of essential learning assets. Supporting this, Inuwa et al. (2015) noted that projects are frequently delivered behind schedule, over budget, or below standard due to systemic sharp practices that cause professionals to contravene standard guidelines of ethical behaviour.

Further studies have highlighted that structural and professional perversions directly influence project performance outcomes. Dantong et al. (2017) observed that poor craftsmanship and ethical violations routinely subject regional public works to extensive delays and frequent maintenance intervention. In the Nigerian context, Osuizugbo (2019) identified underperformance in the building sector as a primary consequence of professional misconduct, while Akinrata, Ogunsemi, and **Akinradewo** (2019) noted that educational environments were highly vulnerable to diminished infrastructure lifespans and a widespread erosion of public trust. Similarly, Olatunji et al. (2016) argued that corrupt behaviours disrupt market equilibrium and distort the entire construction process, thereby increasing the risk of structural failure and building collapse.

Scholars have also examined the classification and characteristics of industry control metrics. Takim (2002) categorised key project performance variables into distinct parameters, encompassing delivery duration, structural predictability, and participant safety margins. Oladirin and Ho (2014) emphasised that corporate codes are designed to establish clear behavioural baselines for industry practitioners, while Le et al. (2014) highlighted

those balancing technical competencies with strict regulatory compliance remains a persistent challenge for construction stakeholders. Despite the availability of documented professional ethics and guidelines provided by statutory boards, the real-world performance of public infrastructure depends heavily on mitigating administrative corruption and optimizing contract award procedures.

Aliu, **Akinradewo**, Arijeloye and Ijieh (2024) in a case study, investigated five deteriorated building developments at Auchi Polytechnic in Edo State, Nigeria. The study adopted a mixed-method research design, administering close-ended questionnaire surveys by census to 30 building professionals directly tied to the infrastructure packages, alongside semi-structured validation interviews with five targeted experts.

The study revealed that practitioner behaviours induce significant damage across traditional baseline variables, with cost overrun recorded with the highest descriptive ranking (MIS = 4.45), followed by time overrun (MIS = 4.44) and poor workmanship (MIS = 4.41). This indicates a widespread disruption of structural quality standards. The study also established through linear regression that a strong mathematical relationship exists between independent ethical violations and overall project timelines, as verified by a model coefficient of determination of 0.996. In addition, the case study content analysis revealed distinct performance variations between cost and scheduling results. It was found that while three out of the five evaluated structural packages were

completed within their initial financial allocations, all of the developments experienced massive schedule delays.

The study concluded that structural project delivery in public tertiary institutions is heavily compromised by schedule inflation, meaning that final timeline success remains structurally dependent on suppressing unethical professional practices. It was proposed that tertiary institution management boards strictly shun primordial sentiments when awarding construction contracts, while ensuring that all stakeholders meticulously follow standard procurement laws to preserve transparency and accountability.

4.1.7 Training Adequacy of Quantity Surveyors in Cost Management of Mechanical and Electrical Services in Nigeria

Training plays a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Lingham et al. (2006) argued that training serves as a fundamental mechanism for addressing skill deficiencies within institutions and developing competent professionals capable of handling specialized tasks. Similarly, Ajanlekoko (2012) emphasised that acquiring adequate training levels is essential to improving the practical skills of quantity surveyors, especially when navigating the complexities of modern engineering installations. Supporting this, Yusuf (2015) noted that contemporary buildings are becoming increasingly sophisticated and engineering-oriented, with mechanical and electrical (M&E) services escalating to account for up to 50% of

total project costs. In addition, Chamikara et al. (2018) highlighted that long-term techniques like life-cycle costing are essential components for modern sustainable delivery. Despite the availability of extensive standard method of measurement guidelines, the practical readiness of graduates depends heavily on curriculum modernization across public institutions.

To highlight the essence of training on the performance of professionals in the built environment, Arowoiya and **Akinradewo** (2021) examined training adequacy of quantity surveyors in the cost management of M&E services. The study adopted a qualitative content analysis approach, evaluating the undergraduate curricula of 11 public universities and the National Board for Technical Education (NBTE) syllabus utilized by polytechnics across Nigeria. Data were systematically benchmarked against 15 key cost management knowledge areas using a four-tier scoring metric to gauge adequacy.

From the findings, the study revealed that formal measurement training remains strongly rooted across national frameworks, with mechanical and electrical measurement modules fully incorporated as standalone or core content areas in virtually all evaluated programs. This indicates that traditional quantity surveying foundations remain technically robust.

The study also established that financial control training is extensively integrated across institutional modules, ranking highly as a well-covered proficiency area. This reflects a strong capacity for basic contract accounting. In addition, the study showed that different institutions

possess severe disparities in contemporary and specialized knowledge areas. It was found that the University of Lagos ranked highest with an adequacy score of 80% (36 points out of 45), followed by the University of Uyo at 78%, while institutions like Imo State University and the polytechnic sector scored below the 67% adequacy baseline. The study further revealed that quality management, risk management, practical exposure to M&E installation methods, and specialized bill of quantities preparation for services are not well incorporated or are entirely missing from several curricula, leaving graduates fundamentally dependent on personal development or specialized firm mentorship to bridge the gap.

The study concluded that while general cost training is satisfactory, distinct educational gaps in modern management niches leave many Nigerian quantity surveyors under-trained to effectively manage complex M&E packages. It was recommended that academic institutions and the Nigerian Institute of Quantity Surveyors (NIQS) collaborate to thoroughly review academic programs, explicitly embedding quality management, risk management, and hands-on installation exposure into updated curricula.

4.2 CONSTRUCTION PROJECT MANAGEMENT

Madam Vice Chancellor, the subject of construction project management, encompasses planning, organising, quality control, contract management, communication, and safety administration. However, this lecture will be

limited to some the knowledge areas that are related to the subject matter.

4.2.1 Construction Project Planning Techniques: Awareness, Usage and Suitability

Construction project planning remains a fundamental component of effective project delivery, as it determines how resources, time, and activities are coordinated to achieve project objectives. Fayol (2016) emphasised that planning is the foundation of all managerial functions, guiding decision-making and execution processes within organisations. In the construction context, Ibrahim et al. (2014) argued that planning involves establishing the sequence of activities and allocating resources to ensure efficiency and effectiveness in project delivery. Similarly, Andawei et al. (2007) observed that poor planning of resource components, such as labour, materials, and equipment, often results in delays and cost overruns in construction projects.

Although the relevance of construction planning techniques has been widely acknowledged in the literature, there remains a need to assess their levels of awareness, usage, and suitability within specific industry contexts, particularly in developing countries. Hence, Akinradewo, Aigbavboa, Ogunbayo, Thwala, **Akinradewo,** (2022) examined the suitability of construction project planning techniques employed in the Nigerian construction industry. The study adopted a quantitative research approach, using a well-structured questionnaire administered to construction professionals,

including Quantity Surveyors, Builders, Engineers, and Architects.

The study revealed that the level of awareness and recognition of construction project planning techniques among professionals in the Nigerian construction industry is significantly low, with the majority of respondents indicating inadequate awareness. This suggests a critical gap in knowledge and application of planning tools within the industry.

The study further established that project planning practices in the Nigerian construction industry are largely inadequate, with over 90% of respondents indicating that planning efforts are insufficient. This inadequacy contributes directly to persistent challenges such as project delays, cost overruns, and, in some cases, project abandonment. The study also showed that Bar/Gantt charts are the most widely used planning technique due to their simplicity and ease of understanding, ranking highest in use. However, despite their popularity, they are not the most accurate planning tool.

The study also revealed that the Critical Path Method (CPM) is the most accurate and reliable planning technique for ensuring timely project delivery and cost control, as it provides a deterministic approach to scheduling and clearly defines activity relationships. In addition, the study revealed that Line of Balance (LOB) is the least used and least accurate planning technique, indicating its limited applicability and reliability in construction project planning within the Nigerian context. The findings further indicated that factors such as project

complexity, required expertise, and project location influence the choice of planning techniques, although most professionals consider a combination of these factors rather than relying on a single determinant.

The study concluded that improving awareness and application of planning techniques is essential for enhancing project performance in the Nigerian construction industry. The study recommended that greater emphasis should be placed on professional training and awareness programmes to promote the adoption of appropriate planning techniques, thereby addressing time and cost overruns from the early stages of project development.

4.2.2 Effects of Communication among Professionals on Building Projects Delivery in Nigeria

Communication is an essential ingredient that can help in achieving the objectives of a construction project. This study assessed the effects of communication among the professionals on building project delivery, with the aim of developing models for determining the effects of communication on completion time, cost, client satisfaction and project management. A construction project requires effective collaboration and coordination among diverse construction professionals and participants (clients). The number of construction participants involved in a project depends on the type of contract. Regardless of the type of contract that is being undertaken, Goh et al., (2014) opined that the effectiveness of communication between the client and contractor will determine the time and quality of the

construction project. Alshawi and Ingirige (2002) opined that effective communication, evaluation and feedback to project team at each stage of construction project could help to achieve project goals. Knipe (2002) identified different communication tools used in construction industry. They include: specifications, reports, manuals, schedules, calculations, drawings, site photographs, agendas and minutes of meetings.

Akinradewo, Ojo and Oladujoye (2017) identified that the ten major tools for effective communication on construction sites in Nigeria are drawings, minutes of site meetings, valuations, bills of quantities, programme of work, reports, specifications, site photographs, letters and payment receipt. Project Management Institute (2013) found that construction businesses that emphasised communication perform five times better than those that did not prioritise effective communication. Businesses that communicate effectively complete more than 80% of their construction projects within budget, on time, in high quality, and achieve other client value systems (PMI 2013). In order to assess the effects communication on building project delivery, **Akinradewo,** Ojo and Oyefusi (2017) conducted a survey using in-house consultants (quantity surveyors, architects, engineers and builders) and external contractors who had been involved on building projects at the Ministry of Housing, Lagos State in the past five years (2011-2016).

From the analysis, Table 1 shows the effects of communication on building project delivery. *Time* was ranked first, with (MIS = 4.54) while *client satisfaction* and *project management* were ranked second and third

with (MIS = 4.48) and (MIS = 4.19) respectively. *Cost* was the fourth ranked effect with (MIS = 4.12).

Table 1: Effects of Communication on Building Projects Delivery

Variables	Mean	Rank
Time	4.54	1
Client satisfaction	4.48	2
Project management	4.19	3
Cost	4.12	4
Sustainability	3.73	5
Quality	3.71	6
Health and safety	3.54	7
Functionality	3.50	8
Maintainability	3.35	9

Communication mechanisms were further analysed using regression analysis to predict the probable time, client satisfaction, project management and cost to construction project. Since these variables (time, client satisfaction, project management and cost) were ranked best with MIS above 4.00.

Based on these high ranked effect of communication mechanisms on building project delivery, regression

analysis was carried out to develop four models for future use.

MODEL 1: Completion Time = 4.376 + (0.309**Metric***) + (0.391****Facial expression***) + (0.443****Site meetings***).** (1)

Model one (1) predicts effect of communication mechanisms on completion time of building projects is based on metric, facial expression and site meetings.

MODEL 2:Client Satisfaction = 4.78 + (0.01**Postures***) + (0.28****Gestures***).** (2)

From Model 2, effect of communication on client satisfaction for building projects is predicted by posture and gestures.

MODEL 3: Project Management = 4.24 + (0.55 * *E-mail*) + (0.43**Note***).** (3)

Model 3 predicts effect of communication mechanisms on project management for of building projects to be through e-mail and note.

MODEL 4: Cost $= 3.159 + (0.486 * \text{Project plan}) + (0.288 * \text{Metric})$. (4)

Model 4, shows the effect of communication mechanisms on cost for of building projects, the prediction rest on project plan and metric.

The study concluded that efficiency in communication plays a key role in successful implementation of building projects and also affects performance of the entire life

cycle of construction projects. The study recommended that the application of communication mechanism models developed in this study because it would ensure successful building projects delivery to time, planned cost and client's satisfaction

4.2.3 Bill of Materials and Labour Template for Construction Information Management

Construction information management has increasingly evolved with the integration of structured documentation systems aimed at improving cost control, resource allocation, and project efficiency. According to Eastman et al. (2011), effective information management in construction relies on the proper organisation and integration of project data to support decision-making throughout the project lifecycle. Similarly, Succar (2009) emphasised that structured data environments, particularly within Building Information Modelling (BIM), enhance coordination and reduce inefficiencies associated with fragmented information systems. In the same vein, Hardin and McCool (2015) noted that the use of standardised templates and digital tools improves transparency, accountability, and accuracy in construction project management.

In addition, several studies have highlighted the importance of material and labour management in achieving project performance objectives. According to Ashworth (2013), accurate estimation and tracking of

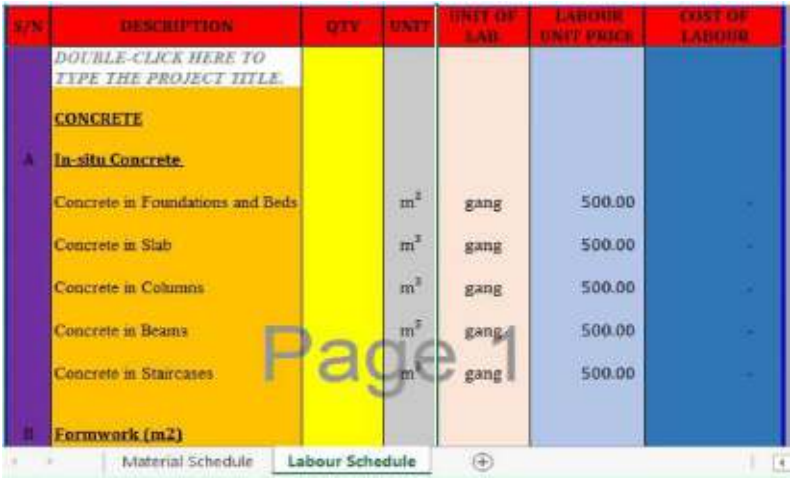
materials and labour are essential for cost control and minimising waste in construction projects. Similarly, Olatunji (2010) argued that poor documentation and lack of structured data systems often result in cost overruns and inefficiencies in project delivery. Akinradewo Aigbavboa and **Akinradewo** (2019) observed that the integration of digital tools in construction information management enhances productivity and supports better monitoring of project resources.

Despite these advancements, the construction industry, particularly in developing countries, continues to face challenges related to poor information management practices, a lack of standardisation, and inefficiencies in tracking materials and labour. Hence, Akinradewo, Awodele and **Akinradewo** (2021) focused on developing a Bill of Material and Labour template for construction information management, aimed at improving data organisation, cost tracking, and project efficiency. The study adopted a practical and system-development approach, designing a structured template that integrates key components of material and labour management within construction projects**.** The template developed for materials schedule is shown if Figure 2, while the template for labour schedule is as indicated in Figure 3.

S/N	DESCRIPTION	QTY	UNIT	UNIT OF MAT	TOTAL QTY OF MATERIAL	MATERIAL UNIT PRICE	COST OF MATERIAL
	DOUBLE-CLICK HERE TO TYPE THE PROJECT TITLE						
	CONCRETE						
A	**In-situ Concrete blinding in foundation (Concrete mix - 1:10/1:4:8)**						
	Cement 50kg per bag		m^3	Bags	0.00		-
	Sharp Sand per cu.m	0.00	m^3	tons	0.00		-
	Granite per cu.m	0.00	m^3	tons	0.00		-
B	**In-situ Concrete in foundation (Concrete mix - 1:3:6)**						

Material Schedule | Labour Schedule

Figure 2: Material Schedule Template Sheet



S/N	DESCRIPTION	QTY	UNIT	UNIT OF LAB	LABOUR UNIT PRICE	COST OF LABOUR
	DOUBLE-CLICK HERE TO TYPE THE PROJECT TITLE.					
	CONCRETE					
A	**In-situ Concrete**					
	Concrete in Foundations and Beds		m^3	gang	500.00	-
	Concrete in Slab		m^3	gang	500.00	-
	Concrete in Columns		m^3	gang	500.00	-
	Concrete in Beams		m^3	gang	500.00	-
	Concrete in Staircases		m^3	gang	500.00	-
B	**Formwork (m2)**					

Material Schedule | Labour Schedule

Figure 3: Labour Schedule Template Sheet

After the development of the template, it was subjected to a validation process by practising Quantity Surveyors to calculate the material and labour content needed for ongoing projects. An average of 92% accuracy was achieved on the templates done for the 10 projects used for validation by the professional quantity surveyors. This implies that you need to adjust to quantities obtained when you apply the templates with the about 10% for risks.

The study established that the use of the templates for construction projects will enhance accuracy and promote cost control to ensure the menace of waste and cost overrun on construction projects in reduced. The study concluded that the development and adoption of a structured Bill of Materials and Labour template significantly improves construction information management by enhancing cost control, resource efficiency, and data accuracy.

4.2.4 Effects of Procurement Methods on the Performance of Refurbishment Projects in Lagos State, Nigeria

Procurement methods play a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Ojo et al., (2006) argued that a construction project can only be considered successful when it is delivered within the stipulated time, budget, and required quality standards. Similarly, Basheka and Bisangabasaija (2010) emphasised that selecting an appropriate procurement system is a crucial decision for project managers, as an unsuitable choice can adversely affect project delivery.

Supporting this, Ojo and Gbadebo (2014) noted that different procurement methods are suited to different project types, and selecting the right method is key to achieving project objectives.

Further studies have highlighted that procurement systems directly influence project performance outcomes. Froystad et al., (2010) observed that poor performance in the construction industry is often linked to inappropriate procurement selection. In the Nigerian context, Ogunsemi and Jagboro (2006) identified cost overruns as one of the most significant challenges facing construction projects, while Ali et al., (2009) noted that refurbishment projects are particularly prone to cost and time variations due to inherent uncertainties. Similarly, Egbu et al., (1996) argued that refurbishment projects are more complex and difficult to control than new construction projects, thereby increasing the risk of poor performance.

Akinradewo Ojekunle and Ogunsemi (2020) investigated the effects of procurement methods on the performance of refurbishment projects in Lagos State, Nigeria. The study adopted a mixed-method approach, combining questionnaire surveys administered to 227 construction professionals with semi-structured interviews conducted on 40 procurement officers that were engaged in the completed refurbishment projects executed by the State Ministry of Works, Power, and Housing.

From the findings, the study revealed that the traditional procurement method is the most widely used system for refurbishment projects, with lump-sum contracts ranked highest (MIS = 4.51), followed by measurement contracts

(MIS = 4.31) and cost reimbursement (MIS = 4.17). This indicates a strong reliance on conventional procurement approaches despite their known limitations.

The study also established that the design and build procurement method is the second most commonly used system, while other methods, such as construction management, management contracting, and direct labour, are used less frequently. This reflects a gradual shift towards non-traditional procurement systems, although traditional methods still dominate the industry. In addition, the study showed that different procurement methods have varying impacts on project performance, particularly on cost and time. It was found that public-private procurement methods recorded an average cost overrun of about 10%, indicating moderate cost performance challenges. The study further revealed that time overruns are more pronounced across procurement methods, with traditional procurement experiencing about 29% delay, construction management about 31%, and management contracting about 24%. This suggests that procurement choice significantly influences project duration and scheduling efficiency.

The study concluded that the performance of refurbishment projects is strongly dependent on the selection of appropriate procurement methods, as different systems yield varying outcomes in terms of cost and time performance.

4.2.5 A Regression Equation for Determining Completion Period of Construction Projects in Ondo State, Nigeria

Time plays a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Yusuwan and Adnan (2013) argued that a construction project can only be considered successful when it is delivered within the agreed duration, as time overrun poses a severe threat to overall project success. Similarly, Esmaeili et al., (2014) emphasised that completing a project within its scheduled timeframe is a crucial factor for project managers, as it demonstrates the efficiency of the construction firm. Supporting this, Ibironke et al., (2013) noted that project delay has become a dominant problem in Nigeria, making the prediction of realistic construction durations key to achieving project objectives.

Further studies have highlighted that unanticipated disruptions directly influence project performance outcomes. Kikwasi (2012) observed that poor time performance in the construction industry is a major risk that researchers continually work to mitigate. In the Nigerian context, Aibinu and Jagboro (2002) identified delay as a pervasive extension of the feasible execution period caused by either clients or contractors, while Owolabi et al. (2014) noted that time overruns and cost overruns are closely linked and remain the most highly ranked negative effects facing construction delivery. Similarly, Golanaraghi and Alkass (2012) argued that the majority of project delays are unanticipated, thereby increasing the risk of contract friction, claims, and liquidated damages.

Scholars have also examined the classification and characteristics of delay variables. Ibironke et al. (2013) and

Golanaraghi and Alkass (2012) categorised construction delays into specific systems such as excusable and non-excusable variants, with the former sub-divided into compensable and non-compensable types based on responsibility. Yusuwan and Adnan (2013) emphasised that critical delays modify the final completion date while non-critical delays do not, while Fugar and Agyakwah-Baah (2010) highlighted that managing the underlying causes of these disruptions remains a persistent challenge for construction stakeholders. Despite the availability of extensive delay taxonomies, the actual duration of a project depends heavily on minimizing procurement bottlenecks and managing structural uncertainties.

Akinradewo, Akinola and Ojo (2017) evaluated the duration of completed construction projects in Ondo State, Nigeria. The study adopted a quantitative approach, collecting archival data via a pro forma questionnaire from 41 completed building projects executed between 2009 and 2015, which spanned educational, health, office, and residential facilities.

From the findings, the study revealed that time overrun is an incredibly widespread systemic failure, with the overall average delay on building projects calculated at 85%. This indicates a severe decline in timely project delivery frameworks within the region. The study also established that approximately nine out of ten building projects suffered delays, meaning only 2% of the sampled developments were handed over within or ahead of schedule. This reflects an increasing trend in local construction delays when compared historically with earlier national baseline studies. In addition, the study showed that a strong mathematical relationship exists between planned and actual durations.

The study further revealed that the predictive model functions effectively under normal project conditions, showing minor residuals when validated against ten independent projects in Ekiti State, though performance variation still occurs due to a client's prompt payment habits or a contractor's coordination efficiency.

The study concluded that the completion period of building projects is heavily compromised by delays, and using the developed regression equation will enable stakeholders to establish realistic schedule baselines that minimise the risk of abandonment, arbitration, and litigation. The study recommended the reduction or complete elimination of bureaucratic and administrative bottlenecks in transaction checking and approvals, alongside the adoption of proactive procurement systems to ensure operational coherence.

4.3 CONTRACT ADMINISTRATION

Madam Vice-Chancellor, compliance with existing rules, regulations, guidelines and conditions of contract in the Nigerian construction industry is crucial in ensuring quality project delivery. That is, maximising efficiency and delivery of construction projects to quality specified, and within budget. It's on this premise that I and my team research into the following legal aspect of construction project:

4.3.1 Assessment of Level of Compliance with the Public Procurement Act in the Northern Part of Nigeria: A Case Study of Universities

Procurement has always been one of the vital functions of governments all over the world. Public procurement comprises government purchasing of works, goods, and services resources for state activities, the basic purpose of

which is to secure the best value for public money (Bodunrin, 2016). The public bodies are the largest purchasers that deal with a huge budget and public procurement represents 18.42% of the world GDP (Mahmood, 2010). The procurement budget of any nation like Nigeria is so high that it cannot be done shabbily, especially construction procurement, because of its vital role in infrastructure provision. The purpose of the public procurement act is for transparency, openness, equality, fairness, value for money, competitiveness, agreed standards, and time. (Hui et al., 2011; Lex Mundi Publication, 2012; Krivish & Krekele, 2013; Eze, 2015).

The successful procurement of construction projects is hindered by several factors, such as ineffective communication among construction parties, wrong choice of procurement methods, unethical practices of construction parties, skills inadequacy, bad bidding process, lack of cooperation between the procuring entity (client or project owner) and the contractor (Latham, 1994; Reading Report, 1995; Egan, 1998; Oyedele, 2016), and corruption (Obanikoro, 2013). Lack of accountability in public procurement was so rampant in Nigeria before the advent of the Budget Monitoring and Price Intelligence Unit (BMPIU) under the Presidency and was affecting the Nigerian budget. This was due to financial indiscipline and lack of diligence in procurement.

Akinradewo, Bamidele and Ogunsemi (2022) highlighted the extent to which procurement practices align with the provisions of the Public Procurement Act (PPA) 2007 tenets in the studied area. The study adopted a quantitative research approach, using structured questionnaires to obtain data from professionals involved in public procurement

processes. The study also evaluated the level of compliance with the PPA (2007) for projects procured, and examined the level of understanding of the Act in Universities in the North Central States of Nigeria.

From the analysis, 90.3% of the respondents affirmed the usage of open competition while 4.85% each affirmed the selective and negotiated procurement system. These findings revealed that the tenets of the 2007 Public Procurement Act were being followed. The study indicates a high level of compliance with the 2007 Public Procurement Act in all the tenets and components of the Act with an overall RII of 80.3%. Advertising of tenders, issuance of award letters, bid submission and bid opening information, submission of the tender report, budgetary provisions before procurement process, analysis of tenders submitted by professionals, prequalification criteria stated and minimum tender documents required in order of compliance have an excellent compliance rate with an RII of 89.6%, 83.3%, 82.5%,n 82.2%, 82.0%, 81.7%, 81.5%, 80.3% 80%, and 79.6% respectively in all Federal Universities in the north-Central of Nigeria.

Similarly, meetings of the universities' tender board for ratification of awards, collection of no objection letter from BPP, transparency of the system by eliminating the interest of the procurement officer, working within the stipulated time for prequalification and award, the establishment of the procurement planning committee, stated criteria for qualitative selective, attendance of bid opening by interested members of the public and strict adherence to all the procurement procedures had a better compliance rate with an RII of over 75% i.e. 79.6%, 76.1%, 79.3%, 77.7%, 79.6%, 79.3%, 77.6%, and 79.1% respectively. The study

also shows that another tenet and component of the Acts with a good compliance rate is the informing of bidders of reasons for disqualification, with 73.0%. For FULafia, FUTMinna, UniIlorin, FULokoja, NOUN, UniAbuja, and UniJos, the overall RII for all the variables under tenets and components of Acts are 87.5%, 82.9%, 85.6%, 79.0%, 71.2%, 75.7%, and 79.9%, respectively.

The study shows that there is a statistical reason to reject the null hypothesis (Which state that since the significant probability of 0.004 and chi-square value of 66.999 with 6 degrees of freedom less than the alpha level 0.05. It can therefore be concluded that there is a significant difference in the level of compliance with the 2007 Procurement Act by Federal Universities in North Central Nigeria. The study further revealed that Federal University Lafia (FULafia) had the highest compliance rate with a mean ranking of 95.59 closely followed by the University of Ilorin (UniIlorin) with 89.12 while the National Open University of Nigeria (NOUN) had the least compliance rate of 19.41.

The study confirmed that all the seven (7) Universities in the area of study complied with all the 18 identified tenets and components of the Public Procurement Act (2007) with scores of 89.6% and 73% in advertising tenders and giving bidders reasons for their disqualification respectively. The study concluded that the compliance level is very high, with an overall RII of 80.3% and with 90.3% minimum and maximum respectively of the respondents' affirmation of the use of open competitive bidding, which represents fairness, accountability, and openness.

4.3.2 Contracting Firms' Compliance to Health and Safety Measures on Construction Sites in Nigeria

Health and safety (H&S) in the construction industry has been widely recognised as a critical issue due to the inherently hazardous nature of construction activities. Gharibi et al (2008) observed that construction work environments are among the most dangerous, particularly in developing countries where safety systems are often underdeveloped. Similarly, Mohammed (2014) emphasised that safety remains a fundamental component of overall construction performance, alongside quality and durability. Despite this recognition, implementing effective occupational health and safety (OHS) measures remains a significant challenge across many developing economies.

Existing literature further highlights systemic issues affecting health and safety compliance on construction sites. According to Muiruri and Mulinge (2014) and Kalejaiye (2013), developing countries are characterised by inadequate OHS procedures, a lack of enforcement mechanisms, and a lack of stakeholder commitment to safety practices. These deficiencies have contributed to frequent accidents, underreporting of incidents, and minimal allocation of resources to safety management. Additionally, researchers have identified several barriers to effective safety implementation, including poor infrastructure, low literacy among workers, unregulated construction practices, adherence to traditional work methods, inadequate equipment, and extreme working conditions (Smallwood et al., 2008; Hassan, 2012; Olutuase, 2014).

Health and Safety measures on construction sites are of paramount to the wellbeing and efficient performance of all stakeholders. In view of this, **Akinradewo** and Arijeloye (2020) evaluated the extent to which contracting firms comply with established health and safety requirements on

construction sites in Nigeria. The study adopted a quantitative research approach, utilised a well-structured questionnaire administered to construction professionals.

The result indicated that compliance with health and safety measures among contracting firms is generally low, indicating that many firms do not fully adhere to established safety standards. The study revealed that while some basic safety practices are implemented, critical measures such as the provision of personal protective equipment, safety training, and the enforcement of safety regulations are inconsistently applied across construction sites. The study also discovered that key factors influencing poor compliance include the lack of enforcement of safety regulations and inadequate worker training.

The study concluded that improving health and safety compliance in the Nigerian construction industry requires a multi-faceted approach, including stricter enforcement of safety regulations, increased training and awareness programmes, and stronger commitment from contracting firms toward safety culture.

4.3.3 Assessment of Dispute Resolution in the Construction Industry in Lagos State, Nigeria

Dispute management plays a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Kumaraswamy (1998) argued that traditional construction procurement systems often foster adversity through fragmented functions, leading to frequent conflicts, claims, and disputes. Similarly, Shapiro (2004) emphasised that the conflict-prone nature of construction projects stems primarily from incompatible initial interests, as clients seek maximum quality at

minimum cost while contractors aim to maximise financial goals. Supporting this, Verster (2006) noted that when parties are unable to settle or mitigate differences arising from rejected claims, a formal dispute becomes the inevitable result.

Further studies have highlighted that contractual and structural issues directly influence project performance outcomes. Thompson et al., (2000) observed that adversarial attitudes and disputes arise primarily due to a lack of communication, distrust, and imbalances in risk allocations. In the Nigerian context, the construction industry is highly susceptible to these friction points, while Ellis and Baiden (2008) identified disputes between participants as principal causes of poor performance, often leading to prolonged implementation delays and work suspensions. Similarly, Mc Intyre (1991) argued that as projects increase in size and complexity, the risks of cost and time overruns scale accordingly, thereby escalating the likelihood of major disputes.

Amicable settlement of dispute is one the key factors for the attainment construction projects objectives. To achieve this on construction site, **Akinradewo** (2017) evaluated the types, major causes, and preferred dispute resolution methods in Lagos State, Nigeria. The study adopted a quantitative approach, administering questionnaire surveys to randomly selected construction practitioners, which yielded 91 valid responses from clients, project managers, architects, and quantity surveyors.

From the findings, the study revealed that contractual issues represent the most prevalent drivers of conflict, with non-payment of certified sums ranked highest (MIS = 4.12), followed by financial claims (MIS = 3.44) and wrongful

determination of contract (MIS = 3.41). This indicates a heavy exposure to financial instability and contract administration deficiencies within local execution frameworks.

The study also established that technical and organizational issues emerge further down the hierarchy, with ambiguous contract documents ranked fourth (MIS = 3.21) and misinterpretation of contract provisions ranked fifth (MIS = 3.11). This reflects a persistent challenge regarding documentation clarity. In addition, the study showed that practitioners express clear hierarchies regarding alternative dispute resolution preferences. It was found that agent resolution recorded the highest ranking (MIS = 3.84), indicating a strong interest in emerging or non-conventional administrative determinations. The study further revealed that mediation (MIS = 3.72) and conciliation (MIS 3.63) are highly favoured, whereas traditional arbitration (MIS = 2.83) and expert assessments are relied upon less frequently.

The study concluded that the Nigerian construction industry is heavily impacted by contractual disputes rooted in financial issues, meaning that overall project success remains closely tied to the quality of financial management and relationship mechanisms. The study recommended that contracting parties adopt proactive dispute prevention strategies grounded in teamwork and trust, while ensuring that clients secure adequate budgetary provisions during early planning stages to prevent non-payment issues entirely.

4.3.4 The Contractual and Tortious Liabilities in Employer-Consultant Agency Relationship in Construction Contracts in Nigeria

Procurement methods play a critical role in determining the performance of construction projects, particularly in terms of cost, time, and quality outcomes. Masterman (2002) argued that a client creates the pre-conditions for the successful achievement of project objectives through the selection of a suitable procurement system. Similarly, Fridman (1990) emphasised that the law of agency establishes a contractual or quasi-contractual relationship where an authorized agent creates binding legal relations between a principal and a third party. Supporting this, Kelly et al., (2005) noted that unless modified by explicit contract terms, agents owe reciprocal obligations of skill, care, and absolute loyalty to their principals to protect project delivery parameters.

Further studies have highlighted that professional liabilities and ethical friction points directly influence project performance outcomes. Duncan-Wallace (1986) observed that a tortious civil wrong arises from a breach of duty fixed by law independent of consent, which can severely damage project execution. In the Nigerian context, Ogunsemi and Aje (2006) identified negligence and unethical practices by consultants, such as covering up poor-quality work or issuing excessive variation orders, as significant challenges that cause cost overruns, project abandonment, and building collapses. At the same time, Abidin (2007) noted that a majority of construction disputes stem from contract maladministration orchestrated by consultants at the post-contract stage. Similarly, Hudson (1995) argued that an employer relies entirely on the professional adviser to secure

a skilful design, a competitive price, and efficient supervision, making any breach highly disruptive to project objectives.

Scholars have also examined the classification and characteristics of professional liability frameworks. Anago (2004) categorised standard consultancy provisions into defined classes of agency that outline boundaries for remuneration, time parameters, and professional diligence. Onuckube (2004) emphasised that standard contract conditions specify the exact rights, liabilities, and operational procedures among building team participants, while Sherman (1996) highlighted that enforcement of contract terms across both pre- and post-contract stages remains a persistent challenge for construction stakeholders. Despite the availability of protective standard conditions such as FIDIC and SFBCN, the professional exposure of advisors depends largely on adhering to a recognized standard of care within a specific legal jurisdiction.

Ojo and **Akinradewo** (2012) examined contractual and tortious liabilities assumed by construction professionals acting as agents of employers in Nigeria. The study adopted a black-letter law approach, combining a comparative review of the Nigerian Conditions of Engagement and Consultancy Service Agreement (CECSA) with an analysis of standard contract forms, relevant literature, and prominent Nigerian and English judicial precedents.

From the findings, the study revealed that a principal-agent relationship is legally established when a consultant is contractually authorized to act on behalf of an employer. This legal arrangement invokes the common law maxim *qui facit per alium, facit per se*, meaning that the principal becomes generally bound by the acts or omissions of the

consultant when performed within the scope of apparent or implied authority.

The study also established that there is universal judicial agreement that a consultant's liability to an employer arises concurrently under both contract and tort. This means that even if a professional obtains explicit employer approval for specific drawings or design documentation, they are not automatically relieved of liability if the design ultimately exhibits technical defects or construction failure. In addition, the study showed that individual professional disciplines carry unique risk profiles during project administration. It was found that under established common law principles, designers and certifiers are legally required to exercise due care and skill within the boundaries of their respective disciplines, as exemplified by quantity surveyors incurring direct liability for over-valuations or excessive pricing checks. The study further revealed that when professionals are commissioned as a collective unit, they can face joint and several liability under sections 16 (5) and 44 to 52 of the Nigerian Public Procurement Act (PPA) of 2007, which makes each participant potentially responsible for the entirety of any loss suffered by the employer due to a shared administrative default.

The study concluded that a consultant’s assumption of responsibility and the employer's subsequent reliance give rise to an enforceable tortious duty of care, meaning that concurrent remedies remain active unless explicitly precluded by expressed contractual exceptions. It was proposed that construction consultants maintain strict adherence to professional ethics and professional indemnity standards across all procurement phases; while ensuring

they do not perform functions that extend beyond their contractual remit to avoid uninsured operational risks.

5.0 CONCLUDING REMARKS AND RECOMMENDATIONS

Madam Vice Chancellor, Ladies and Gentlemen, the contributions of the construction industry to the economic development of a nation are important, given the huge capital invested in infrastructure development; hence the need for proper cost management. Ineffective cost management may lead to project delays, cost overrun and project abandonment. Considering the dwindling financial resources available to the financiers of construction projects (individuals, corporate bodies, and government), there is need for efficient and effective cost management of construction projects which is the core of this lecture.

Based on the foregoing, the following recommendations are proposed:

1. To avoid extremely high construction claims, 'Purposeful tender' that satisfies the clients' requirements should be considered for the award of contracts rather than the 'lowest responsive tender' as currently stipulated in the 2007 Public Procurement Act. This is to discourage the award of a contract to a contractor whose bids are based on 'opportunistic behaviour' which would result in excessive claims during the execution of the contract. This implies that the 2007 Procurement Act needs to be amended in this direction taking the advantage of the ongoing review by the National Assembly.

2. The public clients (governments) who are the major financiers of construction projects in Nigeria should execute construction works in ‘‘a business-like manner’’ instead of the current complicated structures and bureaucratic procedures.
3. There should be greater emphasis on professional training and awareness programmes to promote the adoption of appropriate planning techniques, thereby addressing time and cost overruns from the early stages of construction project development.
4. There should be a strong understanding among the stakeholders in the construction industry on the need to increase the compliance rate with the 2007 Public Procurement Act so as to reduce project cost and time overruns.
5. Construction organisations should adopt standardised templates developed in one of the studies and integrate them with digital tools to improve project performance, reduce inefficiencies, and support better decision-making throughout the project lifecycle.
6. Government agency especially relevant regulatory bodies should enforce rules, codes, guidelines and laws regarding health and safety on construction sites
7. Quantity Surveyors should be allowed to exercise their professional competency in the selection of appropriate procurement strategy at the planning stage of all construction projects to enable stakeholders (client, consultant, contractor, and end users) obtain value for money.

6.0 My Contribution to the Field of Quantity Surveying and Academics

Madam Vice Chancellor, Ladies and Gentlemen, I love quantity surveying because I see it as a profession that always follows due process in all aspects of its practice. For a single person to collate information from various drawings, specifications and client briefs to develop contract documents, they must be meticulous and committed to due process. I have contributed to the training of many quantity surveyors, who are doing well today across the world from the first day I joined the then The Polytechnic Owo in 1998.

As a qualified and registered quantity surveyor, I have had varied professional experiences in building and engineering construction in Nigeria. Notable among the construction projects in which I was involved as a consultant are the ICT Centre, Staff Offices, and Mass Communication Department building at Rufus Giwa Polytechnic, Owo. I have had the privilege and opportunity to serve and contribute my quota to the development of quantity surveying in Nigeria. I have served as the eighth Chairman of Ondo State Chapter (2018-2019), and a member of National Executive Council of NIQS during the same period.

Madam Vice Chancellor, Ladies and Gentlemen, apart from contributions in teaching and research, I have contributed in the area of administration of this University. My administrative service in this University at the level of the Department includes: Level Adviser, SIWES Coordinator; member of Quality Assurance Committee, member of DTLC Committee, member of Examination/Result Committee, Project Coordinator, member of Postgraduate Research Committee, Chairman Accreditation Committee and Ag. Head of Department (2021-2022). At the School level, I

have served as a member of School of Environmental Technology (SET) Board of Studies Business Committee of Curriculum, member of SET Committee of TETFund, member of SET Committee of Postgraduate Study, and member of SET Committee of Examination and Results. At the University level, I have served as a member of School of Postgraduate Board of Studies and a member of the University Board of Works and Services.

7.0 ACKNOWLEDGEMENTS

Praise ye the Lord, O give thanks unto the Lord; for He is good, for His mercy endureth for ever (Psalm 106:1). Blessed be the Lord my strength, which teacheth my hands to war, and my Fingers to fight (Psalm 44:1)

Madam Vice-Chancellor, the Almighty God has been good to me, He has done so much for me, I cannot tell it all. I return all glory, honour and adoration to God Almighty for helping me to achieve what is given to me in life. May His holy name continually be praised.

I am immensely grateful to my late parents, **Pa Akinradewo and Mama Florence Taiwo Akinradewo** for providing me the opportunity they never had. My parents were semi-educated traders who valued education and encouraged me by telling me that only education could take me wherever I wanted to be. They also instilled in me hard work, honesty and dedication as major principles of success in life. May their souls continue to rest in peace (Amen).

It is often said that a road becomes easier to follow if one meets a person who has passed through the road before. I therefore appreciate my mentor and academic father, Professor D. R. Ogunsemi who is a former Deputy Vice-Chancellor (Academic) of this University. Professor

Ogunsemi has been the man behind my intellectual prowess right from my postgraduate days; he was the major supervisor of my Ph.D research and also set my feet on the path of greatness in academics. May God Almighty continue to bless you Sir. I also thank Prof. H. A. Odeyinka for his contributions and sacrifice during my Ph.D degree Programme. I also appreciate Professor M. O. Dada of the University of Lagos for his assistance and support during my Ph.D programme. Professor Dada co-supervised my Ph.D research.

I am very grateful to all my teachers at all levels of my educational pursuit. I am particularly grateful to my headmaster in primary school, Mr. S. O. Olabalu of blessed memory and my principal at Oyemekun Grammar School, Akure, late Chief R. A. Ogunlade. I cannot but appreciate my lecturers at the then The Polytechnic Owo, (Now Rufus Giwa Polytechnic, Owo) most especially late Mr. Matt-Kuma Agbenyo, Chief Ekeoba and others.

I appreciate all the former deans with whom I worked with since I joined the Department of Quantity Surveying of FUTA. They include Prof. S. R. Ogunduyile (former Vice-Chancellor of Olusegun Agagu University of Technology, Okitipupa), Prof. D. R. Ogunsemi (The former Deputy Vice-Chancellor, Academic of FUTA), Prof. J. A. B. Olujimi (Former Member of Council, FUTA), Prof. I. B. Kashim and Prof. I. O. Aje. I am also thankful to the current Dean Prof. J. O. Basorun (my friend and mentor) and all the heads of Departments in the School of Environmental Technology whom we served together during my headship of the Quantity Surveying Department. Thank you all for good working relationships.

I am greatly indebted to the previous Vice Chancellors of FUTA, especially Prof. Adeola Fuwape with whom I worked

during my tenure as Ag. HOD of the Quantity Surveying Department, as well as the current Vice Chancellor, Prof. Adenike Temidayo Oladiji who announced my promotion as a professor. I specially appreciate the University management under the leadership of Professor Adebisi Balogun for granting me a six-month Research fellowship leave at Herriot-Watt University, Edinburgh, Scotland, UK. While the Tertiary Education Trust Fund (TETFund) provided the fund to which I am deeply grateful, Professor Stephen Ogunlana of Herriot-Watt University will ever be remembered for providing the academic support during the fellowship. I also appreciate Professor (Mrs.) Modupe Ajayi, former Registrar for her warm reception on my assumption of duty in this University. I cannot but acknowledge the current Registrar of the University, Mr. Charles Olusegun Adeleye for his support at all times.

I am thankful to Professor Olasebikan Alade Fakolujo, the Vice Chancellor of Joseph Ayo Babalola University, Ikeji-Arakeji, Osun State for the opportunity given to me for sabbatical leave in 2025/2026 academic session. I am also grateful to the Deputy Vice Chancellor, Professor Adekunle Eludire and the Dean, College of Environment Sciences Professor Olatunde F. Adedayo for their good working relationship. I am thankful to Prof. Clinton Aigbavboa for assistance towards my appointment as MSc. and PhD reviewer for University of Johannesburg, South Africa. I am also grateful to Prof. Francis Bamidele for the opportunity giving to me to supervise a PhD student from City University, Cambodia.

I gratefully acknowledge all the professors and the entire staff members of the School of Environmental Technology, FUTA; Prof. O. O. Ogunsote, Late Prof. A.O. Olotuah, Prof. A. A. Taiwo, Prof. Y. M. D. Adedeji, Prof. G. Fadairo, Prof. J. O. Fasakin, Prof. T. L. Akinbogun, Prof. F. K. Omole, Prof.

A. E. Olajuyigbe, Prof. O. B. Akinbamijo, Prof .J. O. Basorun, Prof. M. A. Oyinloye, Prof. A. A. Emmanuel, Prof. T. O. Idowu, Prof, A. S. Asaju, Prof. M. A. Bello, Prof. (Mrs.) V. A. Bello, Prof. B. Oladunmiye, Prof. O. F. Kayode, Prof. O. A. Fatuyi, Prof. (Mrs.) B .E. Adiji, Prof. L. E. Etsename, Prof. (Mrs.) R. A. Oladapo, Prof. Babajide Ojo, Prof. (Mrs.) Dorcas Ayeni, Prof. D. A. Adewusi, Prof..O. O. Rotowa, Prof. Alake, Prof. Popoola and Dr. O. B. Emidun,

My profound gratitude goes to the Academic and non-Academic staff of Quantity Surveying Department (Past and Present) Prof. A. E. Oke (current HOD), Prof. A. O. Awodele, Prof. J. A. Akinola, Prof. T. O. Oladinrin, Dr. R. O. Adeniyi, Dr. A. O. Olanipekun, Dr. N. Saka, Dr. I. O. Famakin, Dr. Mrs. Ade-ojo, Dr. Mrs. D. T. Moyanga, Dr. T. F. Adegbembo, Dr. B T. Arijeloye, Mr E. O. Oaikhena, Dr. A. E. Omoraka Late Dr. Abiola-Falemu, Dr. S. A. Makanjuola, Miss T. O. Ijieh, Miss. C. O. Jayeoba, Mrs. E. F. Afolami, Mr. O. O. Ayo, Mr. O. Ogunmodede and Mr. A. J. Obasa, who assisted in preparing the manuscript for this lecture. All my past and present students all over the world are highly appreciated. Today will not be a reality without you.

I wish to thank all members of the Nigerian Institute of Quantity Surveyors (NIQS) at both State and National levels. In particular, I thank the past chairmen and the current Chairman, QS A. O. Fadiyimu. The National President of the NIQS, QS (Dr.) Aminu Bashir and members of the executive council are highly appreciated. My gratitude also goes to the current President of Quantity Surveying Registration Board, QS Obafemi O. Onashile. I appreciate several of my classmates with whom we studied together at various levels especially Engr. Israel Ademoye, Arc F. Idowu Akinseye, QS Adebowale Ayodele, QS A. O. Olalusi, QS (Dr.) Rabiu, and QS (Dr.) E. O. Ayodele. Thank you all for your good companionship. I acknowledge all members of the Landlord

Association of Orelope Community, off Agagu, Road Akure; in particular, the Chairman, Prophet Akinola and members of the executive.

My sincere appreciation also goes to my siblings and cousins, Mrs. Agnes Akinrinlola, Mrs. Cathrine Oluwagbemiga, Mrs. Kehinde Betiku, Rev. Tunde Akinkuehin and Wife, Pastor Femi Akinkuehin and wife. Mr. Bode Akinkuehin and wife, Pastor Segun Akinradewo, Mr. Doyin Omolade and Mrs. Seeke James. I specially thank Sir. F. A. Akinkuehin, Mr. Festus Ayinuola, Late Mr. and Mrs. Olafisoye, Mr. A. A. Akisebikan, for their counsel and assistance towards my academic advancement. I wish to thank my sister-in-law, Mrs. Ogunmakinju, and Mrs, Aina Olurankinse and my brother-in-law, Engr. Joseph Afolabi and Mr. Fredrick Afolabi.

I cannot but mention my Spiritual father and mentor Pastor Gideon Oyewole Obiwale, the Regional Superintendent of C. A. C. Odunbajo Regional Superintendent. My family and I have enjoyed enormous favour from the Almighty God through his spiritual ministration. We shall all make the heavenly home in Jesus' name, Amen. I cannot also but mention the support and contributions of Pastor J. O. Amoo, Pastor S. O. Oyewole, Pastor J. O. Agbeja, Pastor T. T. Obaiyi Pastor S. A. Olusola, Pastro I. O. Ajayi and Pastor J. I. Owasoyen towards my spiritual growth, may you continue to wax stronger.

Finally, I must appreciate my children, Mrs. Damilola Aina, QS Dr. Opeoluwa Akinradewo, Engr. Oriola Akinradewo and Mrs. Toyosi Ibidunmoye for their love and support at all times. It is my prayer that you shall all be greater in Jesus's name. To the most beautiful woman in my life, my special adviser, a prudent manager of resources, a disciplinarian and my wife Ajibola Josephine Akinradewo; you are truly a

treasure, you are amazing, affectionate, passionate and inspirational. I thank you for making the home a soft ground for me. I love you. I pray that we shall continue to live together peacefully and in the fear of the Almighty God in Jesus name.

Madam Vice Chancellor, distinguished ladies and gentlemen. I thank you for attending this Inaugural Lecture and for listening. *And to the Almighty God once again, I say thank you for all you have done for me.*

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