INVESTIGATING THE MANAGERIAL COMPETENCIES FOR CONSTRUCTION PROJECT MANAGERS IN NIGERIA TOWARDS PROJECT PERFORMANCE

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A project report submitted in partial fulfilment of the requirements for the award of the Master of Project Management

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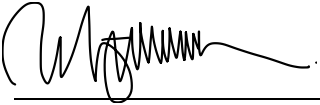
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DECLARATION

I hereby declare that this project report is based on my original work except for citations and quotations which have been duly acknowledged. I also declare that it has not been previously and concurrently submitted for any other degree or award at UTAR or other institutions.

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APPROVAL FOR SUBMISSION

I certify that this project report entitled "**INVESTIGATING THE MANAGERIAL COMPETENCIES FOR CONSTRUCTION PROJECT MANAGERS IN NIGERIA TOWARDS PROJECT PERFORMANCE**" was prepared by AMIR HAMZA and has met the required standard for submission in partial fulfilment of the requirements for the award of Master of Project Management at Universiti Tunku Abdul Rahman**.**

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ABSTRACT

Construction project management is a complex and multifaceted discipline that requires a blend of technical, managerial, and interpersonal skills. In Nigeria, construction is one of the contributing factors in creating jobs and building infrastructures that improve the country's economy. Currently, the construction sector in Nigeria is struggling to meet both local and global quality standards, largely due to several projects facing delays and cost overruns. One of the contributing factors is the incompetence of project managers to finish projects within the allocated budget and time. This research aims to investigate the key managerial competencies required by construction project managers in Nigeria and the relationship between does competencies and project performance. To check the extent of compliance by Project Managers with the Nigerian construction regulatory bodies towards project performance. The data was gathered using a questionnaire survey given out to project managers. The data was analysed using descriptive and inferential analysis. The research findings show that among the fifteen (15) competencies, communication is the most important competency to project managers in Nigeria, and professionalism, scope management, team Management, and leadership are also key competencies a project manager should have. The correlation and regression results indicate that problem-solving and resource management are more critical in ensuring construction projects are completed within budget than quality management. Further results concluded that leadership and professionalism are influential in ensuring construction projects are completed in time. Lastly, Construction project managers in Nigeria adhere to certain regulatory requirements that are enforced by the regulatory bodies while neglecting others. The findings highlight the importance of integrating communication, leadership, and problem-solving skills into professional development pathways. These implications can inform policymakers, industry leaders, and academic institutions in shaping competency standards, certification requirements, and curriculum development aimed at enhancing project delivery in Nigeria's construction industry.

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ABBREVIATIONS

PMCD	Project Manager Competency Development Framework
CPM	Construction Project Manager
DV	Dependent Variable
IV	Independent Variable
ICB	The Individual Competency Baseline
PMI	Project Management Institute
PMBOK	Project Management Body of Knowledge
IPM	The International Project Management Association
AIPM	Australian Institute of Project Management
ENAA	Japanese Engineering Advancement Association of Japan
PMPCC	Project Management Professionals Certification Centre
α	Cronbach's Alpha

CHAPTER 1

1. INTRODUCTION

1.1 General Introduction

The construction industry in Nigeria heavily contributes to growing the country's economy by providing infrastructure and driving job creation. However, the success of construction projects is often challenged by factors such as time delays, budget overruns, and quality deficiencies. The effectiveness of construction project managers in navigating these challenges is increasingly recognized as pivotal to achieving project performance. Managerial competencies encompassing skills, knowledge, and behaviours are critical for managing the complexities of construction projects, ensuring they meet client expectations and adhere to performance metrics such as time, cost, and quality. In Nigeria, the unique socio-economic environment, regulatory landscape, and infrastructure place additional demands on project managers. Competent management is required not only for strategic decision-making but also for effective leadership, communication, and risk management. Investigating the managerial competencies necessary for construction project managers in Nigeria is essential to identify the key skills that drive successful project outcomes and to address gaps that may hinder project performance. This study aims to explore the competencies required for construction project managers in Nigeria, how these competencies impact overall project performance, offering insights for improving project delivery in the country.

1.2 Background of study

Construction project management is a complex and multifaceted discipline that requires a blend of technical, managerial, and interpersonal skills. The Construction industry makes significant contributions to the national GDP and job opportunities. Building construction is one of the world's most valuable assets. It gives accommodation to many needy people. Furthermore,

construction sectors contribute significantly to capital formation in countries (Odukoya *et al.*, 2023). For example, in Nigeria, the construction industry produces roughly 70% of the country's fixed investments (Bello and Saka, 2017). The current condition of Nigeria's construction sector is failing to fulfil both local and national quality performance expectations standards. Studies on infrastructural delays and cost increases have shown that construction projects in the country experience an average minimum cost overrun of 14% annually. Research into the effects of delay factors on the completion time of public projects revealed that 190 out of 196 projects analysed had an average time overrun of 486.75%. Additionally, an investigation into the final costs of public sector construction projects found that 76.53% of the sampled projects had an average cost overrun of 43.26% (Juliet & Ruth, 2022). However, the Nigerian construction industry faces project performance issues, leading to a reduction in the country's GDP (Unegbu, Yawas and Dan-Asabe, 2022). According to Iroha, Watanabe, and Satoshi (2024), the state has spent an average of 3.6% GDP on infrastructure within 10 years, lower than the African average of 4.3%, and as a result, Nigeria's construction industry is contributing less to the growth of infrastructure and GDP. Corruption and self-interest in politics are significant contributors to the industry's ineffective project management. Such practices adversely affect project expenses and the distribution of resources, leading project managers to favour personal gains over contractual ethics, established standards of project management, and the actual needs of the project (Ismaila, Jung and Park, 2022).

Moradi, Kähkönen and Aaltonen (2020) included in their research that the ICB, APM Body of Knowledge, PMBOK, and the (PMCD) framework are professional standards that provide competencies for project managers. These standards help to outline a vast number of competencies and categorise them in groups, addressing the competencies from a broad perspective. ICB.4 presents twenty-eight competencies of project managers categorized into three groups: people, practice, and perspective (ICB.4, 2017). The PMCD framework divided sixteen (16) project manager competencies based on personal and performance competencies.

The APM identifies eleven (11) competencies under two classes: interpersonal and professional. Additionally, the PMI Talent Triangle was presented by the PMBOK Guide, a framework that encompasses three types of skills for project managers.

1.3 Problem Statement

Construction projects have proven to become more complex and larger due to the demand of high infrastructure development in Nigeria. This leads to an increase in cost, schedule, and quality requirements standards in construction projects. However, throughout history, the execution of large-scale construction projects has been very unimpressive and unsuccessful in Nigeria. According to Mamman and Umesi (2022), several projects in Nigeria face delays, resulting in disagreements, litigation, dispute resolution, and even the cancellation of projects. Project performance problems have seen multiple projects stagnated due to cost overrun and stakeholder miss management. According to Iroha, Watanabe, and Satoshi (2024), one of the biggest issues facing the industry is the incompetence of project managers to finish projects within the allocated budget and time.

According to Obebe et al. (2020), the application of project management expertise and the project manager's dedication have been identified as critical issues. Managerial skills are critical for successful construction project management, particularly in the Nigerian industry. Odukoya et al. (2023), have stated that project manager competencies include qualities such as knowledge, influence, technical abilities, managerial skills, determination, and adaptability to change. Others include efficient interaction with stakeholders, risk management, problem-solving, and compliance with project objectives. Unfortunately, many project managers lack these competencies, resulting in poor project outcomes. A vast majority of project managers in Nigeria claim the title based on gained experience and not based on obtained knowledge in project management (Akintola, Aderinlewo and Akande, 2024). The lack of effective and appropriate organization, scheduling, and control often occurs due to the lack of qualified project managers with expertise in project

management (Iroha, Watanabe and Satoshi, 2024). The research on essential competencies needed by construction project managers is very limited, despite the significance of competencies in guaranteeing that the project can be completed successfully.

In addition to the challenges discussed, it is crucial to recognise the broader systemic issues facing the Nigerian construction industry. These include weak institutional capacity, lack of skilled labour, and widespread corruption that undermine professional project delivery (Ameh, O., & Osegbo, E. E., 2011). The World Bank (2020) reported that Nigeria loses approximately 30% of its infrastructure investment value due to poor project management and governance-related inefficiencies. Furthermore, industry reports show that less than 20% of construction project managers in Nigeria possess formal certification in project management (Oyewobi, L. O., Ganiyu, B. A., Oke, A. E., Ola-Awo, W., & Shittu, A. A., 2011). This disconnects between required professional competencies and industry practice not only leads to poor performance but also stifles the development of sustainable infrastructure. This research is, therefore, important as it aims to bridge the competency gap by identifying and analysing key managerial skills that directly affect project outcomes. By providing empirical evidence, it contributes to shaping professional training programs and influencing policy reforms to raise the standard of project management practice in Nigeria's construction sector.

1.4 Research Question

The key research questions for this study are:
  I.   What are the managerial competencies of a construction project manager in Nigeria?
 II.   What are the managerial competencies that impact construction project performance in Nigeria?
III.   What is the extent of compliance by Project Managers to the Nigerian building regulatory bodies?

1.5 Research Aim & Objectives

This study aims to investigate the important managerial competencies required by construction project managers in Nigeria and the relationship between does competencies and project performance. To investigate the level of Project Managers' compliance with the Nigerian construction regulatory bodies towards project performance.

➢ **Objectives**

- To identify the managerial competencies required by construction project managers in Nigeria.
- To determine the managerial competencies that are most influential to construction project performance in Nigeria.
- To assess the extent of compliance by project Managers to the Nigerian construction regulatory bodies towards project performance.

1.6 Research Hypothesis

A research hypothesis is generally referred to as a formal prediction that is made between two or more variables to identify their relationships. This research hypothesis is developed to help understand the relationship between construction project managerial competencies and project performance, and also to help identify the 3 most significant construction project managerial competencies in Nigeria

Independent Variables: Managerial Competencies

Dependent Variables: Project Performance

H_0: Managerial competencies have no significant impact on construction projects performance in Nigeria.

H_1: Certain managerial competencies have a significant impact on construction project performance in Nigeria.

1.7 Research Scope

The scope of this study will identify the technical, personal, and knowledge characteristics that construction project managers in Nigeria need to have to achieve effective project outcomes. The study will also investigate the impact of managerial competencies on project performance measures like cost, time, quality, and stakeholder satisfaction. This study will focus on the Nigerian construction industry, using data collected from important construction centres across the country. The study will engage construction project managers, contractors, and clients from both the public and private sectors to gain a thorough understanding of managerial competencies and their link to project performance.

1.8 Significance of Study

The significance of this research is to help improve project success rates and enhance the competitiveness of Nigeria's construction industry, together with identifying and developing the necessary managerial competencies for project managers to ensure more projects are completed on time, within the allocated budget, quality requirements. Over the years, the construction industry in Nigeria has experienced numerous construction projects with cost overruns and delays.

1.9 Research Methods

Step 1: Creating statements of the Problem.

The first step will be defining and validating the problem with academic work that has previously been published on online platforms. The scholarly study was created by collecting data, and the research is quite accurate. As a result, the formulated problem of statement will be highly accepted and regarded.

Step 2: Identify the aim and objectives research.

Before beginning the research, the aim and objectives must be identified. This study's aims and objectives serve as a guide for completing the research. Upon completing the research, all previously established aims and objectives must be achieved. The aim and objectives also contribute to the smooth conduct of the research.

Step 3: Literature review

Literature reviews are essential for research. It is vital to review some scholarly papers published on social media. This is to demonstrate that everything of the material written has facts supporting it and that it occurs within the construction sector. The literature review will provide relating theories basis for the investigation.

Step 4: Collection of data.

The research data will be gathered using online survey questionnaires through a quantitative research method. 150 sets of questionnaires will be distributed to construction project professionals around Nigeria to achieve the targeted number of (96) respondents. This sample size of the questionnaire ensures that accurate results are obtained at the end of the project.

Step 5: Data Analysis

Once all data has been collected, the statistical analysis will be conducted using SPSS software. The research will investigate and explain the analysed results in tables and figures to provide deeper understanding.

Step 6: Recommendation and conclusion

At this stage, some numbers of recommendations will be presented to address all the limitations encountered while doing this research. Following the analysis of the results, a conclusion will be drawn. The conclusion summarizes all relevant materials included in this study, and the project outcome must align with the project aims and objectives stated earlier. successful project

completion but also improve the efficiency and effectiveness both domestically and internationally.

1.10 Chapter Outline

This research contains five (5) main chapters that will provide detailed explanations of the process, method, and approach of how this research will be conducted. The important chapters outlined for this research include the following.

Chapter 1: Introduction

The first chapter of this research report is an introduction that explains the overall context of this research. These include subchapters that provide the general introduction, the background of study, statement of the problem, research questions, aims & objectives, hypothesis, scope, and lastly, the research methods. This structure helps to provide a more in-depth overall understanding of the project to readers and interested scholars. This chapter highlights the main reason behind conducting the research and the procedure of how to achieve the completion of the project.

Chapter 2: Literature Review

This chapter is dedicated to studying other published research related to this area of study to obtain relevant and credible information based on each topic of interest. The research will review multiple articles based on multiple topics, including project manager competencies, PMCD framework, managerial competencies standard of practice, roles and importance of construction project manager, the importance of competences to project performance, and the challenges facing managerial competencies in Nigeria. The gaps of the study between this research and other research will be identified.

Chapter 3: Research Methodology

This chapter involves all the important tools, techniques, methods, and approaches that will be used to achieve the research objectives, The methodology includes the research design, philosophy, approaches, strategies,

and methods of conducting the research. Furthermore, it also includes the method of collecting data and the data analysis that will be used to get the appropriate results.

Chapter 4: Data analysis and results

Data analysis is a very important stage of a research study that provides statistical methods to analyse the collected data from questionnaires. This chapter includes the demographic data of respondents, mean ranking, correlation analysis, regression analysis, and frequency distribution. All these are types of descriptive and inferential statistics that are used to analyse the data. Lastly, the Cronbach alpha test will be used the assess the reliability of the questions.

Chapter 5: Conclusion and Recommendations

This chapter will be the last chapter of this research. The chapter will summarise all important findings concerning the research objectives to ensure actual completion of the project. Recommendations and limitations will be identified to help future scholars be aware of the potential improvements that can be made to this are of research.

CHAPTER 2

2. LITERATURE REVIEW

2.1 Introduction

The literature review for this study will look at many crucial factors that influence the success of construction project managers. This chapter will begin by examining the concept of project manager competencies through other related research, concentrating on the key skills, knowledge, and characteristics necessary for successful project management. It will also look at the three main domains of competencies, such as Knowledge, performance and personal, and how these contribute to a project manager's overall competency, Furthermore, will emphasize on the construction project managers' roles and important in driving project success, with a focus on their duties in planning, coordination, and decision-making throughout the project lifecycle. The next subtopic will turn to the importance of managerial competencies in enhancing project performance, notably in terms of achieving deadlines, reducing costs, and maintaining quality standards. This chapter will also dive into the Project manager's competency Standards of practices while focusing more on the Project Manager PMCD Framework Dimensions of Competencies. Finally, the chapter will look at the obstacles that project managers confront in the Nigerian construction sector, such as insufficient training, resource limits, and the effects of a quickly changing industrial environment, by providing well-published articulated information from relevant sources. This comprehensive research will lay the groundwork for understanding how management abilities affect project results in Nigeria's construction industry.

According to Mansourimoayyed, Colabi and Semiari (2020), in the Western Hemisphere, competency was first used in the business and organizational domain; later on in 1973, competency was introduced into the management sector in an article by Macland Boyatzis. In 1982, Macland Boyatzis introduced a book called "Competent Manager," where the first competency pattern was presented. However, since 1966, the first official standards of competency have slowly been established. The first step was when the (AIPM) developed the Australian project management competency

standards for performance-based competency standards. Following that, several countries like South Africa, Canada, Japan, and England have gone on to design and create their national standards of management competencies.

Project management competencies are described and outlined differently by multiple project management organisations and standards of practice. According to an article from the project management institute (PMI) done by cartwright, C and Yinger, M (2007) defines competencies as a combination of associated knowledge, abilities, attitude, and other personal traits that influences a significant part of people's job, that relate with performance. In relation to project management, competence is the capability to complete project tasks to the quality and consistent level required within a project environment. According to the IPMA, competencies are a mix of related experience on knowledge, personal skills, and approach essential to achieving success in certain areas. In research done by Aldossari (2024) competency is defined as a combination of knowledge, attributes, and skills that are essential for effective management, which enable individuals to manage related activities successfully in working sectors. Additionally, project managers' competencies include the capability to utilise relevant knowledge, skills, and personal attributes to carry out their role effectively and efficiently to improve to chance of project success. One of the commonly known project management standards of practice is the Project Manager Competency Development (PMCD) Framework. The (PMCD) Framework was founded in 2002 by the Project Management Institute (PMI) to help assess and develop project managers' competencies built on the idea that performance and competencies have a direct impact on one another.

2.2 Project Manager Competencies

The successful completion of a project is heavily reliant on a project manager's abilities to utilize their competencies and personal traits to perform effectively in managing a project Moradi et al., (2020). Other researchers define project managers' competence as a capability that consists of interconnected yet distinct sets of behaviours that stem from and exhibit an underlying construct

known as intent, which is oriented towards a specific context. Also, Competency is an individual's fundamental trait that is causally tied to effective standards or successful performance in a position or instance. The context of project managers' competencies can vary based on the project managers industry. The abilities needed of project managers in construction are unique to those in other sectors, especially in terms of contextual uniqueness, focus on cooperation, and resilience to project problems. Construction project managers, for example, require skills such as conflict management, risk tolerance, and team-building capabilities, which are necessary owing to the nature of collaborative and high-stakes situations in construction projects. Furthermore, research indicates that construction management prioritizes trust-based leadership, collaboration, and flexibility, setting it apart from project management in sectors such as IT or organizational change, which focus more on communication, analytical skills, and technical expertise (Moradi, Kähkönen and Aaltonen, 2020). The (IPMA) has established a competency standard. The Individual Competency Baseline (ICB) outlines 29 competencies, categorized into three areas: perspective, people, and practice. In addition to the ICB, several standards of practice, the APM Body of Knowledge, PMBOK, and the (PMCD) framework have defined and categorized project managers' competencies (Mirzayeva, 2023) . According to research by Li et al. (2020) outlines two dimensions of competencies for international project managers as determined by the MDS method. These dimensions are indicative of the competences' nature and offer dual perspectives: one focused on efficiency and effectiveness and the other on input-output. Understanding these competencies through various dimensions aids managers in effectively integrating them into project management practices. Improving project managers' competence, particularly in management, should raise the standard of construction project execution (Surya, Rauzana and Bulba, 2024).

2.2.1 Managerial Competencies Standards of Practices

The project manager's competency consists of various standards of practice from different project management organisations. The (PMCD) Framework is among the various project managers competencies standard of practice, it contains three (3) competencies dimensions known as Knowledge, performance, and personal (PMI, 2013), and the International Project Management Association Competency Baseline created numerous models of competency. The IPMA individual competency baseline (IPMA ICB) permits professionals to recognize existing skills easily (Ghorbani, 2023). The other standards are the International Project Management Associations (IPMA) and the (AIPM). The Project Management Professionals (PMCC) and the Japanese Engineering Advancement Association of Japan (ENAA) issued a new project management body of Knowledge together in August 2002 as a new project and program management guidebook for enterprise innovation (Udo, N. & Koppensteiner, S. 2004). The PMBOK Guide presented the PMI Talent Triangle framework, which includes three project managers' skills. All these different project managers' organisation help form various project managerial competencies for project managers (Moradi et al., 2020)

Table 2.1: Project managers competency by different standards of practice

Standards	Domains	Competencies
PMCDF (Project management Competencies development framework)	*Knowledge & Performance*	Stakeholder management, Project integration, scope, time, Cost, Human resources, Communication, Risk, and Procurement management.
	Personal	Communicating, Leadership, Managing, Cognitive ability, Effectiveness, and Professionalism.
APM (Association for Project Management)	*Interpersonal*	Communication, Conflict management, Delegation, influencing, Leadership, Negotiation, and Teamwork.

	Professionalism	Leading and development, Communities of practice, Competence, and Ethics framework,
ICB.4 (IPMA Competence Baseline)	*People*	Personal integrity and reliability, Self-reflection, and management, Result orientation, Personal communication, Relationships and engagement, Leadership, Teamwork, Conflict and crisis, Resourcefulness, and Negotiation.
	Practice	Stakeholders, Requirements and objectives, Scope, Time, Organization and information, Quality, Finance, Resource, Project design, Procurement. Control and Plan, Risk, and opportunity, and change and transformation.
	Perspective	Strategy, Governance, structure and processes, Compliance, standard and regulation, Power and interest, Culture, and values
PMI Talent Triangle (PMBOK)	*Core Competencies*	Technical project management skills, Leadership, and Strategic and business management skills.

2.3 PMCD framework: Dimensions of Competencies

This research study will preferably adopt the project manager competency development framework (PMCDF) standards of practice developed by the project management institute (PMI), however, other types of competencies outside of the (PMCD) framework will also be observed. The Project manager competency development framework was made to define, assess, and develop competency in portfolio, program, and project management. It highlights important competencies affecting manager performance (PMI, 2017). According to the PMI with Udo, N. & Koppensteiner, S. (2004) on an article titled, what are the core competencies of a successful project manager, stated the Project Management Institute (PMI®) identifies personal, knowledge, and

performance as the three dimensions of competency. The knowledge area in the PMBOK® Guide was used to develop the knowledge and performance competencies, while personal competencies are categorized into six units of competencies, which include communication, leading, managing, cognitive ability, effectiveness, and professionalism. In a case study done by Wahyuni, Pratami, and Bay (2020) on the topic of "Personal Performance Measurement (PMCD) framework @ PT. XYZ," the results show that PT. XYZ highlights managerial competencies in its project managers, giving them 40% of the weight. Leading competence ranks second with 23%, while communication competence ranks third with 11%. Manager A has the greatest values for Professionalism, Leading, and Managing, with average scores of 85%, 81%, and 83%, respectively. Communication competency has the lowest average score of 16.8%, with a category score of 3 for communication.
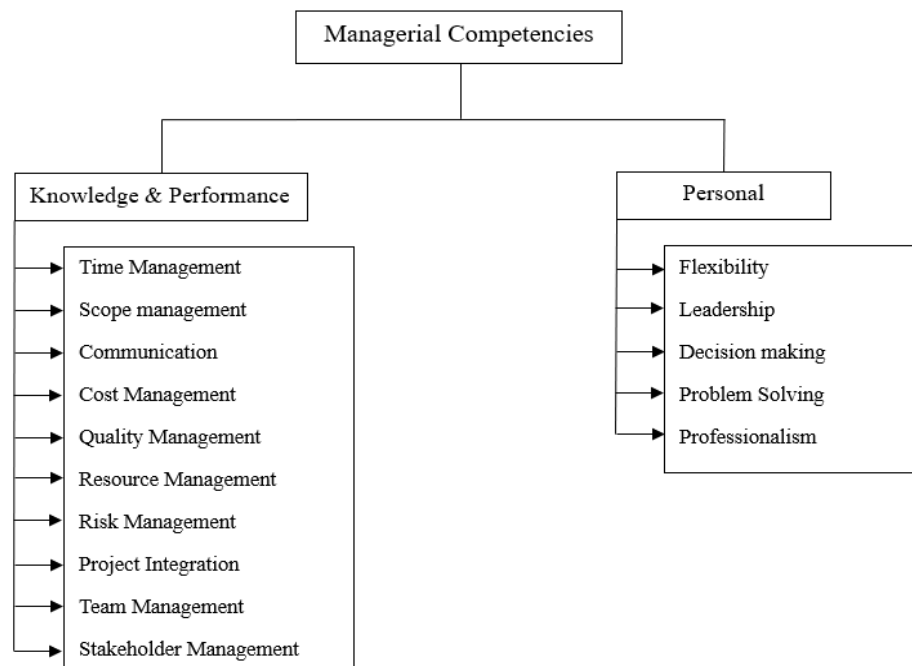
Figure 2.1: PMCD Framework Competencies

2.3.1 Knowledge Competencies

The knowledge competencies are the first managerial competencies domain under the project managers competencies development framework (PMCDF). This is one of the most essential domains of competencies required by project

managers, it shows the extent of a project manager's knowledge or body of information on project management processes, tools, and techniques required to execute project activities.(Koi-Akrofi et al., 2024). According to the PMI, 2017, the knowledge competencies are directly obtained from the PMBOK knowledge of areas, which include the 10 knowledge areas. integration management, scope, time, quality management, Human resource management, Communication management, risk management, cost management, stakeholders' management, and procurement management. These are knowledge areas every project manager should have to become a competent project manager.

2.3.1.1 Time Management

Time management is a process that involved in planning, estimation, developing, controlling, and manging the schedule required to complete a project in time, this includes activities like creating a plan schedule management, defining project activities and sequences, estimating the activities resources and duration, developing and controlling a project schedule (PMI, 2017). Project scheduling is a very important aspect of successful project management, it helps a project manager in understanding the activities' duration and the relationship between them (Zareei, 2017).

2.3.1.2 Scope Management

Scope management is one of the most essential knowledge areas a project manager should know and understand. it is a process that covers the performance of work required in a project to ensure that all required activities are done and only the required activities in completing the project successfully. This ensures that all project stakeholders are aware of what is included and excluded in the project (PMI,2017). According to research by Moradi et al. (2020) scope management competency is one of the most noticeable and frequent competencies, ranking 10th across all other competencies in project management and is vastly regarded in small, medium, and large construction projects around the globe.

2.3.1.3 Communication

Project manager communication competency, also known as communication skill, is a complex quality that is essential to project management success. It enables a project manager to effectively and concisely pass on concepts, information, expectations, and feedback through communication channels like oral and written. Effective communication also contributes to understanding project dynamics, identifying problems beforehand, and conflict resolution (Tahir, 2020). Effective communication is considered an abstract that plays a crucial role in ensuring project success through building trust, transparency, and project stakeholders' collaboration (Siddiqui, Qureshi, and Shaukat, 2024). According to research by Amoah & Marimon (2021) and (Moradi et al., 2020) Communication is one of the most frequent and important competencies for a project manager, ranking (1st) in both researches studies conducted.

2.3.1.4 Cost Management

Cost management is a process required for managing the approved budget of a project, it involves elements like plan cost management, estimating the project costs, determining the project budget, and how to control the budget (PMI,2017). A project manager should understand and perform project activities that involve planning, estimating, controlling, and managing the cost of a project to ensure completion within the allocated budget. In research done by Amoah & Marimon (2021) cost management was one of the frequently recommend competencies by Project managers experts, with a (3.0%) frequency rate and ranked (10th) on the importance ranking.

2.3.1.5 Resource Management

Resource management is a process and responsibility that requires a project manager to allocate, oversee, and control required resources for the project at the right time and place to complete the project successfully. This process includes planning resource management, estimating resource needs for activities, acquiring resources, developing the project team, managing the team, and controlling resources effectively (Takagi and varajão, 2020).

2.3.1.6 Quality Management

According to the PMI. (2017) Quality management involves managing the activities that are performed within a project that determines the quality guidelines, objectives and responsibilities to ensure the work done will meet the desired needs of the project. According to Abdelmasseh, Bassioni and Gaid (2022) Construction quality should surpass or meet the design standards by observing the outcomes in comparison to the standards, using processes that should ensure the project standard is reached based on the regular project performance review, and obtaining strategies to sustain the poor performance.

2.3.1.7 Project Integration

Project integration is a process that is responsible for integrating all other managerial competencies, being the only competencies that have a relationship with every process group. This process group includes developing a project charter, project management plan, directing and managing project work, managing project knowledge, monitoring and controlling project work from start to closing. Performing integrated change control for approving or rejecting changes. Lastly, the project closing phase (Takagi and Varajão, 2020).

2.3.1.8 Risk Management

According to Abdelmasseh, Bassioni and Gaid (2022) risk management requires a detailed and initiative-taking process that includes five phases in creating context, identifying, analysing, evaluating, and dealing with all related project risks. Project managers need to take initiative-taking measures to mitigate project risk in order to ensure the project goals are achieved. To ensure that all project-related risks have been addressed, the project manager must communicate with project stakeholders at every phase of the project. Each phase should be regularly reviewed and assessed by monitoring current progress and updating the risk management plan.

2.3.1.9 Team Management

Team management competency requires a project manager to have the ability to manage, lead, motivate, and empower project team members (Koi-Akrofi et al., 2024). According to Amoah & Marimon (2021) on their research interview questions, some project manager experts suggested that in order to achieve project manager effectiveness, project managers must have a mixture of critical thinking abilities, like technical, leadership, team management, decision-making, and communication skills.

2.3.1.10 Stakeholder Management

Stakeholder management is a planned approach to effectively engage with organizational bodies, people, or groups of people that could be directly or indirectly affected by the project. These processes include identifying stakeholders, planning stakeholder engagement, managing stakeholder Engagement, and monitoring stakeholder engagement (Takagi and Varajão, 2020).

2.3.2 Performance Competencies

The project performance competencies are directly related to and the same as the knowledge competencies. The project manager's performance competencies can be illustrated by applying project interconnect actions and results. In other words, a project manager must implement the knowledge they obtained to meet the desired project results. The performance of an organization is linked to the project managers performance within sectors that are project-based based oriented (Koi-Akrofi et al., 2024).

2.3.3 Personal Competence

Among the three (3) dimensions of the Project Manager competence development framework, this research will focus more on investigating the personal competencies of project managers. Personal competence is a measurable aspect that reveals employees' behaviours and attitudes towards

assigned activities by observing their reactions and characteristics. Assessing personal competence plays a crucial role in facilitating more development by identifying the strengths of a manager and areas to improve on. The assessment of personal competence can evaluate and observe the behaviours of project managers regarding their overall competence in managing a project. (Wahyuni, Pratami and Bay, 2020). Personal competencies, derived from the same framework, encapsulate the essential characteristics needed for a project manager. These competencies revolve around areas like accomplishment and execution, support and service, impact and influence, cognitive abilities, management skills, and personal effectiveness (Hashim & Hashim Khawla Alamen, 2018). In other researchers' Personal competencies are categorized into six units of competencies, which include communication, leading, managing, cognitive ability, effectiveness, and professionalism (PMI, 2017). Furthermore, according to the (PMCD) framework, the 6 areas are known as the elements of Project Manager Personal Competence contains, a description level each, for instance the communication is described as Actively listens, understands, and responds to stakeholders. The leading is described as creating a team environment that encourages and supports high performance. Managing: building and maintaining the project teams and Plans. Cognitive abilities: Requires having an overall understanding of the project, effectively resolving problems by providing alternate solutions. Effectiveness: Resolves project problems, maintains project stakeholder involvement. Professionalism: Demonstrates dedication to the project and handles the project with integrity.

2.3.3.1 Flexibility

Flexibility competencies demonstrate the capability of a project manager to adjust and operate flexibly with various people or groups in a range of circumstances. Flexibility is highly crucial at the project manager's level when compared to the different project management levels (Chen *et al.*, 2019).

2.3.3.2 Leadership

Leadership competency is a crucial ability that a project manager must have to motivate the project team towards achieving the project's objectives. it also includes qualities and abilities a leader possesses that contribute to the project team's increased trust and dedication to the leader. Effective leaders motivate, inspire, and assist their team in increasing productivity. A successful team is frequently led by a great leader (Kahindi & Yusuf, 2024).

2.3.3.3 Decision making

According to De Bruin, Parker and Fischhoff (2020), decision-making is the capability to make appropriate choices at crucial moments. The decision-making principles are posited by models of rational choice, which include the appropriate application of a predefined approach for selecting among presented options. Ignoring prior chosen alternatives with permanent losses, if other alternatives provide better future results. Lastly, evaluating an option's values regardless of whether its results will be expressed in a positive or negative way.

2.3.3.4 Problem Solving

Problem solving competency is an attribute that requires a project manager to identify, analyse potential or concurrent problems with providing suitable and practical solutions to the problem in a timely manner. A project manager who lacks good problem-solving abilities may encounter issues late, making it more difficult to address them, which might slower the chances of project completion (Tahir, 2020).

2.3.3.5 Professionalism

Professionalism can be defined as those values and characteristics of a project manager that show his or her commitment and integrity (Koi-Akrofi et al., 2024). In research by Dumrak et al. (2020) identified commitment, organizational awareness and achievement orientation as attributes of professionalism. This research also outlined that commitment, and

organizational awareness shows a significant connection to sustainable orientation and capability building dimensions, in their findings.

Table 2.2: Project managers Competencies mentioned by other researchers.

CPM Competencies	Authors
Time Management	(Rustam *et al.*, 2024), (Amoah & Marimon, 2021), (Koi-Akrofi et al., 2024)
Scope Management	(Takagi and Varajão, 2020), (Amoah & Marimon, 2021), (Abdelmasseh, Bassioni and Gaid, 2022).
Communication	(Tahir, 2020), (Takagi and Varajão, 2020), (Chen *et al.*, 2019), (Rustam *et al.*, 2024), (Amoah & Marimon, 2021), (Koi-Akrofi et al., 2024), (Tahir, 2020).
Cost Management	(Takagi and Varajão, 2020), (Rustam *et al.*, 2024), (Koi-Akrofi et al., 2024), (Abdelmasseh, Bassioni and Gaid, 2022).
Resource Management	(Takagi and Varajão, 2020), (Moradi et al., 2020).
Quality Management	(Rustam *et al.*, 2024), (Takagi and Varajão, 2020), (Amoah & Marimon, 2021), (Abdelmasseh, Bassioni and Gaid, 2022).
Project Integration	(Takagi and Varajão, 2020), (Rustam *et al.*, 2024), (Abdelmasseh, Bassioni and Gaid, 2022).
Risk Management	(Chen *et al.*, 2019), (Takagi and Varajão, 2020), (Amoah & Marimon, 2021), (Abdelmasseh, Bassioni and Gaid, 2022).
Team Management	(Amoah & Marimon, 2021), (Koi-Akrofi et al., 2024) (Moradi et al., 2020).
Stakeholder Management	(Takagi and Varajão, 2020), (Moradi et al., 2020).
Flexibility	(Chen *et al.*, 2019), (Dziekoński, 2017), (Moradi et al., 2020), (Dumrak et al., 2020), (Chen *et al.*, 2019).
Leadership	(Dziekoński, 2017), (Amoah & Marimon, 2021), (Abdelmasseh, Bassioni and Gaid, 2022).
Decision making	(Dziekoński, 2017), (Amoah & Marimon, 2021), (Moradi et al., 2020).
Problem Solving	(Tahir, 2020), (Amoah & Marimon, 2021), (Koi-Akrofi et al., 2024).
Professionalism	(Rustam *et al.*, 2024), (Koi-Akrofi et al., 2024), (Dumrak et al., 2020).

2.4 Roles and Importance of a Construction Project Manager

According to the PMI (2008), the project manager is accountable for achieving the project's goals and objectives. In the construction industry, project managers function as intermediaries among architects, designers, and engineers. They are responsible for planning, organizing, and managing the budget-scope-time triangle. For the delivery of the best possible product or service, all team members must collaborate on each project (Mirzayeva, 2023). In other research, a Project manager is skilled in organizing resources, motivating team members, and utilizing materials throughout the project lifetime. This method optimizes project efficiency by reducing waste, delays, and unwarranted costs (Giri, 2019). Furthermore, project managers are crucial in engaging stakeholders, ensuring effective communication and cooperation between project team members, regulatory bodies, clients, and contractors. Successful construction project management heavily relies on the efficient use of labour, materials, and equipment. It also demands specialized knowledge, skills, and expertise from qualified professionals who can effectively prioritize cost control. (Iroha, Watanabe and Satoshi, 2024). Also, in another research cited by Iroha, Watanabe, and Satoshi (2024), the key qualities of a project manager are to have a strong understanding of how to effectively manage a project using appropriate techniques and procedures. A project manager should always seek more information and should not accept information first-hand without any clarification or justification. They should request supporting information or evidence. A project manager must be physically active and mobile since good project management entails more than simply desk labour. Effective project management requires good organizational abilities, including meeting management. A project manager should be skilled at encouraging others, both internally and externally. The capacity to understand and interpret information or situations quickly and accurately is essential for spotting and resolving issues before they worsen. A project manager should have good communication skills, especially in the ability to successfully cooperate with all project parties.

2.4.1 Importance of Managerial Competencies Towards Project Performance

Competent people are the foundational blocks to creating a performance-oriented culture in any industry (Shet, Patil and Chandawarkar, 2019). The managerial competencies that lead towards project performance can vastly be different due to several other factors like company, project manager role, type of contracts or project. According to Giri (2019), the role and responsibility of a project manager are different from one company to another, thus, the overall project manager's major responsibility is to create an execution plan that aligns with project goals, requirements, and resource allocation. This research provided another definition stating a project managers bear the responsibility for the successful delivery of a project, ensuring it meets the constraints of budget, schedule, and quality and adheres to the required safety standards. However, in order to achieve good project performance, this role must be broken down into more detailed tasks. This research outlines planning, organizing, leadership, and controlling as one of the essential skills of a project manager. And other skills related to competencies which include knowledge and skills, technical skills and knowledge, team building, communication, interpersonal, resilience to stress, Problem-solving, and time management (Giri, 2019). Research conducted by Heininen (2023) outlines the big five competencies of a successful project manager using a triangulation matrix, which includes communication. Planning and control, teamwork, change, management, and leadership.

Research conducted by Mwandoro and Muchelule (2024) explains the two different variables that can affect construction project performance, these variables are independent and dependent. The independent variables contain technical competence and leadership competence. The technical competence focuses on cost budgeting and quality control, while the leadership competence focuses on team empowerment and team delegation. All this leads to the performance of construction projects in terms of project completion, cost performance, and stakeholder satisfaction under the dependent variables. To correctly evaluate project performance, a set of criteria or principles must be defined as standards to guide and regulate the process. These standards are

known as project performance measures or criteria for project success. The most widely accepted criteria for gauging project outcome is the 'iron triangle,' it is used to measure performance, based on cost, time, and quality. (Unegbu, Yawas and Dan-Asabe, 2022).

2.5 Challenges Facing Managerial Competencies in the Nigerian Construction Industry

One of the major challenges of managerial competencies in Nigeria is the lack of adequate Education and knowledge sharing. Most universities in Nigeria do not offer project management programmes. According to Onyia (2022), the time required to get a degree in engineering, construction, or project management can be challenging. In Nigerian academies, master's programs typically last two years. In addition, there is a lack of a viable student loan mechanism that contributes to the high cost of a decent education. Research done by Arif et al. (2017) discovered there is a lack of knowledge-sharing among industry experts poses a significant problem in developing construction skills and competencies. Other major challenge includes a lack of infrastructure and standards development, corruption and lack of ethics, and lack of funding and sponsorships. (Akintola, Aderinlewo and Akande, 2024) highlight poor communication, bad leadership, lack of academic qualifications, and lack of project management skills are among the challenges and constraints of project management in Nigeria. According to research done by Onyia (2022) outlines six (6) skills and competencies challenges of construction projects in Nigeria. These challenges include attainment and rewards, commitment and loyalty, education and knowledge-sharing culture, funding and sponsorship, corruption and ethics, and the last one is Infrastructures and Standards. Furthermore, in the research findings, Onyia (2022) mentioned, there is an excess of frameworks, guidelines, skilled specialists, trainers, secure internet access, and adequate training facilities for infrastructure and standards development. Additionally, there is not enough of strong government support to enact and enforce regulations.

Despite significant efforts by project management practitioners to enhance project success in construction, the realization of unsuccessful projects remains a common occurrence in modern times (Molwus, Erdogan and Ogunlana, 2017). According to Ghorbani (2023), the successful completion of a project relies on the competency of the project managers, who highly determine the project's performance and success. Moradi, Kähkönen and Aaltonen (2020) Compared to other specialized project types, have received considerable focus from scholars regarding the skills of project managers. A review of relevant literature has resulted in the compilation of a list of 184 distinct capabilities tailored for project managers overseeing construction projects.

2.6 Conceptual Framework

Managerial Competencies

IV

| 1st Competency |

| 2nd Competency | H₂ | Project Performance
DV
Budget Adherence
Completion on time |

| 3rd Competency |
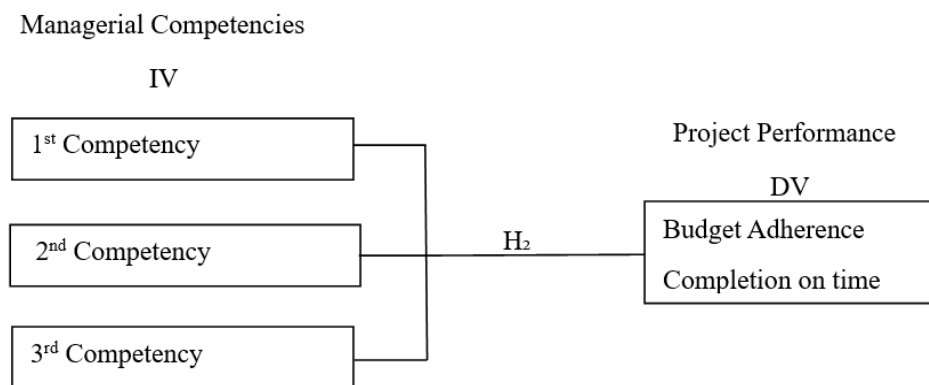
Figure 2.2: Research Conceptual Framework

The conceptual framework illustrates the relationship between managerial competencies and project performance through a structured interaction of independent and dependent variables. The independent variables are represented by the identified managerial competencies based on the PMCD Framework, namely, communication, leadership, professionalism, time management, cost management, team management, problem-solving, and project integration. These are the key dimensions shown in Table 2.2 and

visually represented in the framework model. Each competency links directly to specific aspects of project performance, such as adherence to budget, timely delivery, and stakeholder satisfaction. The three (3) competencies for budget adherence are quality management, problem-solving, and resource management, while for completion on time, they are time management, leadership, and professionalism.

Table 2.3: Systematic literature review table

Title	Keywords	Gaps of research	Relevance to Study	Authors / Year
A competency model for the selection and performance improvement of project managers in collaborative construction projects.	competency model; project manager; collaborative construction project; project delivery model	The research focuses only on collaborative construction projects rather than traditional construction delivery method.	Provide knowledge and information on construction project managers competencies.	Moradi et al. (2020)
Comparison of research and industry views on project managers' competencies.	Project manager, Competency, Project management standards.	Critical views and discussions on project managers competency research were not included.	Provide insights on multiple project managers competencies standards of practice.	Moradi, Kähkönen and Aaltonen (2020)
What makes a competent international project manager in emerging and developing countries?	project manager competence, international contracting project, emerging and developing country, content analysis, multidimensional. scaling analysis.	The study explores the factors that makes an international project manager in emerging countries.	Provide information on the two dimensions of competences for international project managers determined by the MDS method.	Li et al. (2020)
Project management competencies: a literature-based analysis	Project management, Project management competencies, Systematic review, Soft	The research focuses on only the core project management competencies	Provide insights on the PMCDF knowledge competency	Koi-Akrofi et al. (2024)

	skills, Hard Skills.			
An investigation of the relationship between project performance measures and project management practices of construction projects for the construction industry in Nigeria	Project management practices Project performance measures Critical success factors Construction projects Structural equation model	This research focuses on project management and project performance on an organizational level not individual.	Provide Information on project performances and project management on Nigeria construction industry	Unegbu, Yawas and Dan-Asabe, (2022)
Personal Performance Measurement of Project Manager using Project Manager Competency Development Framework (PMCDF®)	Project Manager, Project Manager Competency Development Framework, Personal competency.	The study only focuses on the PMCDF project manager personal competencies.	Provide information on the PMCDF personal competencies.	Wahyuni, Pratami and Bay. (2020)
A Review of Successful Construction Project Managers' Competencies and Leadership Profile	Project manager; Competency; Leadership; Construction project management; Project success.	This Study focuses on important elements for successful project manager, including knowledge, skills, leadership and personal attitude	Provide information on competencies and attributes of a successful project manager	Ghorbani (2023)

CHAPTER 3

3. RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a detailed systematic method use to explain processes, procedures, measures, and techniques used to achieve research objectives. This chapter will include comprehensive information about the research design, research methods, method of how the data will be collected, sampling techniques, questionnaire design, and the method of data analysis. This study will adopt a quantitative research method to ensure consistency, reliability, and the ability to obtain generalized data across Nigeria's construction industry. A structured questionnaire survey will be designed and shared to the target construction professionals in Nigeria. The survey will be designed to help achieve the three (3) main objectives of this research. The research sample size will be determined using Cochran's sample size formula. The methodology is designed to help collect high-quality data that can be analysed statistically and will help provide yielding actionable insights about managerial competencies and their relationship to project performance. The data collected will be analysed through research analysis methods like demographic data of respondents, mean ranking, regression analysis, and correlation analysis using the statistical package for social science (SPSS) version 23 software. This approach will help ensure that this research findings are correct and will help improve the construction project management practices in Nigeria.

3.2 Research Design

This study will employ a cross-sectional survey design to investigate the managerial competencies required by construction project managers in Nigeria and their impact on project performance. The research design is descriptive and correlational, aiming to identify, Construction project managers competencies, the competencies that influence project performance, project managers regulatory compliance, and the relationship between managerial competencies and project performance will also be studied. A structured questionnaire will be the primary data collection tool, enabling systematic and measurable data collection from a large, diverse population of construction professionals. The targeted respondents will include construction professionals like project managers, construction managers, architects, consultants, and developers in small, medium or large construction firms in Nigeria. The cross-sectional approach ensures efficiency, capturing industry-wide trends and relationships at a single point in time, while statistical methods such as mean ranking, Frequency distribution, correlation, and regression analysis are used to assess hypotheses and derive actionable insights. This design will provide a robust framework for addressing the research objectives and contributing to improved project management practices in Nigeria.

3.2.1 Research philosophy

This research will adopt the use of positivism research philosophy, it focuses on validating "a priori hypothesis" where effect relationship between casual and explanatory i.e. (dependent variables) and (Independent variables) factors can be formed with use of "hypothetico decductive." Positivism is mostly used for hypotheses from quantitative research but does not solely rely on only quantitative methods. The main aim of positivist inquiry is to help obtain explanatory connections or normal relationships that highly lead to prediction and control of the phenomena in question (Park, Konge and Artino, 2019). In this research, the interesting phenomenon is the influence of managerial competencies of construction project managers in Nigeria on project performance. This interesting phenomenon will be studied using a quantitative

research approach, which is much suitable with positivism philosophy. The data will be collected using a structured survey questionnaire that aligns with the research objectives and questions. The obtained data will be analysed using correlation and regression analysis to assess relationships and hypothesis between the managerial competencies and project performance using tools like the SPSS. In addition, the relationship between competent construction project managers with regulatory compliance will also follow the same process.

3.2.2 Research Approaches

This research will employ a deductive research approach, this helps in finding processes, narratives and meanings of current theory of interpersonal and intrapersonal phenomena (Fife and Gossner, 2024). This approach is also called the (Top-Down) method where the research starts with theory or hypothesis and will be evaluated through data collection and analysis, this approach is mostly done in quantitative research method by a structured survey questionnaire. In context of this research, the theory is based (PMCD) framework developed by the project management institute (PMI). This theory develops, assesses, and defines competency in project management, it also highlights important competencies that affect manager performance (PMI, 2017). The PMCD framework outlines three main competencies domains as knowledge, performance and personal. Using this approach the research hypothesis will be evaluated using correlation and regression analysis to test relationships between construction project managers managerial competencies and project performance.

3.2.3 Research strategies

A research strategy is a planned overall view of how a research study will be planned, monitored, and executed. There are several types of research strategies, however, this research will employ a survey research strategy to investigate managerial competencies in Nigeria. The word "Survey' means overseeing something. Survey strategy is normally used to gather and collect

data regarding a large group of people on their activities, opinions, knowledge, experiences, beliefs or attitudes. In the context of this research, a survey strategy will be used to help collect data from construction project professionals on managerial competencies in Nigeria. Around 150 Google Forms online questionnaire surveys will be distributed to construction project professionals in order to achieve the target of 96 minimum responses. A Quantitative research method will be used to structure a questionnaire survey for data collection. This approach helps to obtain related research data from various locations across Nigeria that will contribute to achieving the research objectives.

3.2.4 Unit of analysis

The unit of analysis defines the main entity on which a research study will be based for data collection and analysis. This research will adopt the use of Individual units of analysis to help investigate the managerial competencies of project managers in Nigeria, with the project managers being the individual unit of analysis for this research. The Individual unit of analysis emphasizes studies that focus on personal opinions, behaviours, knowledge, or experience, This approach is often used with questionnaire surveys. Using this approach, questionnaire surveys will be targeting construction professionals based on their knowledge and experience in managerial competencies.

3.3 Research Methods

A research method refers to the instruments and strategies used to obtain and analyse data. The term "research" refers to any type of investigation that seeks to unearth new or intriguing facts. This study will use a quantitative research method to systematically evaluate the managerial competencies required of construction project managers in Nigeria, as well as their impact on project performance. A quantitative method is used because it allows for the collection of objective, numerical data that can then be statistically evaluated to uncover industry trends, correlations, and potential causes. This strategy is appropriate for fulfilling the research objectives and delivers insights that can be

generalized across Nigeria's building sector. Quantitative research can be used to define population or event characteristics, as well as analyse links between exposure and result or variable correlations. Quantitative studies might use experimental or observational research methods in managed or natural environments. In experimental investigations, researchers assign exposures to subjects (Rodda *et al.*, 2024). A quantitative study is a methodological process that focuses on gathering and analysing structured, numerical data. It's mainly effective in answering "what or how" questions in a given scenario, concentrating on measurable data for analysis. Direct, measurable questions mostly use phrases such as "what percentage?" and "what proportion?" To what extent, how many, or how much? Furthermore, quantitative research can be utilized to discover demographic information of certain populations. It helps to measure the quantity of people within a certain activity or organization and to analyse attitude, record or individual experiences. The variables mentioned above can be evaluated and supported by measurements such as frequencies, percentages, proportions, and relationships. Quantitative research yields findings that reveal patterns and tendencies. Patterns and tendencies can be analysed using quantitative research. However, it's important to understand that the reasons behind people's thoughts, feelings, or behaviours cannot be measured or explained (Goertzen, 2017).

3.3.1   Justification for Quantitative Research Method

Most research articles use the quantitative or qualitative research methods, and several research authors have used a quantitative research method to analyse managerial competencies for project managers. The quantitative approach allows for the objective of competencies, performance factors, and compliance adherence, which are the main importance to addressing the research objectives. Standardized survey questions make it possible to gather comparable data across a large sample of construction professionals in Nigeria, ensuring that findings are consistent and reliable. The use of quantitative data enables the use of statistical techniques for data analysis (descriptive statistics, regression analysis, correlation analysis) to identify trends, test hypotheses, and assess relationships between competencies and project performance.

3.3.2 Survey Sampling

This is a process that includes the selection of targeted respondents within a population of interest to obtain valuable data or information. The bigger sample size tends to provide more reliable data that reflects the overall population. The two most common types of data sampling methods are non-probability and probability. Non-probability sampling is a method of sampling in which only allowed samples chosen based on particular requirements are given an opportunity to be involved in the research, whereas probability sampling ensures that everyone within the defined group has the same probability of being selected.

A random probability sampling technique will be used to provide all targeted respondents within the population an equivalent possibility of being selected. The targeted respondents that are qualified to take part in this study's questionnaire are experienced, employed construction professionals in Nigeria. This consists of construction project managers, contractors, site engineers, consultants, and regulatory professionals in the Nigerian construction sector. These professionals are selected because they have direct experience in project management, performance metrics, and regulatory compliance in the industry. Since this research will be adopting a simple random probability sampling method, it is exceedingly difficult to list a specific number of people that will participate for the survey. Cochran's sample size formula below will be used to determine the questionnaire sample size of this research (Bartlett, Kotrlik, and Higgins, 2001).

$$N = \frac{Z^2 \times P \times (1-P)}{L^2}$$

Where

N = Sample Size

Z = Confidence Level

P = Proportion of the Population that presents the given characteristics

L = Sample Error Limit

To determine the necessary sample size for this research, a 95% (1.96) confidence interval will be used. Since the actual size of the population possessing the expected managerial competencies is unknown, hence a 50% proportion (P = 0.5) will be assumed. A 10 % margin of error will be used in the sample size calculation. This choice is based on the assumption that respondents may have limited knowledge of managerial competencies. According to Nnaji et al. (2019), 5-20% of sample errors have frequently been used in research on construction management, particularly in exploratory investigations.

Therefore

$$N = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.10^2} = 96$$

Given the challenges in reaching a large and diverse group of construction professionals across Nigeria. A total number of 150 online questionnaire forms will be distributed to construction professionals across Nigeria to achieve a minimum target of 96 responses to guarantee the validity and integrity of the study. In a survey exploring the involvement of quantity surveyors in Nigerian construction projects, 120 questionnaires were distributed, with 70 valid responses (Isan & Ebiloma, 2024).

3.3.3   Questionnaire Design

A questionnaire is an extremely versatile tool since it allows you to arrange questions and get responses without having to speak with each respondent in person. One useful tool for gathering information from respondents is the questionnaire. The questionnaire should be created in a basic, quick, and easy format so that respondents can complete it quickly and easily to meet the goals of this study. (Krosnick 2018). This questionnaire is designed to get views and opinions from construction professionals in Nigeria on project managers competencies. A questionnaire, detailed in Appendix A, will be developed and structured into four main parts: Sections A, B, C, and D. This questionnaire

will utilize a mixture of open-ended and close-ended questions. Section A will gather all respondents' demographic information, including their job title, length of experience in the construction sector, professional background, and overall years of corporate experience within the industry.. Section B will include survey questions related to the first research objective regarding the managerial competencies required by construction project managers in Nigeria. Section C questions will be related to the second research objective regarding the key success factor of managerial competencies for construction project managers towards project performance. The section D questions will focus on assessing the third research objective of the extent of compliance by Nigerian contractors with the Nigerian construction regulatory bodies towards project performance.

Section A (Demographic Information)

This section relates to the construction professionals' background information, such as their gender, years of experience, profession, and others, which will be responded in closed-ended questions. Closed-ended questions provide a very simple means of gathering information from those surveyed, as they can respond "Yes" or "No" to inquiries. The questions asked are straightforward and easy to understand. The responses must be presented in an understandable manner. The discrepancies in the replies from many respondents are easy to compare because of the limited choices of the answers offered. This section will consist of three questions that focus on the respondent's role in the construction industry, how long they have been working and the type of construction projects they primarily work on. The respondents reply to the questions by ticking on one of their preferred answers from the options given for each question.

Section B (Objective 1)

Section B will address the first research objective, which involves identifying the managerial competencies necessary for construction project managers in Nigeria. The questions pertaining to this objective will be divided into two segments, with both segments being close-ended questions. The first segment

will employ a selection method, requiring respondents to choose the most significant competencies for a construction project manager in Nigeria from a list of competencies based on the Project Management Competency Development Framework (PMCDF). The second segment will utilize a scaling method from 1 to 5, where 1 express 'Strongly Disagree' and 5 denotes 'Strongly Agree'.

Section C (Objective 2)

Section B will help obtain data to address the second research objective, focusing on determining the managerial competencies that are most influential to construction project performance in Nigeria. The inquiries related to this objective will be based on the two project performance variables, which include Budget adherence and completion on time. Each managerial competency will be paired with the two project performance variables. This helps in determining the relationships between each managerial competency with the project performance variables. This section will use Likert scale questions that feature a scaling method from 1 to 5, where 1 indicating "" and 5 representing "Extremely Important." the third segment will consist of an open-ended question, allowing respondents to share their own opinions on the challenges project managers faces in related to project performance based on their experiences.

Section D (Objective 3)

Section D will address the third research objective, which pertains to evaluating Nigerian contractors' compliance with construction regulatory bodies and its impact on project performance. This section will be divided into three segments: the first segment will include four close-ended questions. The second will employ a selection method to inquire how frequently contractors adhere to construction regulations and standards, utilizing a scaling method, with statements rated from 1 to 5, where 1 is 'strongly disagree' and 5 'strongly agree' to gauge responses. The final part will be an open-ended question,

inviting respondents to offer their perspectives on what the best ways are to improve regulatory compliance in Nigeria.

3.4   Data Collection Method & Instrument

This section explains the process of data collection, an instrument that will be used to collect the data, and lastly, the method. Data collection is a particularly important process in data analysis and in this research at large. The data will be obtained in the form of primary data and secondary data. The collection of primary data includes a structured survey administered through a questionnaire. The survey format is chosen because it is effective for collecting substantial amounts of data from a wide geographical area, which is essential given Nigeria's regional diversity in the construction industry. Surveys allow respondents to provide quantitative assessments of competencies, success factors, and compliance practices, making it possible to analyse patterns statistically. The survey questionnaires will be form using Google Forms and will be shared through WhatsApp and email to respondents. The secondary data was acquired by reviewing published articles suitable and fitting to the research topic.

3.5   Data Analysis Method

This describes the steps of analysing, creating representations, and converting the survey questionnaire data into interpretable information. The data collected will be analysed through research analysis methods like demographic data of respondents, mean ranking, regression, and correlation analysis using SPSS version 23 software. This analysed data will be used as valuable information for the discussion and conclusion of the research results.

3.5.1   Demographic data

This is a nominal type of data that consists of the respondent's details as explained in section A of the questionnaire design. This data will be analysed

to obtain relevant information of the respondents. The analysed data will be represented in a percentage count.

3.5.2   Mean Ranking

The mean and standard deviation will be used to establish the order of importance for each factor. The factor with a higher score than the overall mean is considered more important among all factors, on the other hand, the factors with a lower score than the overall mean is considered less important. When two or more factors have the same mean value, the competency with the lowest standard deviation is considered more essential and will be ranked higher (Cipriani et al., 2018)

3.5.3   Correlation Analysis

Correlation analysis is a technique that can be used to assess the strength and direction of relationships among multiple variables. In this research, Pearson's Product-Moment Correlation Test and Pearson's coefficients will be used to evaluate the strength and relationship of the variables. The correlation coefficients of -1 to +1 indicate -1 as the total negative correlation, Zero means there is no correlation, and +1 is total positive correlation. The correlation coefficient shows the extent is which the linear correlations between the two variables are strong, and hence the linearity between the two variables. According to Akoglu (2018) the statistical importance does not truly represent the strength of the correlation between two variables as being strong. The naming of the strength of the correlation coefficients to avoid misinterpretation when reporting is as shown in Table 3.1.

Table 3.1: Correlation Coefficient Interpretation Table (Akoglu, 2018)

Correlation Coefficients		Interpretation
+ 1	-1	Perfect
+0.9	-0.9	Very strong
+0.8	-0.8	Very strong
+0.7	-0.7	Very strong
+0.6	-0.6	Strong
+0.5	-0.5	Strong
+0.4	-0.4	Strong
+0.3	-0.3	Moderate
+0.2	-0.2	Weak
+0.1	-0.1	Negligible
0	0	None

3.5.4   Regression Analysis

Regression Analysis is an inferential statistical technique that is used to model the relationship between two variables. In this research, Multiple linear regression will be employed to assess the effect of independent on dependent variables. According to Smalheiser (2017) In order to optimise multiple regression equations, the independent variables must be analytically broken down into one another. The square of multiple R (R^2) will be created to help explain the extent of each variable's relation to the dependent variable. The multiple regression equation is as shown below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + ei$$

Y = Dependent Variable

B_0 = Constant

B_n = Independent regression coefficient

X_n = Numbers of Independent variables, n =1,2,3,4…

ei = error term

3.5.5 Frequency Distribution

Frequency distribution is an analysis that counts the number of times each attribute of a single variable appears in an observed sample, it is usually presented in a tabular form or graphical format (Kaur et al., 2018). This presentation helps to analyse trends and connections between variables. In this research, the respondent demographic information will be analysed using frequency distribution in section A and questions 1,2,3,4 & 8 in section D from the survey questionnaire. The results will the represented in percentages and frequency numbers in a table form.

3.5.6 Cronbch's Alpha Reliability Test

This research will use the Cronbach's alpha reliability test to analyse the internal consistency and index consistency of the keyed-in data obtained from the questionnaire. It is the most highly used measure of internal consistency. It is also used to check the validity of multiple Likert survey questions and to reduce predetermined measurement errors to increase the accuracy of results. Cronbach's alpha reliability test will be used in this research for all survey questions in sections B and C, and questions RC05-RC07 in section D of the research questionnaire. The obtained data must have a Cronbach's alpha score of 0.70 or more to show it accuracy (Bujang et al., 2018). Table 3.2 shows the range of Cronbach's Alpha Reliability Coefficient.

Table 3.2: Cronbach's Alpha Reliability and Consistency Table

Reliability on Internal Consistency	Cronbach's Alpha
Excellent	$\alpha \geq 0.9$
Good	$0.9 > \alpha \geq 0.8$
Acceptable	$0.8 > \alpha \geq 0.7$
Questionable	$0.7 > \alpha \geq 0.6$
Poor	$0.6 > \alpha \geq 0.5$
Unacceptable	$0.5 > \alpha$

3.6 Summary

In summary, the quantitative method will be used to fulfil the objectives mentioned in the first chapter. A structured questionnaire is the primary data collection tool that will be used across Nigeria for this research. The survey will cover four sections, including demographic data of respondents targeting construction professionals in the country. The survey question will consist of both open-ended and closed-ended questions and will be shared through emails and WhatsApp. The collected data will be analysed through both descriptive analysis, mean ranking, correlation analysis and regression analysis using (SPSS) software.

CHAPTER 4

4. DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the statistical analysis of the questionnaire data, employing the techniques described in Chapter 3. SPSS was used for the data analysis, while Microsoft Excel facilitated tabulating and organizing the data. Furthermore, the results obtained were examined, evaluated, and explained using tables for better clarification in achieving the three research objectives outlined in the first chapter.

4.2 Respondent Rate

The research distributed 150 questionnaires to every construction project manager in Nigeria. A total of 98 fully completed responses were received within approximately 6 weeks, from   12th February 2025 to 25th March 2025, showing a significant response rate of 65.3%. The well-designed questionnaire provided a high response rate, ensuring that there is a minimal time of around 15 minutes enough to fill in the survey. Using Google Form's active data responses section provides a better understanding of respondents that have filled in the survey, allowing the opportunity to send a remembers to the respondents.

4.3 Demographic Information

The profile of the respondent is analysed using frequency distribution analysis to help understand the information of each respondent. It shows the percentage of what each respondent selected. This helps understand the overall information of where the majority of the key in data was obtained from within the 98 completed surveys. The demographic information includes the consent of agreement by the respondents, the years of experience of respondents, the construction background of respondents, and the type of construction they are working. Table 4.1, shows the respondent consent agreement rate, indicating

that (95.9%) of respondents agree as per UTAR to collect, record, store, use, and retain their personal information.

Table 4.1: Respondent Consent Rate

	Frequency	Percent	Valid Percent	Cumulative Percent
I disagree; my personal data will not be process.	4	4.1	4.1	4.1
I have been notified by you and I hereby understood, consented and agreed per UTAR above notice.	94	95.9	95.9	100.0
Total	98	100.0	100.0	

4.3.1 Construction Background of Respondent

The construction background of respondent represents all collected data from the 98 respondents on their background in construction i.e. Architect, construction manage, project manager, developer, consultant, contractor etc. Using the frequency distribution analysis the result indicated that Architect has the highest frequency of respondent at 42 and (42.9%), with second highest being project managers at 24 and (24.5%), followed by construction managers at 12 and (12.2%). Furthermore, the frequency and percentage rate of consultant respondent is 7 and (7.1%), Builders having 3 and (3.0%), while health and safety staffs consist of 2 and (2.0%) of the respondents, and Civil Engineer, Developer, Engineer, Quantity Surveyor, Quality Control Engineer, Site Engr, and Supervisor all have a 1 and (1%) frequency and percentage rate as shown in Table 4.2.

Table 4.2: Construction Background of Respondent

	Frequency	Percent	Valid Percent	Cumulative Percent
Architect	42	42.9	42.9	42.9
Builder	2	2.0	2.0	44.9
Building	1	1.0	1.0	45.9
Civil Engineer	1	1.0	1.0	46.9
Construction Manager	12	12.2	12.2	59.2
Consultant	7	7.1	7.1	66.3
Developer	1	1.0	1.0	67.3
Engineer	1	1.0	1.0	68.4
Health and safety staff	2	2.0	2.0	70.4
Project Manager	24	24.5	24.5	94.9
Quality Control Engineer	1	1.0	1.0	95.9
Quantity Surveyor	1	1.0	1.0	96.9
Site Engr	1	1.0	1.0	98.0
Supervisor	1	1.0	1.0	99.0
Supply	1	1.0	1.0	100.0
Total	98	100.0	100.0	

4.3.2 Years of Experience

The respondents' work experience in the construction industry was categorized into three groups: 0-5 years, 5-10 years, and over 10 years, as shown in Table 4.3. Out of the 98 completed questionnaires, the largest group, 43 respondents (43.9%), had 5 to 10 years of experience. Following closely, 37 respondents (37.8%) had 0 to 5 years of experience. The smallest group, 18 respondents (18.4%), had more than 10 years of experience.

Table 4.3: Years of Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
10 years above	18	18.4	18.4	18.4
5-10 years	43	43.9	43.9	62.2
Less Than 5 years	37	37.8	37.8	100.0
Total	98	100.0	100.0	

4.3.3 Types of Construction Projects

Table 4.4 shows a result on the type of construction project the survey respondent predominantly works on. the table categorises four areas of construction projects, including commercial, industrial, infrastructure, and residential projects. According to the result 72 (73.5%) of survey respondents works on residential projects, and 12 (12.2%) of respondents works on Infrastructure projects, while 9 (9.2%) frequency and percent of respondents are involved in commercial projects, with only 5 (5.1%) works on industrial projects from a total set of 98 respondents.

Table 4.4: Types of Construction Projects

	Frequency	Percent	Valid Percent	Cumulative Percent
Commercial	9	9.2	9.2	9.2
Industrial	5	5.1	5.1	14.3
Infrastructure	12	12.2	12.2	26.5
Residential	72	73.5	73.5	100.0
Total	98	100.0	100.0	

4.4 Reliability Test

The Cronbach's Alpha test will be used to ensure the consistency and stability of the Likert scale questions in this research survey questionnaires. The test will be used to analyse the research questions from section B, and section C. The test will also be used to analyse questions RC05, RC06 and RC07 in section D of the questionnaire survey.

4.4.1 Cronbach's Alpha Test

Based on the results obtained in Table 4.5 below, the section B questions on managerial competencies from the research questionnaire survey in APPENDIX. A indicates a Cronbach's alpha test score of (α = 0.983), signifying the reliability of questions to be excellent according to Table 3.2. Similarly, the questions from section C of the questionnaires obtained an excellent reliability on internal consistency ranking based on Cronbach's alpha test score of (α = 0.953). in addition, questions RC05, RC06, and RC07 from section D have a Cronbach's alpha test score of (α = 0.798), showing an acceptable reliability on internal consistency. All the Cronbach's alpha test (α) results in Table 4.5 are above 0.70, showing the question's accuracy as stated by Bujang et al (2018).

Table 4.5: Cronbach's Alpha Test

No	Variables	Cronbach's Alpha	N of Items
Section B	Managerial Competencies	0.983	15
Section C	Managerial Competencies and Budget adherence/ Completion on time	0.953	30
RC05- RC07	Regulatory compliance	0.798	4

4.5 Mean Ranking Analysis

The mean ranking analysis was used to obtain results for construction project managers competencies, analysing the average mean and standard deviation of each competency and ranking them based on the highest mean score. To assess the importance of fifteen (15) project manager competencies and their relationship to project performance, the mean ranking method was applied to both sets of fifteen (15) competencies. The two performance variables are completion on time and budget adherence. Each of the 98 respondents scored every single competency based on a 5-point Likert scale. Table 4.6 shows the mean Ranking of construction Project managers' Competencies; Table 4.7 shows the mean ranking of competencies in relation to budget adherence, and Table 4.8 shows the mean ranking of competencies in relation to completion on time.

4.5.1 Mean Ranking of Construction Project Managers Competencies

To address the initial research objective, which focused on recognizing the necessary managerial skills for construction project managers in Nigeria. The mean ranking method was used to help identify the most important competencies that are required by construction project managers. The results obtained in Table 4.6 show the ranking of fifteen (15) competencies. From a total set of 98 respondent's majority of construction project managers in Nigeria rank communication as the highest competency a project manager should have, signifying a mean score of (M = 4.6224). Identifying the importance of effective communication skills in ensuring accurate and precise task delivery in construction. Research by Toyin and Mewomo (2023) identifies effective communication as the most important competency for construction management graduates, ranking first among other competencies. Another research by Mercado and Facelli (2024) stated a project manager must have communication competency to be effective and successful. The 2nd highest ranked competency is professionalism, with a mean score of (M = 4.5612). The result shows majority of project managers agree that project managers should be skilled in managing project scope to ensure that all deliverables are achieved within the agreed parameters, indicating the

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importance of scope management competency in construction projects. The scope management competency ranked 3rd among the 15 competencies with a mean score of (M = 4.5306), as shown in Table 4.6. Based on the gathered results, team management ranked the 4th highest with a mean score of (M = 4.5204), followed by leadership with (M = 4.5000) mean score.

Table 4.6: Mean Ranking of Construction Project Managers Competencies

	CPMs Competencies	N	Mean	Std. Deviation	Rank
MC03	Communication	98	4.6224	0.85573	1
MC15	Professionalism	98	4.5612	0.89749	2
MC02	Scope management	98	4.5306	0.96542	3
MC09	Team Management	98	4.5204	0.98682	4
MC12	Leadership	98	4.5000	1.04783	5
MC01	Time Management	98	4.4898	0.97647	6
MC05	Quality Management	98	4.4898	1.00765	7
MC04	Cost Management	98	4.4796	1.03774	8
MC13	Decision making	98	4.4694	1.01742	9
MC14	Problem Solving	98	4.4694	1.02750	10
MC06	Resource Management	98	4.4490	1.03667	11
MC07	Risk Management	98	4.4286	0.90815	12
MC08	Project Integration	98	4.3571	1.06732	13
MC11	Flexibility	98	4.3265	0.96084	14
MC10	Stakeholder Management	98	4.3265	1.07239	15
Valid N (listwise)		98			

Furthermore, the results show the mean score and ranking of ten (10) remaining competencies: time, quality, cost management, decision making, problem solving, resource management, risk management, project integration, flexibility, and stakeholder management. Ranking them from 6th,7th, 8th 9th 10th 11th 12th 13th 14th and 15th with a mean score of M = (4.4898), (4.4898), (4.4796), (4.4694), (4.4694), (4.4490), (4.4286), (4.3571), (4.3265) and (4.3265) respectively. The results indicate some competencies with same mean scores, the ranking method was done through force ranking method using the lower standard deviation SD.

4.5.2 Mean ranking of Competencies in relation to budget adherence

Table 4.7 shows the results collected for the mean ranking of Construction project managers competencies towards project performance. All 15 competencies are assets based on their influence on budget adherence. The results indicate that the majority of construction project managers agree that quality management is the most influential competency to budget adherence, with a mean score of (M = 4.3878). the 2nd second-highest ranked competency is problem solving, with a mean score of (M = 4.3469). According to Tahir (2020), problem-solving is one of the most important competencies that influence project success. Based on the response rate, resource management ranked 3rd among fifteen (15) competencies in relation to budget adherence, with a mean score of (M = 4.3367). The results also reveal that cost management and professionalism are one of the most important competencies that highly influence budget adherence, both ranking 4th and 5th with a mean score of (M = 4.3163) and (M = 4.2857). Additionally, the other competencies obtained a mean score of (4.2755), (4.2449), (4.2041), (4.1633), (4.1531), (4.1327), (4.0816), (4.0408), (3.9694), ranking them at 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th and 14th respectively, as shown in table 4.7.

Table 4.7: Mean Ranking of Competencies in Relation to Budget Adherence

	CPMs Competencies	N	Mean	Std. Deviation	Rank
MPB05	Quality Management	98	4.3878	0.85714	1
MPB14	Problem Solving	98	4.3469	0.82615	2
MPB06	Resource Management	98	4.3367	0.78575	3
MPB04	Cost Management	98	4.3163	0.89208	4
MPB15	Professionalism	98	4.2857	0.81228	5
MPB13	Decision making	98	4.2755	0.87084	6
MPB12	Leadership	98	4.2449	0.83803	7
MPB02	Scope management	98	4.2041	0.93013	8
MPB01	Time Management	98	4.1633	0.99165	9
MPB09	Team Management	98	4.1531	0.93447	10
MPB10	Stakeholder Management	98	4.1327	0.78172	11
MPB07	Risk Management	98	4.0816	0.86957	12
MPB08	Project Integration	98	4.0408	0.75871	13
MPB11	Flexibility	98	3.9694	0.80532	14
MPB03	Communication	98	3.9592	1.08332	15
	Valid N (listwise)	98			

The least influential competency to budget adherence is communication, indicating a mean score of (M = 3.9592) which is the lowest among all fifteen (15) competencies.

4.5.3 Mean ranking of Competencies in relation to Completion on time

Based on the results from Table 4.8 below, the majority of construction project managers in Nigeria choose Time Management as the most influential competency to complete on time, with a mean score of (M = 4.6020). Leadership and Professionalism obtained the second-highest mean score, with both competencies having a mean score of (M = 4.4184). The ranking of both competencies was determined using the force ranking method, whereby the competency with the lowest standard deviation SD is ranked higher. Therefore, leadership is ranked 2nd, and professionalism is ranked 3rd. Among the remaining twelve 12 competencies, decision making, cost management, and problem solving are ranked 4th, 5th, and 6th, respectively, with a mean score of (M = 4.3980), (M = 4.3878), and (M = 4.3367). In addition, scope management and team management are ranked 7th and 8th based on the force ranking method since both competencies have a mean score of (M = 4.3265). Furthermore, as shown in Table 4.8 below, resource management, communication, quality management, risk management, project integration, stakeholder management, and flexibility are ranked 9th, 10th, 11th, 12th, 13th, 14th, and 15th, respectively.

Table 4.8: Mean Ranking of Competencies in Relation to Completion on Time

		N	Mean	Std. Deviation	Rank
MPC01	Time Management	98	4.6020	0.65393	1
MPC12	Leadership	98	4.4184	0.79850	2
MPC15	Professionalism	98	4.4184	0.86063	3
MPC13	Decision making	98	4.3980	0.72850	4
MPC04	Cost Management	98	4.3878	0.76835	5
MPC14	Problem Solving	98	4.3367	0.84882	6
MPC02	Scope management	98	4.3265	0.78354	7
MPC09	Team Management	98	4.3265	0.87078	8

MPC06	Resource Management	98	4.2857	0.81228	9
MPC03	Communication	98	4.2551	0.84110	10
MPC05	Quality Management	98	4.2347	0.85917	11
MPC07	Risk Management	98	4.2041	0.84900	12
MPC08	Project Integration	98	4.1122	0.67171	13
MPC10	Stakeholder Management	98	4.0816	0.79526	14
MPC11	Flexibility	98	4.0102	0.87926	15
	Valid N (listwise)	98			

4.6   Frequency Distribution Analysis

The frequency distribution analysis was used to obtain results on regulatory compliance in order to archive the third 3rd research objective in assess the extent compliance by construction Project managers to Nigeria.   Table 4.9 illustrates results of project managers regulatory compliance. Table 4.10 shows results on construction regulatory requirements, and Table 4.11 shows results of contractors' and consultants' adherence.

4.6.1   Analysis of Regulatory Compliance

Based on the collected results from Table 4.9 below, from a total set of 98 responses received, only 30 (30.6%) of respondents are certified project managers, while the remaining 68 (69.40%) are not certified project managers. From the results below majority of project managers agrees that regulatory compliance should be compulsory with 92 (93.4%) agreeing. In addition, 95 (96.9%) of respondents agrees that project managers should be aware of all regulatory compliance including recants updates and potential changes.

Table 4.9: Project Managers Regulatory Compliance

		Frequency	Percent	Valid Percent
Certified Project Manager?	Yes	30	30.6	30.6
	No	68	69.4	69.4
Do you think regulatory compliance Should be compulsory?	Yes	92	93.9	93.9
	No	6	6.1	6.1
Do you think project managers should be aware of all regulatory compliance?	Yes	95	96.9	96.9
	No	3	3.1	3.1

Table 4.10 reveals that most respondents, 43 (43.9%), neither agreed nor disagreed that Nigerian project managers possess a strong understanding of construction regulations. A smaller portion, 20 respondents (20.4%), believed that project managers do have this understanding, while 15 respondents (15%) disagreed.

Table 4.10: Construction Regulatory Requirements

RC05	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	5	5.1	5.1	5.1
Disagree	15	15.3	15.3	20.4
Neutral	43	43.9	43.9	64.3
Agree	20	20.4	20.4	84.7
Strongly Agree	15	15.3	15.3	100.0
Total	98	100.0	100.0	

According to Table 4.11, the results show that 37 (37.8%) of the responses are neutral on contractors and consultants on their construction project highly adhere to all construction regulatory standards, indicating some regulatory compliances are adhered to while some are ignored. 26 (26.5 %) respondents agree that contractors and consultants on their construction project highly adhere to all construction regulatory standards. While 22 (22%) of respondents disagree that contractors and consultants on their construction project highly

adhere to all construction regulatory standards. Furthermore, 7 (7%) respondents strongly disagreed with the statement, and 6 (6%) strongly agreed.

Table 4.11: Contractors and Consultants Adherence

RC06	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	7	7.1	7.1	7.1
Disagree	22	22.4	22.4	29.6
Neutral	37	37.8	37.8	67.3
Agree	26	26.5	26.5	93.9
Strongly Agree	6	6.1	6.1	100.0
Total	98	100.0	100.0	

Based on the results from Table 4.12 below revealed that 45 (45.9 %) of the respondents strongly agree that project manager competencies can influence adherence to construction regulatory standards in Nigeria. 30 (30.6%) of respondents also agree that project manager competencies can influence adherence to construction regulatory standards in Nigeria. While 21 (21.4%) of respondents are neutral on project managers competencies influencing construction regulatory adherence. Furthermore, 1 (1%) of the respondents strongly disagreed and 1(1%) disagreed with the statement.

Table 4.12: Competencies Influence on Regulatory Compliance

RC07	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	1	1.0	1.0	1.0
Disagree	1	1.0	1.0	2.0
Neutral	21	21.4	21.4	23.5
Agree	30	30.6	30.6	54.1
Strongly Agree	45	45.9	45.9	100.0
Total	98	100.0	100.0	

Table 4.13 below indicates the results on construction regulatory bodies the respondents are registered with. Based on the results, from a set of 98 respondents, only 3 (3.1%) are registered with the "Chartered Institute of project managers of Nigeria" (CIPMN). The results also indicated that the majority of respondents 39 (39.8%) are registered with the "Architects Registration Council of Nigeria" (ARCON), followed by the "Council of Registered Builders of Nigeria" (CORBON) with 19 (19.4%).

Table 4.13: Construction Regulatory Bodies

	N	%
Architects Registration Council of Nigeria (ARCON)	39	39.8%
Council of registered Builders of Nigeria (CORBON)	19	19.4%
Council for the regulation of Engineering in Nigeria (COREN)	14	14.3%
Chartered institute of project managers of Nigeria (CIPMN)	3	3.1%
Nigerian Society of Engineers (NSE)	3	3.1%
None	3	3.1%
Others	20	20.3%

4.7   Correlation Analysis

Correlation analysis was utilized to examine how strongly and in what way managerial competencies relate to project performance. The two project performance variables are budget adherence and completion. Based on the results in Table 4.7 and Table 4.8, the correlation analysis will be based on the three (3) highest-ranked competencies from each project performance variable. Table 4.14 shows the correlation analysis of project managers competencies to budget adherence. Table 4.15 shows the correlation analysis of project managers competencies to completion on time. The data will be interpreted using Table 3.1 in Chapter 3.

4.7.1 Managerial Competencies and Project Performance

Based on the results in Table 4.14 below, Quality management has a noticeably weak positive correlation strength to budget adherence with a Pearson correlation coefficient of (0. 256) and statistically not significant (P = 0.124, P > 0.05). Hence, H_0 is supported. Pearson correlation of problem solving and budget adherence was found to be moderately positive (0.368) and statistically significant (P = 0.008, P< 0.05); therefore, H_1 is supported. Lastly, Resource Management has a Strong positive correlation to budget adherence with a Pearson correlation coefficient of (0.409), and it is statistically significant (P = 0.002, P < 0.05,). Therefore, H_1 is supported. According to Andrade C (2018), the P value is widely recognised by researchers or people who read research, as P < 0.05 indicates statistical significance.

Table 4.14: Correlation of Budget Adherence

		Quality Management	Problem Solving	Resource Management
Project performance Variable	**Pearson Correlation**	0.256	.368	.409
	Interpretation	weak	Moderate	Strong
	Sig. (2-tailed)	0.124	0.008	0.002
	N	98	98	98

According to the results in Table 4.15 below, Time management has a noticeably weak positive correlation to Completion on time, with a (Pearson's r = 0.263) and statistical not non-significance (P = 0.109, P > 0.05,). Hence, H_0 is supported. Pearson correlation of leadership and Completion on time was found to be positively strong with a (Pearson's r = 0.439) and statistically significant (P = 0.001, P< 0.05). Hence, H_1 is supported. In addition, Professionalism has a moderate positive correlation to completion on time with (Pearson's r = 0.314) and it is statistically significant value of P is (P = 0.002, P < 0.05,). Therefore, H_1 is supported.

Table 4.15: Correlation of Completion on Time

		Time Management	Leadership	Professionalism
Project performance Variable	**Pearson Correlation**	0.263	.439	.314
	Interpretation	Weak	Strong	Moderate
	Sig. (2-tailed)	0.109	0.001	0.002
	N	98	98	98

4.8   Regression Analysis

Regression analysis is used to analyse relationships between two managerial competencies and project performance. The managerial competencies variables will obtain from the results presented in Table 4.7 and Table 4.8 while the two project performance variables are budget adherence and completion. The three (3) highest ranked competencies from Table 4.7 and Table 4.8 will be used to find their relationships with budget adherence and completion on time, respectively. The results of the regression analysis, which examined the relationship between managerial competencies and budget adherence, are presented in Table 4.16. Table 4.17 displays the regression analysis results for managerial competencies and project completion time.

4.8.1   Managerial Competencies and Project Performance

Based on the results shown in Table 4.16, the regression results for quality management and budget adherence indicate that only ($R^2 = 0.024$, 2.4%) of the quality management variance explains budget adherence. The t value (1.552) shows a weak effect between the dependent variable and independent variable, and the P value (P = 0.124, P > 0.05) indicates no statistical significance between the IV and DV. The results show that problem-solving variance explains ($R^2 = 0.096$, 9.6%) of budget adherence. The t value (2.726) indicates a strong effect between the IV and DV, while the P value (P = 0.008, P < 0.05) indicates a statistical significance between problem-solving and budget

adherence. The resource management regression results indicates that (R^2 = 0.096, 9.6%) of the variance explains budget adherence, while the t value (3.184) shows a strong effect between the IV and DV, and the P value (P = 0.002, P < 0.05) indicates a high statistical significance between resource management and budget adherence.

Table 4.16: Regression of Budget Adherence

	Unstandardized Coefficients		Standardized Coefficients	t	P value	R2	Decision
	B	Std. Error	Beta				
(Constant)	3.007	0.435		6.912	0	%	
Quality Management ↔ Budget adherence	0.154	0.099	0.156	1.552	0.124	0.024	Support H0
Problem Solving ↔ Budget adherence	0.259	0.095	0.268	2.726	0.008	0.096	Support H1
Resource Management ↔ Budget adherence	0.296	0.093	0.309	3.184	0.002	0.096	Support H1

Table 4.17 below, the regression results for time management and completion on time indicates that only (R^2 = 0.027, 2.7%) of time management variance explains completion on time, the t value (1.62) show a weak effect between the DV and IV, and the P value (P = 0.109, P > 0.05) indicated no statistical significance between the IV and DV. The results show that leadership variance explains (R^2 = 0.115, 11.5%) of completion on time. the t value (3.525) indicates a strong effect between the IV and DV, while the P value (P = 0.001, P < 0.05) indicates a statistical significance between leadership and completion on time. Lastly, Professionalism regression results indicates that (R^2 = 0.099, 9.9%) of the variance explain completion on time, while the t value (3.243) shows a strong effect between the IV and DV, and the P value (P = 0.002, P < 0.05) indicate a high statistical significance between resource professionalism and Completion on time.

Table 4.17: Regression of Completion on Time

	Unstandardized Coefficients		Standardized Coefficients	t	P value	R2	Decision
	B	Std. Error	Beta				
(Constant)	4.112	0.312		13.273	0	%	
Time Management ↔ Completion on time	0.109	0.067	0.163	1.62	0.109	0.027	Support H₀
Leadership ↔ Completion on time	0.211	0.06	0.339	3.525	0.001	0.115	Support H₁
Professionalism ↔ Completion on time	0.229	0.071	0.314	3.243	0.002	0.099	Support H₁

4.9   Discussion of Results

The demographic results indicate that the majority of project manager respondents are from an architectural background (42%). Most of the respondent have 5 to 10 years of experience in the construction industry, which helps in providing more reliable data based on their overall experience and understanding of construction activities. Most respondent works on residential construction projects, considering there are major types of construction in Nigeria.

The mean ranking analysis of the fifteen managerial competencies revealed that communication was considered the most crucial by the majority of Nigerian project managers. In the result, communication obtained the highest mean score, ranking 1st among all competencies. These results aligned with research conducted by Tahir (2020), Maqbool et al. (2017), Toyin and Mewomo (2023), and Amoah and Marimon (2021). According to Amoah and Marimon (2021) majority of project managers proposed that effective communication is the most crucial competency a project manager needs. In relation to the result obtained on professionalism, several project manager professionals in Nigeria suggest that the ability to maintain a high level of professionalism in their interactions with stakeholders, ensuring trust and

respect are built throughout the project is highly important for project managers. According to Hammed et al. (2021) integrity, honesty, and the ability to do the correct things in maintaining confidential information have a relation to project success. Furthermore, the 3rd highest ranked competency required by construction project managers in Nigeria is scope management. Multiple project management experts agree that a project manager should be skilled in managing project scope to ensure that all deliverables are achieved within the agreed parameters. According to Aborhor and Baiden (2021), scope management is a highly crucial process that is compulsory to streamline a project; it is the most essential component in understanding the project, and it ensures project managers are working within their boundaries and responsibilities in the project. The results obtained from the data analysis on managerial competencies and their influence on project performance based on the two performance variables indicate that quality management is the highest (1st) regarded competency by project managers in Nigeria in relation to budget adherence. According to Unegbu, Yawas and Dan-Asabe (2023), effective quality management is an important factor in project success, it helps to enhance cost saving and overall project performance. Implementing quality management practices can significantly contribute to project outcomes by reducing the risk of project failure and financial loss. The results also show that problem-solving and resource management are regarded by project managers in Nigeria as some of the most important competencies that can influence budget adherence, ranking 2nd and 3^{rd,} respectively. In addition to budget adherence, completion of time results shows that time management competency is the most important competency (1st) a project manager should have to ensure the completion of the project within the stipulated time. Time management includes the ability of a project manager to utilise scheduling tools and techniques to ensure that all tasks and deliverables are done within the given duration. According to Pamuji et al. (2024), with the help of time management tools and techniques, a project manager can identify the critical tasks and sequences required to complete the project within the minimum time given. Many project managers also recommend leadership and professionalism as one of the important competencies in relation to completion on time.

The correctional analysis results in Table 4.13 show there is a weak positive correlation between quality management and budget adherence, and the two variables are statistically not significant. The results also indicate a moderately positive correlation between problem-solving and budget adherence (0.368), and the statistical significance is ($P < 0.05$). The correlation coefficient of resource management and budget adherence is (0. 409) and the statistical significance value is ($P < 0.05$) indicating there is a strong positive correlation between the two variables and they are statistically significant to one another. Table 4.14 indicates a weak positive correlation between time management and completion on time, and the two variables are statistically not significant since ($P > 0.5$). However, the results show the correlation coefficient of leadership and completion on time is (0. 439) and the statistical significance value is ($P < 0.05$) indicating there is a strong positive correlation between the two variables and they are statistically significant to one another. Lastly, based on the data provided, the correlation coefficient of professionalism and completion on time indicate a moderate positive relationship between the two variables. The results above aligned with research conducted by Abdelmasseh, Bassioni and Gaid (2022) on "Project Manager Skills Affecting Construction Projects in Egypt". The results also indicated a week positive correlation coefficient value of (0.114) between quality management skills and cost performance, with the statistical significance value ($P > 0.05$), furthermore scheduling skills and time performance have a week positive correlation coefficient of (0.220) and the p values is ($P > 0.05$).

Based on the result collected on regression analysis between the managerial competencies and project performance variables. The budget adherence regression results indicate that quality management variance explains only 2.4% of budget adherence, identifying a very small influence between the independent variable and the dependent variable. However, the results suggest that problem solving, and resources management have more influence on budget adherence than quality management. The two independent variables both show a 9.6 % of the variance explain the dependent variable. Additionally, the regression analysis results of completion on time and the independent variables shows that time management has the less impact with

dependent variable, with only 2.7% of the variance explains completion on time and statistical significance of ($P > 0.05$) similar to the research conducted by Abdelmasseh, Bassioni and Gaid (2022). Leadership and professional have a relatively strong impact on budget adherence to, with both IVs variance explaining 11.5 % and 9.9%, respectively. According to research by Mithamo and Chowdhury (2022) concluded that leadership skills have a significant impact on construction project performance.

According to the results, a large number of project managers in Nigeria are not certified project managers, indicating that most project managers are appointed based on experience or merits. The Chartered Institute of Project Managers (CIPMN) in Nigeria has stressed the issue of uncertified project managers involved in managing projects. The CIPMN just recently mandated the certification and licensing of international and local project managers in January 2025 (Aina, 2024). The majority of project managers agree that regulatory compliance should be compulsory to all construction professionals, and project managers should be aware of all construction regulations. The results show that some project managers have less understanding of construction regulation standards. The response strongly agrees that project manager competencies can influence adherence to regulations.

4.10   Summary

This chapter presents the data analysis and interpretation of the findings in relation to the reviewed literature. To enhance clarity, the results are displayed in tables. Prior to analyzing the survey data, a Cronbach's Alpha test was performed to confirm the reliability and validity of the questionnaire and the collected information. Additionally, respondent demographic data is included to demonstrate the data's accuracy and its relevance to the research. The importance of the fifteen competencies and their relationship with two dependent variables was ranked using mean ranking. The influence and significance between three (3) competencies and project performance variables were analysed using regression analysis and correlation analysis. The regulatory compliance questions and demographic questions were analysed

using the frequency distribution method. All results were explained and interpreted in delayed in relation to the objectives.

CHAPTER 5

5. CONCLUSION AND RECOMMENDATION

5.1   Introduction

This chapter will present all summaries of the research findings on the basis of the aim and objectives of the study outlined in Chapter 1. This chapter also highlights the ramifications of this research. In addition to the conclusion, recommendations were made to assist other future researchers interested in conducting similar studies, increasing the decisiveness of the study. Lastly, the research limitations will explain the specifications and boundaries in which the study is conducted.

5.2 Research Findings

The aim of this Study is to investigate the key managerial competencies required by construction project managers in Nigeria. To assess the impact of these competencies on the performance of construction projects. To assess the extent of compliance by Nigerian project managers with the Nigerian construction regulatory bodies. This will allow the development of more competent project managers, which will lead to high project performance efficiency and project success.

➢ **Objectives**

- To identify the managerial competencies required by construction project managers in Nigeria.
- To determine the managerial competencies that are most influential to construction project performance in Nigeria.
- To assess the extent of compliance by Project Managers to the Nigeria construction regulatory bodies towards project performance

Objective 1:

To archive the first objective of this study, section B of the questionnaire survey requested construction professionals to respond to the questions. Respondents were instructed to rate their level of agreement from 1 to 5 regarding the essential competencies required for a construction project manager in Nigeria, based on the fifteen (15) competencies from the literature review. The top 15 managerial competencies required by construction project managers in Nigeria are: (1) Communication, (2) Professionalism, (3) Scope management, (4) Team Management, (5) Leadership, (6) Time Management, (7) Quality Management, (8) Cost Management, (9) Decision making, (10) Problem Solving, (11) Resource Management, (12) Risk Management, (13) Project Integration, (14) Flexibility, and (15) Stakeholder Management. Communication ranked first as the most important competency a construction project manager in Nigeria should have. Based on the result, the least important competency for a project manager is Stakeholder Management.

Objective 2:

To achieve the second research objective, the section C questions in the survey were designed to collect data of managerial competencies in relation to project performance. Each competency was asked based on the two project performance variables. The top three (3) managerial competencies that impact budget adherence are: (1) Quality Management, (2) Problem Solving, and (3) Resource Management. The three (3) highest managerial competencies concerning budget adherence are quality management, problem-solving, and resource management. Based on the findings, despite the positive relationship, there is a slight tendency for quality management to influence budget adherence, and only a small variance of quality management explains budget adherence. However, problem-solving and resource management have a strong and moderate positive relationship with budget adherence, with a small portion of the two variables explaining budget adherence. This means that problem-solving and resource management are more critical in ensuring construction projects are completed within budget than quality management. (1) Time

management, (2) leadership, and (4) professionalism are the top three (3) highest competencies in relation to completion on time, respectively. Despite time management ranking first, the results suggest that leadership and professionalism are more influential in ensuring construction projects are completed in time.

Objective 3:

The third research objective was achieved through questions in section D, based on the data obtained. The respondent was assessed regarding their regulatory compliance, certification, and registration. Other questions were asked based on their experience of compliance with other project managers. The findings clarify that the majority of construction project managers in Nigeria are not certified project managers. Furthermore, the majority of respondents are neutral on contractors and consultants adhering to regulatory compliance in their projects. This means that contractors and consultants adhere to some regulatory requirements while neglecting others. However, the majority of the respondents are registered to a recognised regulation body. In summary, construction project managers in Nigeria adhere to most of the regulatory requirements that are enforced by the regulatory bodies. A large number of respondents suggest that strict enforcement of laws and penalties for non-compliance can be used to improve regulatory compliance.

5.3   Research Limitations

The following are the limitations found during this study.

1. This study was conducted using a purely quantitative research approach, which, while effective for identifying trends, may have limited the depth of contextual insights. Future research could benefit from a mixed-method approach, integrating qualitative data to provide a more holistic understanding of managerial competencies and their influence on project performance, particularly in cross-country comparisons.

2. The sample size used in the research may not adequately represent the entire population of construction project managers in Nigeria. The limited number of responses, primarily due to time constraints, raises concerns about the generalizability of the findings to all project managers in the industry.

3. The study focused specifically on managerial competencies outlined in the Project Manager Competency Development Framework (PMCD). While this provided a structured basis for analysis, it may have excluded additional competencies present in other established standards of practice that could also impact project performance.

4. The limited availability of literature on the topic presented challenges in gathering a wide range of perspectives. This constraint may have influenced the contextual depth of the study and could contribute to gaps in fully capturing the breadth of managerial competencies within Nigeria's construction industry

5.4 Recommendations

These recommendations are made to help future research enhance the quality and completeness of the study, to ensure more comprehensive research.

1. A mixed-method approach of quantitative and qualitative can be used to find more refined data, and the sample size can be increased to ensure more accurate data and a larger representation.

2. Future researchers can explore and validate other international frameworks, such as IPMA ICB, APM BoK, and the PMI Talent Triangle, in the Nigerian context. This could lead to the adoption of a more comprehensive model of competencies beyond the PMCD framework.

3. Communication was ranked the highest among the competencies and leadership was a key influencer on project completion, these two areas should be prioritized in competency development programs.

4. Project managers should be trained and encouraged to utilize project planning and monitoring software such as Microsoft Project, Primavera P6, or integrated BIM tools. These tools help manage schedules, allocate resources, and track project performance in real-time.

5. In general, there is limited research regarding managerial competencies and project performance in Nigeria. more research can be done regarding managerial competencies and their impacts on each project lifecycle.

5.5 Conclusion

This chapter summarizes the overall study's conclusion, related to the three main objectives mentioned in the first chapter, to help verify the credibility of the study. The research constraints and weaknesses are highlighted for better future studies. Also, multiple important suggestions are made to help improve future studies.

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APPENDIX. A

<u>INVESTIGATING THE MANAGERIAL COMPETENCIES FOR CONSTRUCTION PROJECT MANAGERS IN NIGERIA TOWARDS PROJECT PERFORMANCE</u>

Dear Sir/Mrs.

My name is Amir hamza, a postgraduate student pursuing a Master of Project Management in Universiti Tunku Abdul Rahman (UTAR). I am currently conducting a questionnaire survey for my final year project tilted "Investigating the Managerial Competencies for Construction Project Managers in Nigeria towards Project performance" as a partial fulfilment of the programme structure. The Purpose of this research is to identify the managerial competencies required by a construction project manager in Nigeria.

This questionnaire consists of FIVE (5) sections, and it would take approximately 10 to 15 minutes to complete. I sincerely appreciate your participation in this survey. Your professionalism and experience will greatly contribute to the success of this research. Please rest assured that all responses will be kept confidential and anonymous, and they will be used exclusively for this research academic purposes.

If you have any questions regarding this Questionnaire survey, please do not hesitate to contact me for further information and clarification.

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Thank you for your participation and your precious time.

Research Questionnaires

Investigating The managerial Competencies for Construction Project Managers in Nigeria towards project performance.

Section A: Respondent demographic Information

Please select only one response for each Question.

DI01) What is your role in the construction industry?

- Project Manager
- Developer
- Architect
- Construction Manager
- Consultant
- Others (please specify)

DI02) Years of experience in the Construction industry

- Less Than 5 years
- 5-10 years
- 10 years above

DI03) what type of Construction projects do you primarily work on

- Residential
- Commercial
- Industrial
- Infrastructure
- Others (please specify)

Section B: To identify the managerial competencies required by construction project managers in Nigeria.

Based on your experience in the construction industry, please rate your level of agreement (on a scale of 1 to 5) regarding the essential competencies required for a construction project manager in Nigeria.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

NO	Questions					
MC01	A construction project manager should understand how to manage time effectively using project scheduling tools and techniques?	1	2	3	4	5
MC02	A construction project manager should be skilled in managing project scope to ensure that all deliverables are achieved within the agreed parameters?	1	2	3	4	5
MC03	A construction project manager should have good and effective communication skills to ensure accurate and precise task delivery?	1	2	3	4	5
MC04	A construction project manager should understand how to manage project costs effectively?	1	2	3	4	5
MC05	A Construction manager should be able ensure quality control throughout a construction project?	1	2	3	4	5
MC06	A Construction manager should be able ensure quality control throughout a construction project?	1	2	3	4	5
MC07	A construction project manager should be adept at identifying, assessing, and mitigating risks to minimize their impact on project outcomes?	1	2	3	4	5
MC08	A construction project manager should understand how to integrate various project elements to ensure smooth coordination and alignment of all activities?	1	2	3	4	5
MC09	A construction project manager should possess strong team management skills to motivate, coordinate, and lead the team toward achieving project goals?	1	2	3	4	5

MC10	A construction project manager should be skilled in managing relationships with and between stakeholders to ensure that all parties' needs and expectations are met throughout the project?	1	2	3	4	5
MC11	A construction project manager should demonstrate flexibility in adapting to changing circumstances and unexpected challenges that arise during the project?	1	2	3	4	5
MC12	A construction project manager should possess strong leadership skills to effectively guide the team and maintain focus on project objectives?	1	2	3	4	5
MC13	A construction project manager should be capable of making timely, well-informed decisions that drive the project toward successful completion?	1	2	3	4	5
MC14	A construction project manager should have strong problem-solving abilities to address issues quickly and keep the project on track?	1	2	3	4	5
MC15	A construction project manager should maintain a high level of professionalism in their interactions with stakeholders, ensuring trust and respect are built throughout the project?	1	2	3	4	5

Section C: To determine the managerial competencies that are most influential to construction project performance in Nigeria.

This section aims to determine the influence of managerial competencies on project performance in Nigeria based on the two project performance criteria below. For each competency listed below, please rate its level of influence on each aspect of project performance using the scales provided.

Project Performance Criteria

• **Budget Adherence:** Completing the projects within the allocated budget.
• **Completion on time:** Meeting the project deadline.

Likert scale

• 1 = No Influence
• 2 = low Influence
• 3 = Moderate Influence
• 4 = High Influence
• 5 = Very High Influence

MP01) Time Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP02) Scope management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP03) Communication					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP04) Cost Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP05) Quality Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP06) Resource Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP07) Risk Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP08) Project Integration					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP09) Team Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP010) Stakeholder Management					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP11) Flexibility					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP12) Leadership					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP13) Decision making					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP14) Problem Solving					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

MP15) Professionalism					
Project performance criteria					
Budget Adherence	1	2	3	4	5
Completion on time	1	2	3	4	5

Section D: To assess the extent of compliance by Project Managers to the Nigeria construction regulatory bodies towards project performance**.**

This section is made to assess the level of compliance by project managers with the Nigeria construction regulatory bodies.

RC01) Are you a certified Project Manager?

YES	
NO	

RC02) Do you think regulatory compliance Should be compulsory.

YES	
NO	

RC03) Do you think project managers should be aware of all regulatory compliance.

YES	
NO	

RC04) Which of the following regulatory bodies are you registered with.

1) Chartered institute of project managers of Nigeria (CIPMN)	
2) Council for the regulation of Engineering in Nigeria (COREN)	
3) Architects Registration Council of Nigeria (ARCON)	
4) Council of registered Builders of Nigeria (CORBON)	
Others (please specify)	

On a scale of 1 to 5, how accurate are the following statements, where.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

RC05) Project Managers in Nigeria Should have a good and overall understanding of construction regulatory requirements.	1	2	3	4	5
RC06) Contractors and Consultants on our construction project highly adhere to all construction regulatory standards.	1	2	3	4	5
RC07) Project managers competencies can influence adherence to construction regulatory standards.	1	2	3	4	5

Open ended question

RC08) based on your experiences what are the best ways to improve regulatory compliance in Nigeria?