

# Impact of Project Planning Factors on the Performance Efficiency of Housing Estate Construction Firms in North Central Nigeria

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## ABSTRACT

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The failure of real estate construction projects has been widely reported across Nigerian construction industry and has contributed to the widening gap of housing deficit in the country. To this end, this study identifies how project scope, completion time, completion cost, deliverables and stakeholder satisfaction on the efficiency of housing estate. Employing the cross-sectional survey research design approach, data was collected from a comprehensive sample of construction firms, incorporating quantitative measures to provide a holistic understanding of the dynamics at play. Quantitative analysis involved partial least square regression analysis to ascertain the significant effects of the independent variables on the outcome variables. The study discovered that project stakeholder satisfaction has significant effect on the efficiency of housing estate construction in Nigeria at 99% confidence interval ( $t = 6.4980$ ,  $p < 0.01$ ). This indicate that that project stakeholder satisfaction is a critical factor for enhancing overall project performance within housing estate construction firms in North Central Nigeria. These insights contribute to the body of knowledge surrounding construction management practices in Nigeria and offer practical implications for policymakers, industry practitioners, and researchers alike, aimed at fostering sustainable growth and development within the housing construction sector in North Central Nigeria and beyond. It was concluded that project stakeholder satisfaction emerged as significant determinant of project performance.

**Keywords:** Housing Estate Construction, Project Planning

## INTRODUCTION

### Background to the Study

Construction industry is regarded as the cornerstone of any economy globally, as it requires a fairly high percentage of the national labour force and contributes to gross domestic product (Ibrahim & Elshwadfy, 2021, Smith, 2021, Adeleke et al., 2019). It generates employment and provides job opportunities to millions of skilled, semi-skilled, and even unskilled workforces (Majumder et al., 2022), and is considered one of the largest in the world because of its responsibility for developing the infrastructure for towns, cities, and nations. (Majumder et al., 2022, Ibrahim & Elshwadfy, 2021). It consists of residential and non-residential such as; bridges, drainages, dams, stadia, rail line, road network and other infrastructure construction like hospitals, schools, airport, etc (Saidu & Shakantu, 2017, Igwe & Ude, 2018, Nguyen, 2020, and Bukar, 2022).

The proliferation of housing estates in the case study has drawn much attention. More so, many of these estates seems to be constructed for financial gains. Many of these estates have also suffered abandonment thereby taking more time, money and resources more than budgeted. It has become a beehive of activities where the promoters even outside Nigeria only want profit or they run into huge financial debt, because there was no planning and involvement of the needed professionals. Given the apparent lack of existing study on his subject matter in Nigeria, this study examines the niche.

## Study Motivation and Hypotheses Development

The problem of poor project performance in terms of cost, time and quality among others have been traced to poor project management which in turn affect the projects and stakeholders among which is project abandonment. Abandoned project is taken as a construction project that has been fully commenced with visible work done on site, but for which construction activities have evidently ceased or fully suspended with no stated definite period for resuming activities. Lack of good project planning is among the high extent cause responsible for abandonment of construction projects in Nigeria (Adebisi et al., 2018, Dosumu & Aigbavboa, 2018).

Real Estate Projects often fail due to several reasons related to management for example, poor planning, lack of leadership, inadequate knowledge, people problems, lifecycle problems (Nallathiga, et al., 2019). Adebisi et al. (2018) while making reference to multi-story building projects in Nigeria enumerated factors that are most significant to the failure and abandonment of multi-story building projects to include:

... inadequate funding by the client, improper planning at the pre-construction phase, structural failure in multi-story building during construction, bankruptcy/business failure of the contractor, improper scheduling of the building project activities and failure to engage qualified professionals with technical expertise and experience.

Terna et al, (2017) stated that cost overrun and schedule delay in infrastructure procurement can have a damaging economic effect amongst which include project failure.

Nallathiga, et al (2019) citing (Ernst and Young 2010): enumerated reason for the stupendous growth achieved by real estate sector to include continuous growth of urban population, population migration towards urban areas, rise in job opportunities in service sectors, growing income levels of urban households, rising trend towards nuclear families, easy availability of institutional finance. Planning strategies are closely linked to the housing construction projects performance (Momanyi & Kamau, 2020).

This study identifies planning factors that influence housing estate construction project performance, evaluated the factors, and examined the impact of these factors with a view to help owners, consultants, and contractors overcome performance problems and improve construction project performance and recommend modalities for enhancing the effective implementation of housing estate construction project objectives. Specifically, the present research focuses on the impact project planning factors namely: scope, time, cost, stakeholders, and deliverables on performance efficiency, which has not been addressed previously by researchers. Given the above motivation, the following hypotheses, stated in null form shall be tested:

HO<sub>1</sub>: Project Scope has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria

HO<sub>2</sub>: Project Completion Time has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

HO<sub>3</sub>: Project completion cost has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

HO<sub>4</sub>: Project deliverables has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

HO<sub>5</sub>: Project Stakeholder Satisfaction has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

## LITERATURE REVIEW

### Project Planning

Project management can be a complex and challenging process, given that projects often involve multiple staff members, teams, and outsourced suppliers, all trying to work together within a set budget and schedule to achieve a specific goal. This is one of the reasons for projects failure. One of the most important methods to foster better outcomes is project planning. The independent variable in this research work is 'project planning' and the dependent variable is 'performance' and in between these two variables, there are variable which are the proxies upon which the impact of project planning (I.V.) will be measured, they are project scope, project time, project cost, project deliverables and project stakeholder's satisfaction. Planning process starts the initiation of management process and

is hence a requirement for the commencement of different control features which includes monitoring, assessment and control. The roles of planning are implemented into different work activities, such as identification of specific goals, reduces risks, avoidance of missed deadlines, and lastly able to deliver the planned product, service, and its result. (Majumder et al., 2022).

Before venturing into the definition of project planning, there is need to define what project is separately and what is planning. Most of the scholars define planning from the perspective of objective, that is, how to achieve objective. Zwikael & Gilchrist (2021) define planning as a procedure for achieving a goal or desired outcome. On a similar note, Igwe & Ude (2018) sees planning as the process of stating project objectives and then determining the most effective activities or accomplishments necessary to reach the objectives. On a simpler note, Addo-Parker et al. (2021) defined Planning as “that which comes before action”.

So many scholars came up with definitions of project, in this research, quite a few of them will be used; Addo-Parker et al. (2021) describe project as any temporary effort to achieve a distinct objective or outcome. It is a series of tasks, which are performed over a definable period of time to accomplish a particular set of objectives (Ibid). The Project Management Institute (PMI) refers to a project as to a specific set of temporary operations fashioned to accomplish certain goals (PMI, 2017). Almost all the definitions of project are also referring to objective and period of time within which it operates.

Definitions of project planning are many, but this research will make reference to few of them. Majumder et al. (2022) sees project planning as a process of increasing project efficiency by generating the master plan. He further describes what project planning entails to include selection of technology, the explanation of work, the estimated value of the required resources, time duration of individual tasks, and lastly the identification of interactions among the different works. It is correct to say that project planning guides stakeholders, teams, sponsors, and project managers (Majumder et al., 2022).

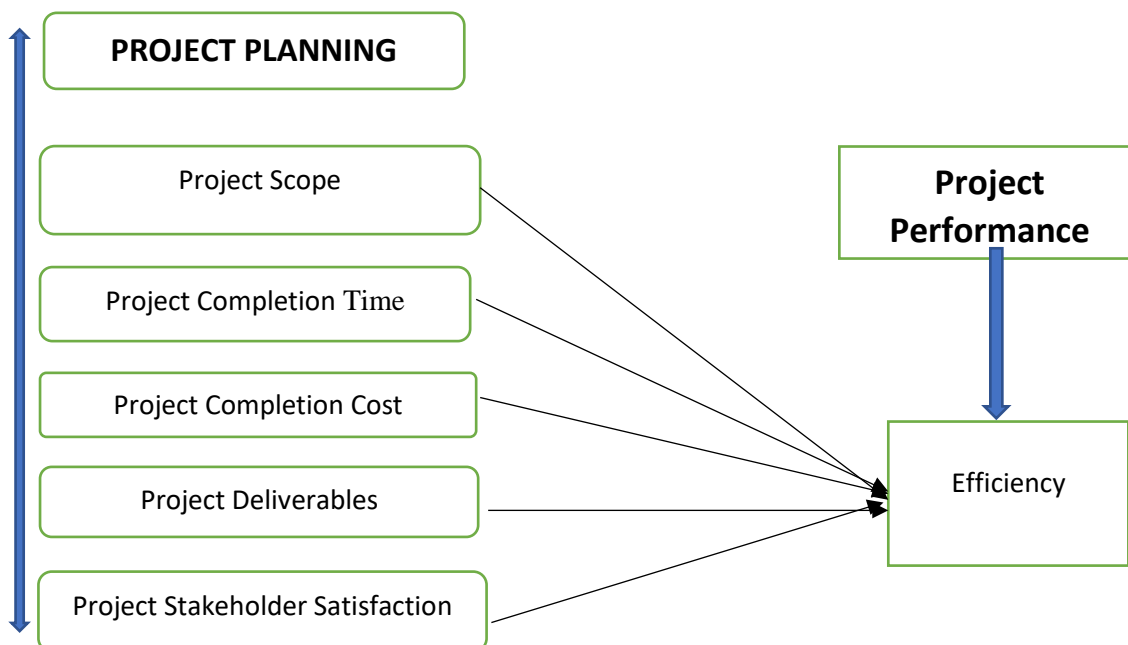


Figure 1: Conceptual Framework of the project

**Source: Author's conceptualization.**

### Theoretical Review

The Project Management Body of Knowledge (PMBOK) offered an outline that can be used as a foundation for reconstructing project theory. The PMBOK Guide states that “projects are composed of two kinds of processes: project management processes and product-oriented processes (which specify and create the project product)”. Project management processes are further divided into initiating, planning, execution, controlling, and closing processes (PMBOK 2017). According to Söderlund (2004): Origin of project management was traced to various types of planning techniques, some are even saying Henry Gantt, the Gantt chart inventor was the father of modern-day

project management. This shows that the discipline of project management is a problem-solving approach to classifying and dividing tasks utilizing a variety of techniques and methods.

Söderlund (2004) stated that: “researching into projects is concerned with the unique, complex, and time-limited processes of interaction, organization, and management. projects are important and interesting phenomena from which it is possible to build strong and interesting theories to increase our knowledge of certain parts of social life”. Söderlund further stressed the importance of studying projects as organizations and focusing on how they differ and behave. He traces the theoretical base of project management, thus:

“...There exist two main theoretical traditions in project management research. The first tradition with intellectual roots in the engineering science and applied mathematics, primarily interested in the planning techniques and methods of project management. The other tradition with its intellectual roots in the social sciences, such as sociology, organization theory and psychology, especially interested in the organizational and behavioral aspects of project organizations” (Söderlund, 2004).

The era of industrialism brought about the idea of firms as an eternal entity, at the moment economic and social life is facilitated through temporary organizations such as project (Lundin & Soderholm, 1995) renewal and improvement of business, modifying business operations for better results is done through projects, thus project is used to address one form of problem or the other within a defined time frame. Consequently, theories of projects are conceptualizations and models that explain and predict the structure and behavior of projects (or temporary organizations), and to further develop the project field several such theories would need to be presented— some complementary, some competing (Söderlund, 2004)

These theories of temporary organization are based on action thereby deemphasizing the concept of decision making as obtained in permanent organizations. Goals (as opposed to tasks), survival (as opposed to time), working organization (as opposed to team), production processes, and continuous development (as opposed to transition) are more organically characterized by permanent organizations. (Lundin & Soderholm, 1995)

A theory of projects must be motivated by a certain theoretical viewpoint in addition to being based solely on empirical observations. It is truly a research field that might not only improve the management and organization of single projects but also improve the effectiveness of many companies and entire industries (Söderlund, 2004). The theories underlying this study were reviewed as follows:

### **Contingency Theory**

Contingency theory was developed in the first decade of the 21<sup>st</sup> Century when Aguilera et al. (2008) proposed three constructs concerning corporate governance and organizational environment. He measured the effectiveness of corporate governance in three dimensions, viz, Contingencies, costs, and complementarities.

According to contingency theory, the particular context or environment affects effective management techniques and methods. It suggests that there isn't a single project management strategy that works for everyone, this notion goes in tandem with the concept of uniqueness of a project. Each situation will be assessed and the strategy that best works with that situation is explored and applied.

The selection of project management techniques for construction projects is influenced by various aspects, including stakeholder involvement, location, project size, and complexity. A small residential project might need a different strategy than a huge infrastructure project. Managers can increase productivity, lower risks, and more effectively accomplish project goals by adapting their techniques to the project setting. The ability of corporate governance to assist strategic planning and execution that results in better performance should be considered just as important as its capacity to keep an eye on managers' actions.

### **Theory of Constraints (TOC)**

Finding and controlling the bottleneck or restriction that lowers a system's overall performance is the main goal of the Theory of Constraints. The TOC Project Management offers a thorough approach to dealing with these underlying issues and coping strategies. A strong planning process, 2) a more efficient scheduling process, 3) a work introduction methodology that genuinely increases capacity, 4) execution processes that offer superior project control, visibility, and decision support, and 5) work behaviors that are more supportive of successful project performance are all components of the solution. (Bradbury Jacob & McClelland, 2001).

Individual project execution is dominated by a planning and scheduling procedure that is predicated on a number of false assumptions. One such presumption is the common notion that allocating adequate time to each work will maximize project performance, meaning that successful completion of each task will always result in successful project performance as a whole.

Bottlenecks in the construction industry may be associated with personnel, materials, equipment, or even project management procedures. After the restriction has been identified, management or removal efforts can be focused on it. Project managers can improve performance by streamlining work, cutting down on delays, and boosting efficiency by methodically resolving restrictions.

### **Resource-Based View**

The Resource-Based View (RBV) according to Madhani, (2010) posits that an organization's unique resources and capabilities are key drivers of its performance. In construction, this could mean the available physical resources (materials, equipment) or intangible resources (expertise, reputation).

Construction firms can leverage their distinctive resources, such as skilled labor, advanced technology, or strong supplier relationships, to gain competitive advantages and improve performance.

RBV offers a comprehensive framework for understanding how operational planning influences the performance of service providers by aligning internal resources with external market conditions and contributing to sustained competitive advantage. Performance can be enhanced by optimizing the use of these resources, focusing on areas where the firm has a competitive edge. Efficient resource allocation and management can reduce costs and lead to higher-quality outputs.

### **Theory X-Y in Project Management**

American scholar Douglas McGregor (1906–1964) opined the fundamental beliefs of managers have a significant impact on how organizations are operated. At the heart of this lie the managers' presumptions about human behavior. According to McGregor, these presumptions can be divided into two main groups: Theory X and Theory Y. The Human Side of Enterprise, which was initially published in 1960, went into detail about these discoveries. Two opposed management approaches can be described by Theory X and Theory Y, which also describe two perspectives on people at work.

Theory X: the traditional view of direction and control. Theory X is based on the assumptions that:

- i. The average human being has an inherent dislike of work and will avoid it if possible.
- ii. Because of this human dislike of work, most people must be coerced, controlled, directed, and threatened with punishment to get them to put forth adequate effort toward the achievement of organisational objectives.
- iii. The average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and wants security above all.

A Theory X management style therefore requires close, firm supervision with clearly specified tasks and the threat of punishment or the promise of greater pay as motivating factors. A manager working under these assumptions will employ autocratic controls which can lead to mistrust and resentment from those they manage. Ultimately, the assumption that a manager's objective is to persuade people to be docile, to do what they are told in exchange for reward or escape from punishment.

Theory Y: the integration of individual and organisational goals, Theory Y is based on the assumptions that:

- i. The expenditure of physical and mental effort in work is as natural as play or rest. The average human being does not inherently dislike work. Depending upon controllable conditions, work may be a source of satisfaction, or a source of punishment.
- ii. External control and the threat of punishment are not the only means for bringing about effort toward organisational objectives. People will exercise self-direction and self-control in the service of objectives to which they are committed.
- iii. Commitment to objectives is a function of the rewards associated with their achievement. The most significant of such rewards, e.g. the satisfaction of ego and self-actualisation needs, can be direct products of effort directed towards organisational objectives.

- iv. The average human being learns, under proper conditions, not only to accept but to seek responsibility. Avoidance of responsibility, lack of ambition, and emphasis on security are generally consequences of experience, not inherent human characteristics.
- v. The capacity to exercise a relatively high degree of imagination, ingenuity, and creativity in the solution of organisational problems is widely, not narrowly, distributed in the population.
- vi. Under the conditions of modern industrial life, the intellectual potentialities of the average human being are only partially utilised.

Theory Y assumptions can lead to more cooperative relationships between managers and workers. A Theory Y management style seeks to establish a working environment in which the personal needs and objectives of individuals can relate to, and harmonise with, the objectives of the organisation.

## EMPIRICAL REVIEW

### Project Scope

Routine project scope management in small construction enterprises (Ratta, 2017) The paper's purpose is to study whether small and medium construction enterprises (SMCEs), which routinely plan, monitor, and control project scope, perform significantly better than SMCEs that have not developed project scope management (PSM) routines. A survey with a questionnaire was created and given to SMCEs. Regression analysis was used to examine the responses. The statistical significance of the relationship between routine PSM processes and project performance indicates that SMCEs' performance is considerably and favorably impacted by the systematic use of PSM processes. According to this study, to boost performance, managers of SMCEs should have systematic PSM procedures in place within their companies.

Project Scope Management Process (Derenskaya, 2018) The purpose of the article is to define the essence of project scope management process, and its components, as well as to develop an algorithm of project scope management in terms of pharmaceutical production. The study's findings demonstrated that controlling the project's product's scope and its content are essential elements of project scope management. The development of the design work structure, the rationale for the quantity of works, and the order in which they are implemented are found to be the most important components of project scope planning. The elements of subprocesses, participants, input and output documents, and the algorithm for controlling the project scope are all examined to enhance the pharmacy's ability to manage the scope of its projects. The justification of the initial data, such as the project purpose, environmental consequences, and the enterprise's internal capacity to the project implementation, is found to be the first aspect of project scope management.

Althiyabi and Qureshi (2021) examined predefined project scope changes and its causes for project success. In order to keep the project scope on course and spot any scope definition flaws early on, this study attempts to predefine any potential scope alterations. Improving the quality of a project's scope gives you more control over it and has a significant impact on its success. A technique is put forth to enhance the project scope's quality and boost scope change control effectiveness. By establishing a clear statement of work, increasing the development team's learning chances to optimize its processes, decreasing the communication gap between the development team and clients, and implementing screen adjustments for new activities, the suggested strategy will assist prevent scope creep. A survey is used to validate the suggested approach.

### Project Completion Time

Estimation of ideal construction duration in tender preparation stage for housing projects (Tirataci & Yaman, 2023) This study investigated the factors affecting the construction duration of housing projects and developed a novel calculation method for estimating the ideal construction duration. A significant Turkish building body provided data on public housing developments. Multiple linear regression analysis, chi-squared automatic interaction detection (CHAID), and classification and regression tree (CART) techniques were used to analyze the statistical data. The findings showed that the optimal building time for each statistical method was considerably influenced by a number of parameters. The calculating method was evaluated, and the regression formula showed statistical significance. The frequency of delayed projects was greatly decreased when the techniques were applied to other public housing projects. The research findings are expected to assist senior project managers in determining the best timing to construct housing developments during the tender preparation stage.

Over time or on time? A study of delays in large government projects. This work investigates the extent of delays in large government investment projects in Norway. 112 road, railway, building, defence and ICT projects data set were used. Every project has been organized and carried out using a common governance framework. Compared to studies that employ data from many projects around the world, this guarantees a more reliable assessment of causation. The findings indicate that while a significant percentage of projects are significantly delayed, around half of the projects are finished on schedule or ahead of schedule. Defense projects were identified as prone to problems during their delivery. The paper shows that there has been a slight improvement in time, that is, the extent of delays seems to have been reduced over the last 20 years. Counter to expectations, projects that are delayed do not seem to be more at risk to overrun their cost. (Welde & Bukkestein, 2021).

A fast and accurate method to predict reliability of project completion time, is a study done to meet the target completion time of a construction project is one of the most important performance indicators of project management. Using reliability theory, this study suggested a quick and precise way to assess the dependability of project completion times in major construction projects. The goal of the suggested approach was to get beyond the drawbacks of the current approaches, such as the tight reliability boundaries method's lengthy computation time and the program evaluation and review technique's inaccuracy. The suggested approach is divided into three primary components: (i) determining the network's path duration statistics; (ii) cutting off unnecessary network paths; and (iii) offering a novel approach to provide a reliable and accurate estimate of project completion time. An example project is used to assess its efficacy. The method proposed can serve as a fast and accurate tool for project managers and project planners in project planning, re-planning, and project control phases (Li et al., 2017).

### **Project Completion Cost**

Assessing the Delay, Cost, and Quality Risks of Claims on Construction Contract Performance (Antoniou & Tsioulpa, 2024). The most prevalent and frequent reasons for construction contract claims are compiled in this study from the body of existing literature. They are also examined in terms of their likelihood of occurring and the perceived influence they have on the project's completion schedule, overall cost, and quality. Based on relative relevance indexes generated from expert opinion, this study provides likelihood and severity of impact ratings for 39 common claim causes in the construction sector. According to the study, the top five risk factors for contractual claims in the Greek construction industry are changes in quantities, work, or scope; errors or flaws in the quality of the design; payment delays; delays in the progress of the job; and the contractor's financial failure.

Best Fit of Cumulative Cost Curves at the Planning and Performed Stages of Construction Projects (Szóstak, 2023). This research aimed to determine the shape and course of the cost curves for selected construction projects. Using envelopes (spaces) and cost curves for three distinct building types and construction sectors—collective residential buildings, hotel buildings, and commercial and service buildings—a process was created to predict the distribution of cumulative costs at the planning stage of construction projects. An assessment of the actual costs incurred of investment tasks was carried out, the trend of which the cumulative cash flow curves can be estimated with a large match by forecasting the construction process. The article determines the best-fit curves and the spaces of cost curves (the banana envelope of the S-curve) using mathematical formulas (third-degree polynomials), along with developed graphs for various construction projects. The best-fit curve and its area, which show the region of the proper planning of the cumulative costs of construction investments, were found using the author's study analysis.

Modelling the Effect of Time Overrun and Inflation Rate on Completion Cost of Construction Projects in Nigeria (Diugwu et al., 2017). The paper aimed to explain the effect of time overrun and inflation rate on project completion cost. Variations in costs and durations of projects were calculated for 250 government and private building projects executed between 2005 and 2015, while inflation rates for the last quarter of these years were used. A multiple regression analysis of cost overrun as the endogenous variable, with time overrun and inflation rates as the exogenous variable was conducted for private and government funded projects. The result revealed that, while there is an evidence of significant relationship between completion cost of projects and variations in time and inflation rate for both private and government funded projects, the mean variations between time overrun and inflation rate viz-a-viz completion cost are not equal for private and government funded projects.

An investigation into cost overruns for ongoing building projects in Abuja, Nigeria was done by Saidu and Shakantu (2017). This study reports the results of an investigative study on cost overruns for ongoing building projects in Abuja. In this study, the quantitative approach was used. A sample of 30 governmental and private building projects was

chosen from among the ongoing construction projects in Abuja that were included in the investigation. Archival materials on the topics of building project expenses and length served as the source of the data. Both descriptive and inferential methods were used to analyze the data. From a minimum of 5.56% with 90% project completion and within 88% of the expected time limit to a maximum of 216.08% with only 5% project completion and within 8.3% of the estimated time limit, the results showed that the proportion of cost overruns varied. With an average project completion rate of 52.4%, the total projects had average cost overruns of 44.46%. and within 91.4% of the average estimated time limit.

### **Project Deliverables**

**Deliverable-Oriented Work Breakdown Structure: A Software Project Scope Verification Tool** (Hans, 2021) Software project scope verification is an essential aspect in project scope management that must be completed correctly to prevent project rework and improve project scope control. Moreover, software scope verification is crucial in the process of delivering exactly what the customer requested and minimizing project scope changes. Well-defined software scope eases the process of scope verification and contributes to project success. A deliverable-oriented WBS often serves as a roadmap to a well-defined software scope of work. A deliverable-oriented WBS, according to this article, is a method for software scope verification.

Exploring variety in factors that stimulate project managers to address sustainability issues (Silvius & Schipper, 2020). The study investigated a range of elements that motivate the project manager to tackle sustainability concerns within the project under their supervision. The study investigated various subjective patterns of stimulation project managers encounter using the Q-methodology. We identified three elements that stimulate sustainable project management behavior based on the factor analysis of 49 Q-sorts. The terms "pragmatic," "intrinsically motivated," and "task driven" were used to these three elements, which each represent unique input patterns. The study helps to successfully integrate sustainable project management as a new "school of thought" in project management by finding three basic patterns of what motivates project managers to address sustainability challenges.

Criticality and propagation analysis of impacts between project deliverables (Jaber et al., 2018). This article presents some contributions to anticipate potential behavior of the project. Topological and propagation analyses are made to detect and prioritize critical elements and critical interdependencies while enlarging the sense of the polysemous word "critical." We recommend a set of topological indicators suitable for project elements and interactions, which mainly allow us to discuss "How the impact of a project element affects other elements within the network? What is the collective influence of this element?". By identifying the most significant ones while taking the network structure into consideration, these indicators enable the prioritization of project parts and their interactions. By combining the traditional characteristics of individual risks with the topological indicators of the deliverables, for example, they enable the evaluation of the collective criticality of project deliverables and the reevaluation of the risk priority associated with these deliverables.

Causes of failure and abandonment of projects and project deliverables in Africa (Okereke, 2017) The focus of this paper is the exploration of failure causes and abandonment of project deliverables. It investigates the causes that lead to the failure and abandonment of deliverables obtained after the successful completion of projects. The deliverables have been formally handed over to the customer or user for whom the project has been undertaken, and the project closed. However, a few years after the successful takeover of the deliverables by the user, they fail and subsequently abandoned.

### **Project Stakeholders**

**How Responsible Leadership Improves Stakeholder Collective Performance in Construction Projects: The Empirical Research from China** (Lin et al., 2024). The study states in construction project management that attention to stakeholders is becoming an important trend. This study extends construction project goals beyond traditional iron triangle goals to stakeholder collective performance, responding to the demand of promoting stakeholder management. Researchers collected 231 questionnaires from sources within the Chinese construction industry and conducted empirical analysis. The study identifies the intricate processes through which responsible project managers' leadership improves stakeholder performance, supports the mediating mechanism on team members' psychological cognition, and highlights the critical role that a compassionate, moral environment plays in attaining stakeholder collective performance. The results also offer helpful recommendations for improving stakeholder management in the construction industry from a variety of angles.

Oppong et al., (2017) did a review of stakeholder management performance attributes in construction projects. This review fills the gap by presenting a conceptual model of Stakeholder Management (SM) performance attributes comprising performance objectives, success factors and performance indicators that could be engaged to manage (i.e. benchmark, enhance, monitor, and measure) the performance of construction SM. The ability to choose a variety of qualities that suit the nature, kind, and stage of projects in order to ensure good management will assist researchers and professionals. Therefore, by scientifically and subjectively assessing the degree of stakeholder and organizational satisfaction in construction project delivery, it offers a better way to gauge project performance in the sector.

Essential Skills for Project Stakeholders Identification: Sustainability Perspective was a paper by (Rahman et al., 2017). To assist the project throughout its life cycle, stakeholders share and contribute their experiences, expertise, and insights; for this reason, it is essential to get their opinions. However, stakeholders must be identified before the project's start. Despite the existence of stakeholder identification methods and tactics, it is unclear what abilities are required to use them. These abilities are crucial since, in the modern business environment, the project team needs to be adaptable in all facets of their work and able to enhance their abilities to successfully identify stakeholders. This study aims to outline the abilities of a project manager required to identify the project team and external stakeholders through a review of the literature. This study used an inductive technique, and secondary sources were used to gather qualitative data.

Riahi, (2017) did his work on Project Stakeholders: Analysis and Management Processes. The activity of the company has a direct or indirect impact on these actors, and these actors have a more or less important influence on the company. The company is therefore accountable to all parties and must take into account their opinions. It is important to identify stakeholders but there is also a need to plan stakeholder management. This includes management strategies to literally engage them and generate interest throughout the project. Depending on the nature of the project, there may be several types of stakeholders that may have sometimes divergent interests. In some projects, some stakeholders can play several roles at a time. Stakeholders may have a positive or negative influence on a project. Managing stakeholders in a pro-active way is an important factor that can influence the project success.

## METHODOLOGY

### Research Design

This study adopted a cross-sectional survey research design that enabled the researcher to collect data from a large group of Estate Construction firms in North-central Nigeria using a close-ended questionnaire. The choice of this research design was driven by the fact that this study sought to determine the efficacy of a national policy mandating housing for all Nigerians in enhancing the well-being of its citizens. To achieve this objective, the data collection process had to be taken from a representative North-central sample and this research designs fits this important criterion.

### Population of the Study and Sample

The population of this study covers the 97 registered Housing Estates Construction Firms with 388 top project managers in the firms. The reason for the choice of these Housing Estates Construction Firms is that, they are the financially up to date members of the Real Estate Association of Nigeria as at 3rd April, 2023. This study adopted a census sampling process. Therefore, all the 97 registered estate construction firms in the north central Nigeria were adopted as the sample of the study, that is, 388 top project managers in the firms (4 top project managers from each of the 97 firms). Real estate market is driven by the growing population in Nigeria (Nwaolisa & Chijindu, 2016), and the Federal Government of Nigeria made 10 years interval for a renewal of population censuses as it is the case in every UN Member nation (Federal Republic of Nigeria Official Gazette, Legal Notice on Publication of 2006 Census Final Results., 2009).

### Model Specification

This study uses five variables as proxies for project planning. They include Project Scope (PS), Project Completion Time (PCT), Project Completion Cost (PCC), Project Deliverables (PD) and Project Stakeholders' Satisfaction (PSS); whereas performance is proxied by Efficiency (EHEC). The model specification is adopted from the studies of Sicotte and Delerue (2021) and Zwikaël and Gilchrist (2021).

$$\text{PERF} = f(\text{PP}) \dots\dots\dots (3.1)$$

$$\text{PERF} = \text{EHEC} \dots\dots\dots (3.2)$$

$$\text{PP} = (\text{PS}, \text{PCT}, \text{PCC}, \text{PD}, \text{PSS}) \dots\dots\dots (3.2)$$

Expressing the functional notation in equation (3.7.2) in econometric form;

$$\text{EHEC} = \beta_0 + \beta_1\text{PS}_i + \beta_2\text{PCT}_i + \beta_3\text{PCC}_i + \beta_4\text{PD}_i + \beta_5\text{PSS}_i + \varepsilon_i \dots\dots (3.3)$$

Where:

EHEC = Efficient Housing Estate Construction

PP = Project Planning

Project Scope = PS

Project Completion Time = PCT

Project Completion Cost = PCC

Project Deliverables = PD

Project Stakeholders' Satisfaction = PSS

Efficiency of Housing Estate Construction (Project Performance) = EHEC.

$\beta_0$  = Constant

$\beta_1$ -  $\beta_5$  = Coefficients

$\varepsilon_i$  = Error term.

### 3.8 Method of Data Analysis

The data collected for this study was analysed using partial least square Structural Equation Modelling (PLS-SEM) regression analysis. The model is estimated using PLS because **structural equation modeling (SEM)** enables researchers to incorporate unobservable variables measured indirectly by indicator variables. They also facilitate accounting for **measurement** error in observed variables (Chin, 1998). Test of significance was done in order to accept or reject the null hypotheses formulated in chapter one. This was achieved by considering the p-value of the result and comparing it with the acceptable 0.05 level of significance. The decision rule is to reject the null hypothesis and accept the alternative if the p-value of the variables under the study is lower than 0.05 level of significance.

#### Descriptive Analysis

The descriptive analysis was carried out on the respondents' profile using frequency tables. It reflects the response rate from respondents, their respective ages, experience, gender as well as educational qualification as analysed in the following subsections.

#### Response Rate from Respondents

**Table 4.1 Rate of Response**

Copies Distributed	Copies Retrieved	Damaged	Usable
238	210	18	192

**Source: Author's Computation (2025)**

Table 4.1 shows that two hundred and thirty eight (238) copies of research questionnaire were distributed among the identified respondents. Two hundred and 10 (210) of these, representing 88.3% were returned while the remaining were withheld by the respondents. Seventeen (18) out of the returned questionnaires were found to be unusable for the analysis due to errors made by respondents in the completing them.

### Respondents' Profiles – Age

**Table 4.2 Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Under 30	16	8.3	8.3	8.3
31- 40	116	60.4	60.4	68.8
41-50	60	31.3	31.3	100.0
Total	192	100.0	100.0	

**Source: Author's Computation (2025)**

Table 4.2 depicts the highest percentage of response from respondents within the age bracket 31-40 (i.e. 116 respondents), representing 60.4% of the entire respondents. This clearly shows that majority of the respondents fall within the matured and experience age bracket. This was followed by 60 respondents within the age brackets of 41-50 (i.e. 31.3%), while those within the age brackets under 30 represent just 8.3% with absolute value of 16 respondents.

### Respondents' Profiles – Gender

**Table 4.3 Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	73	38.0	38.0	38.0
Female	119	62.0	62.0	100.0
Total	192	100.0	100.0	

**Source: Author's Computation (2025)**

The respondents' gender distribution was represented on table 4.3 depicting the highest gender response to be female at 62% (119 respondents) as opposed to 38% male represented by 73 respondents. This is not feared to bias the result of the study as the research interest is not predicated on gender distribution of respondents.

### Respondents' Profiles – Experience

**Table 4.4 Experience**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1 - 5 year	4	2.1	2.1	2.1
6 - 10 years	35	18.2	18.2	20.3
11 - 15 years	153	79.7	79.7	100.0
Total	192	100.0	100.0	

**Source: Author's Computation (2025)**

The result shown in table 4.4 indicates that most of the respondents are sufficiently experienced to respond to the items of the questionnaire. One hundred and fifty-three (153, 79.9%) of the respondents have had above 11 years working experience. Next to that are respondents who have had at least 6 years' experience representing 35 respondents at 18.2%.

### Respondents' Profiles – Educational Qualification

**Table 4.5 Education**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Diploma or Equivalent	73	38.0	38.0	38.0
Bachelor's Degree or Equivalent	119	62.0	62.0	100.0
Total	192	100.0	100.0	

**Source: Author's Computation (2025)**

The table 4.5 analyses the respondents with respect to their respective highest academic qualifications. While the largest percentage of the responses were got from respondents with either a B.Sc. or an equivalent (i.e.119 respondents, 62.0%), 73 respondents (88.0%) of the respondents have diploma or equivalent. This shows that the respondents possess the least educational exposure required to reasonably provide answers to questionnaire items.

### Preliminary Analysis

#### Reliability Tests

**Table 4.6**

	<b>Cronbach's alpha</b>	<b>Composite reliability (rho_a)</b>	<b>Composite reliability (rho_c)</b>	<b>Average variance extracted (AVE)</b>
EHEC	0.8310	0.8700	0.8740	0.5830
PCC	0.8780	0.9040	0.9100	0.6710
PCT	0.8940	0.9390	0.9170	0.6910
PD	0.8410	0.8510	0.8860	0.6080
PS	0.7900	0.8440	0.8600	0.5640
PSS	0.8200	0.8490	0.8690	0.5730

**Source: Author's Computation through Smart-PLS Output (2025)**

This study conducted reliability analysis using both composite and Cronbach's Alpha and composite reliability scores. Both analyses indicated high scores above 0.7 benchmark. This is an indication that all the measures are internally consistent across measure and that the reliability is good enough for further analysis. The Reliability analysis presents internal consistency of the measurement items. According to Cronbach, SchOnemann, and Linn (1971), higher level of Cronbach's alpha (CA) between the items means that the items within the construct have the same meaning. Meanwhile, in PLS, internal consistency is measured by composite reliability (CR) as suggested by Chin, (1998b). Composite reliability (CR) takes into account indicators that have different loadings. For the evaluation of internal consistency internal consistency is considered satisfactory when the value is  $\geq .70$  Nunnally (1994).

The average variance extracted (AVE) tests for both divergent and convergent validity. It reflects the average communality for each latent factor in a reflective model. This study's AVE is generally above 0.5 which is considered to be within acceptable limits. According to Chin (1998); Höck and Ringle (2006), In an adequate model, AVE should be greater than 0.5. it should also be greater than the cross-loadings therefore indicating that factors should explain at least half the variance of their respective indicators.

#### Validity Test

**Table 4.7Discriminant Validity – Heterotrait-monotrait ratio (HTMT)**

	<b>Heterotrait-Monotrait ratio (HTMT)</b>
PCC <-> EHEC	0.2320
PCT <-> EHEC	0.1490
PCT <-> PCC	0.2110
PD <-> EHEC	0.3630
PD <-> PCC	0.4300
PD <-> PCT	0.0830
PS <-> EHEC	0.3200
PS <-> PCC	0.3000
PS <-> PCT	0.0960
PS <-> PD	0.4920
PSS <-> EHEC	0.5860
PSS <-> PCC	0.4120
PSS <-> PCT	0.0640

PSS <-> PD					0.8920
PSS <-> PS					0.5500
	<b>PCC</b>	<b>PCT</b>	<b>PD</b>	<b>PS</b>	<b>PSS</b>
PCC	0.232				
PCT	0.149	0.211			
PD	0.363	0.430	0.083		
PS	0.320	0.300	0.096	0.492	
PSS	0.586	0.412	0.064	0.892	0.550

**Source: Author's Computation through Smart-PLS Output (2025)**

Heterotrait-monotrait ratio (HTMT) measures validity by indicating the relationship between heterotrait and monotrait coefficients. This study identified indicators across all variables at less than 0.9. According to Gold et al., (2001) and Teo et al., (2008), 0.9 cut off is an indication of the establishment of good discriminant validity. Henseler, Ringle and Sarstedt (2015) also suggested that if the HTMT value is below 0.9, discriminant validity has been established between a given pair of reflective constructs.

**Table 4.8 Discriminant Validity - Fornell - Larcker Criterion**

	<b>EHEC</b>	<b>PCC</b>	<b>PCT</b>	<b>PD</b>	<b>PS</b>	<b>PSS</b>
EHEC	0.7630					
PCC	0.2190	0.8190				
PCT	0.1000	-0.1650	0.8310			
PD	0.3410	0.3560	0.0420	0.7800		
PS	0.2620	0.2220	-0.0330	0.4020	0.7510	
PSS	0.5680	0.3600	0.0000	0.7240	0.3980	0.7570

**Source: Author's Computation through Smart-PLS Output (2025)**

Fornell–Larcker criterion establishes discriminant validity with the use of Average Variance Extracted. It indicates that, for any latent variable, the square root of average variance extracted should be higher than the correlation reported with any other latent variable. This suggests that for any latent variable, the variance shared with its block of indicators is greater than the variance it shares with any other latent variable. The Fornell-Larcker criterion displayed in Table 4.8 shows the square root of AVE appears in the diagonal cells and correlations appear below it. Therefore, in absolute value terms, if the top number (which is the square root of AVE) in any factor column is higher than the numbers (correlations) below it, there is discriminant validity

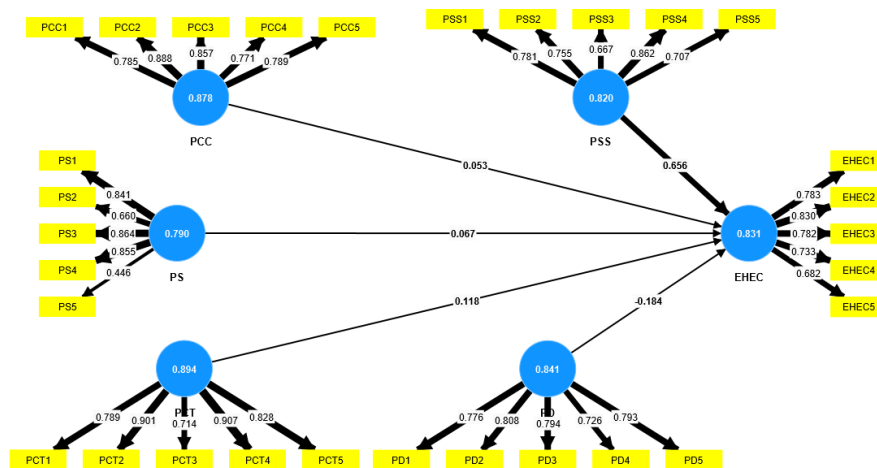
**Table 4.9 Factor Scores – Measurement Fit**

	<b>EHEC</b>	<b>PCC</b>	<b>PCT</b>	<b>PD</b>	<b>PS</b>	<b>PSS</b>
EHEC1	0.7830					
EHEC2	0.8300					
EHEC3	0.7820					
EHEC4	0.7330					
EHEC5	0.6820					
PCC1		0.7850				
PCC2		0.8880				
PCC3		0.8570				
PCC4		0.7710				
PCC5		0.7890				
PCT1			0.7890			
PCT2			0.9010			
PCT3			0.7140			
PCT4			0.9070			
PCT5			0.8280			

PD1				0.7760		
PD2				0.8080		
PD3				0.7940		
PD4				0.7260		
PD5				0.7930		
PS1					0.8410	
PS2					0.6600	
PS3					0.8640	
PS4					0.8550	
PS5					0.4460	
PSS1						0.7810
PSS2						0.7550
PSS3						0.6670
PSS4						0.8620
PSS5						0.7070

Source: Author's Computation through Smart-PLS Output (2025)

Figure 1: Latent Variables Loadings - Measurement of Constructs



Source: Author's Computation through Smart-PLS Output (2025)

Table 4.9 lists each observation's scores on each factor. The table shows no existence of outliers in among the observation since none of the score is higher than 1.96. This signifies a good measurement fit. According to Garson (2016), for the standardized factor scores table, observations with scores higher than 1.96 may be considered outliers. The greater the proportion of outlier cases, the worse the measurement fit. In other words, the measurement fit is good as no factor is significant as 1% which therefore establish the non-existence of outliers in the measurement fit. The factor score is further confirmed in the graphical output indicated in figure 1 and none of the scores, aggregated for each variable violate the requirement of the measurement fit which further suggests the validity of the latent variables in measuring each of the constructs.

### Collinearity Diagnostics

Table 4.10 Correlation Matrix and Variance Inflation Factor (VIF)

Variables	EHEC
PCC	1.222
PCT	1.042
PD	2.231
PS	1.235
PSS	2.211

	<b>EHEC</b>	<b>PCC</b>	<b>PCT</b>	<b>PD</b>	<b>PS</b>	<b>PSS</b>
EHEC	<b>1.0000</b>	0.2190	0.1000	0.3410	0.2620	0.5680
PCC	0.2190	<b>1.0000</b>	-0.1650	0.3560	0.2220	0.3600
PCT	0.1000	-0.1650	<b>1.0000</b>	0.0420	-0.0330	0.0000
PD	0.3410	0.3560	0.0420	<b>1.0000</b>	0.4020	0.7240
PS	0.2620	0.2220	-0.0330	0.4020	<b>1.0000</b>	0.3980
PSS	0.5680	0.3600	0.0000	0.7240	0.3980	<b>1.0000</b>

**Source: Author's Computation through Smart-PLS Output (2025)**

This study tests for multicollinearity using correlation matrix and variance inflation factor. Multicollinearity exists when two or more independent variables are highly intercorrelated. Although, the correlation matrix presented in table 4.10 shows a high correlation between PSS and PD, the VIF indicated that the collinearity that exist does not affect the inclusion of all the variables in the estimated model. The basic common rule of thumb is to assume that a problematic multicollinearity exists when the variance inflation factor (VIF) coefficient is higher than 4.0. for the data collected for this study, the highest VIF recorded is 2.23

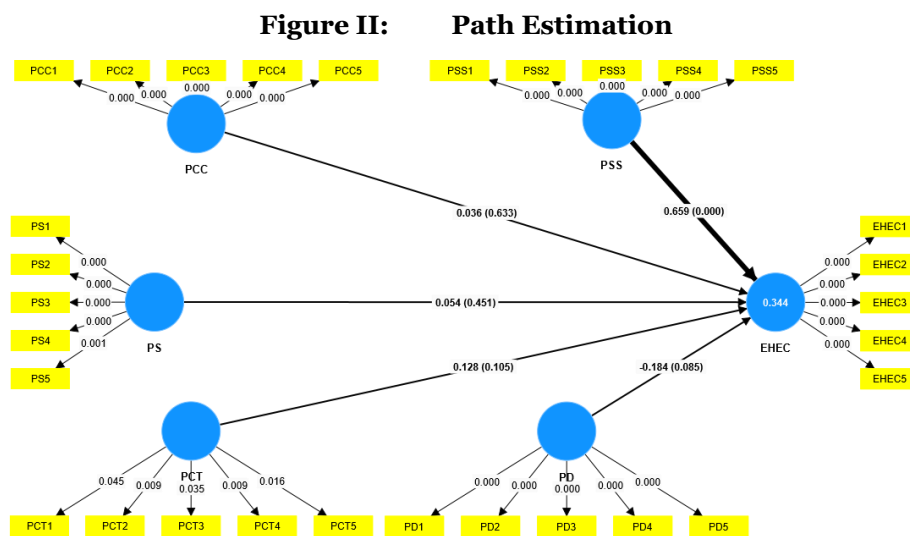
**Table 4.11 Path Coefficient Outer Loadings**

	<b>Original sample (O)</b>	<b>Sample mean (M)</b>	<b>Standard deviation (STDEV)</b>	<b>T statistics ( O/STDEV )</b>	<b>P values</b>
EHEC1 <- EHEC	0.7590	0.7570	0.0460	16.5660	0.0000
EHEC2 <- EHEC	0.8030	0.7990	0.0380	21.2270	0.0000
EHEC3 <- EHEC	0.8010	0.7980	0.0440	18.0900	0.0000
EHEC4 <- EHEC	0.7530	0.7510	0.0430	17.5220	0.0000
EHEC5 <- EHEC	0.7250	0.7190	0.0640	11.3610	0.0000
PCC1 <- PCC	0.7890	0.7700	0.1310	6.0250	0.0000
PCC2 <- PCC	0.8900	0.8710	0.1310	6.7690	0.0000
PCC3 <- PCC	0.8580	0.8370	0.1290	6.6590	0.0000
PCC4 <- PCC	0.7680	0.7520	0.1360	5.6380	0.0000
PCC5 <- PCC	0.7810	0.7590	0.1180	6.6400	0.0000
PCT1 <- PCT	0.8000	0.6670	0.4000	2.0030	0.0450
PCT2 <- PCT	0.8970	0.7670	0.3440	2.6070	0.0090
PCT3 <- PCT	0.7130	0.6090	0.3380	2.1110	0.0350
PCT4 <- PCT	0.9070	0.7770	0.3460	2.6210	0.0090
PCT5 <- PCT	0.8330	0.7060	0.3460	2.4030	0.0160
PD1 <- PD	0.7840	0.7840	0.0700	11.1820	0.0000
PD2 <- PD	0.8110	0.8050	0.0680	11.8860	0.0000
PD3 <- PD	0.7900	0.7800	0.0760	10.3870	0.0000
PD4 <- PD	0.7180	0.7010	0.0990	7.2260	0.0000
PD5 <- PD	0.7890	0.7760	0.0730	10.7510	0.0000
PS1 <- PS	0.8400	0.8350	0.0470	17.7500	0.0000
PS2 <- PS	0.6510	0.6440	0.0930	7.0160	0.0000
PS3 <- PS	0.8630	0.8560	0.0390	22.1460	0.0000
PS4 <- PS	0.8540	0.8410	0.0520	16.3460	0.0000
PS5 <- PS	0.4580	0.4380	0.1430	3.2090	0.0010
PSS1 <- PSS	0.7770	0.7590	0.0790	9.8520	0.0000
PSS2 <- PSS	0.7520	0.7350	0.0890	8.4490	0.0000
PSS3 <- PSS	0.6630	0.6500	0.0780	8.4990	0.0000
PSS4 <- PSS	0.8600	0.8490	0.0500	17.1760	0.0000
PSS5 <- PSS	0.7130	0.7260	0.0460	15.5200	0.0000

### Source: Author's Computation through Smart-PLS Output (2025)

The outer loadings of the path coefficients are displayed in table 4.11. it indicate that each of the latent variables significantly measure the constructs at 99% confidence interval ( $P < 0.01$ ) with positive signs thus indicating a positive effect of each of the latent variable on the construct they are intended to measure. This further confirms the output of the factor analysis for validity measurement. This also confirms that there is no need dropping a variable from the model as the statistical output does not suggest that for any of the scores generated. More so, the sample mean generated for each of the latent variables with respect to their respective constructs are significantly close to 1 and also suggest validity of the construct. The variability test depicted by standard deviation showed a highest score of 0.14 which is also an indication that the mean values are not too far from the sample observations and hence allays the fears of outliers and its possible effect on the dataset and the result therefrom.

#### 4.3.4 Test of Hypothesis



### Source: Author's Computation through Smart-PLS Output (2025)

Figure II shows the outcome of the construct coefficient as well as the inner path coefficients depicting the model's R square on the construct of the dependent variable. It signifies that across the models, the study independent variables account for 34.4% of the changes in the dependent variables. In other words, project planning variables could account for 34.4% effect on the performance of housing estate construction firms in Nigeria while other factors unknown to this study also have their respective impacts on the performance.

**Table 4.12 Path Coefficient Output**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
PCC -> EHEC	0.0360	0.0450	0.0750	0.4770	0.6330
PCT -> EHEC	0.1280	0.1300	0.0790	1.6230	0.1050
PD -> EHEC	-0.1840	-0.1650	0.1070	1.7210	0.0850
PS -> EHEC	0.0540	0.0680	0.0720	0.7540	0.4510
PSS -> EHEC	0.6590	0.6440	0.1010	6.4980	0.0000
			<b>R-square</b>	<b>R-square adjusted</b>	
EHEC			0.351	0.333	

### Source: Author's Computation through Smart-PLS Output (2025)

#### Hypothesis One:

**H<sub>01</sub>: Project Scope (PS) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.**

The study submits that project scope does not have significant effect on the Efficiency of housing estate construction firms in North Central Nigeria. This is depicted by  $t=0.7540$ ;  $p>0.05$  as in indicated in table 4.12. This implies that the positive relationship depicted in the path coefficient output is not statistically significant hence indicating that the efficiency of housing estate construction firms in North Central Nigeria is not affected by the scope of the project. This thus suggest that the null hypothesis which states that Project Scope (PS) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria is retained.

#### **Hypothesis Two:**

**Ho<sub>2</sub>: Project Completion Time (PCT) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.**

The study found that project completion time does not have significant effect on the Efficiency of housing estate construction firms in North Central Nigeria. This is depicted by  $t=1.62300$ ;  $p>0.05$  as in indicated in table 4.12. This implies that the positive relationship depicted in the path coefficient output is not statistically significant hence indicating that the efficiency of housing estate construction firms in North Central Nigeria is not affected by the completion time of the project. This thus suggest that the null hypothesis which states that Project Completion Time (PCT) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria is retained.

#### **Hypothesis Three**

**Ho<sub>3</sub>: Project Completion Cost (PCC) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.**

Project Completion Cost was discovered to have no significant effect on the Efficiency of housing estate construction firms in North Central Nigeria. This is depicted by  $t=0.4770$ ;  $p>0.05$  as in indicated in table 4.12. This implies that the positive relationship depicted in the path coefficient output is not statistically significant and suggests that the null hypothesis which states that Project Completion Cost (PCC) has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria is retained.

#### **Hypothesis Four**

**Ho<sub>4</sub>: Project deliverables (PD) have no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.**

Project Completion Deliverables was discovered to have a significant effect on the Efficiency of housing estate construction firms in North Central Nigeria. This is depicted by  $t=1.7210$ ;  $p<0.10$  as in indicated in table 4.12. This implies that the positive relationship depicted in the path coefficient output is statistically significant at 90% confidence interval and suggests that the better the negotiated project cost the more efficient housing estate construction will be in North Central Nigeria. Hence, the null hypothesis is rejected and the alternative hypothesis that states that Project deliverables (PD) have significant impact on Efficiency of housing estate construction firms in North Central Nigeria is accepted. Although this significance is quite weak and may be subject to non-significant interpretation. Nevertheless, it suggests that project deliverables have high likelihood of improving housing construction efficiency in North Central Nigeria with little more efforts than what is currently obtainable.

#### **Hypothesis Five**

**Ho<sub>5</sub>: Project Stakeholder Satisfaction has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.**

Project Stakeholder Satisfaction was discovered to have a significant effect on the Efficiency of housing estate construction firms in North Central Nigeria. This is depicted by  $t=6.490$ ;  $p<0.01$  as in indicated in table 4.12. This implies that the positive relationship depicted in the path coefficient output is statistically significant at 99% confidence interval and suggests that the improved project stakeholder satisfaction leads to more efficient housing estate construction in North Central Nigeria. Hence, the null hypothesis is rejected and the alternative hypothesis that states that Project Stakeholder Satisfaction (PSS) has significant impact on Efficiency of housing estate construction firms in North Central Nigeria is accepted.

## Discussion of Findings

It is evident that the empirical results corroborate and expand upon the insights gleaned from both theoretical perspectives and previous research endeavors. The empirical investigation into the impact of project planning on project performance efficiency within housing estate construction firms in North Central Nigeria provides valuable insights that resonate with the theoretical underpinnings of McGregor's Theory X and Theory Y, as well as the empirical studies reviewed.

The findings underscore the pivotal role of comprehensive project planning factors in driving project performance efficiency, aligning closely with McGregor's Theory Y, which posits that individuals are inherently motivated and capable of self-direction. This alignment is evident in the significant positive correlation observed between project planning variables such as project completion time and stakeholder satisfaction with project performance efficiency, as indicated by the regression analysis results.

Furthermore, the empirical evidence supports the insights provided by Majumder et al. (2022), emphasizing the importance of effective construction planning in enhancing project performance within the construction sector especially with project stakeholders' satisfaction. The study's findings highlight the critical influence of organizational characteristics and environmental contexts on planning and scheduling efforts, echoing McGregor's emphasis on the role of organizational dynamics in shaping individual behavior and performance.

Moreover, the empirical findings corroborate the nuanced understanding of project planning effectiveness elucidated by Zwikael & Gilchrist (2021). The study's emphasis on the significance of strategic planning over tactical planning resonates with the observed positive impact of project completion time, a strategic planning variable, on project performance efficiency. This alignment underscores the importance of adopting holistic planning strategies that prioritize long-term project goals and objectives.

In synthesizing these theoretical insights with the empirical findings, it becomes evident that project planning plays a pivotal role in shaping project performance efficiency within the housing estate construction industry in North Central Nigeria. By aligning planning strategies with organizational dynamics and stakeholder needs, firms can optimize efficiency and achieve desired project outcomes, thereby enhancing their competitive advantage in the marketplace.

## CONCLUSIONS AND RECOMMENDATION

The findings underscore the critical importance of certain factors in shaping project efficiency. Specifically, project delivery and stakeholder satisfaction emerged as significant determinants of project performance. Projects with longer delivery time exhibited higher levels of efficiency, highlighting the importance of timely project delivery in achieving optimal outcomes. Additionally, stakeholder satisfaction was found to have a profound impact on project efficiency, emphasizing the need for proactive stakeholder engagement throughout the project lifecycle.

While project scope and cost are essential considerations in project planning, this study found that variations in these factors did not significantly influence project efficiency within the sampled construction firms. Similarly, project deliverables did not emerge as a significant determinant of project efficiency, suggesting that other factors may play a more prominent role in driving project success in this context.

The findings from this study provide valuable insights for construction firms, project managers, and stakeholders involved in housing estate projects in North Central Nigeria. By understanding the key drivers of project efficiency, stakeholders can make informed decisions and implement strategies to enhance project performance and optimize resource allocation. Moving forward, future research endeavors should continue to explore the multifaceted nature of project management practices and their implications for construction project outcomes in diverse contexts.

Based on the findings of this study and the hypotheses tested, the following recommendations are proposed to address the research objectives and hypotheses regarding the impact of project planning on project performance efficiency within housing estate construction firms in North Central Nigeria:

- i. Concerning project scope management, it is imperative to conduct meticulous feasibility studies and needs assessments to accurately delineate project scope parameters. Regular reviews and updates of project scope documents should be conducted to mitigate scope creep and ensure alignment with client expectations and market dynamics.

- ii. To optimize project completion time, meticulous planning and scheduling are paramount. Robust project schedules with realistic timelines and milestones should be developed, leveraging project management tools such as critical path analysis. Continuous monitoring and tracking of project progress against established schedules will enable early identification and mitigation of potential delays or bottlenecks, thus enhancing overall project efficiency.
  - iii. In addressing project completion cost, comprehensive risk assessments should be conducted to identify and mitigate potential sources of completion cost proactively. Investment in advanced project management technologies and methodologies can streamline complex project processes, while fostering a collaborative work environment can harness diverse expertise to manage cost effectively.
  - iv. To improve efficiency in housing estate construction firms in North Central Nigeria, it is recommended to enhance project monitoring and quality control mechanisms, promote cross-functional collaboration, invest in continuous training programs, implement performance-based incentives, and embrace technological innovations. By ensuring adherence to standards, fostering teamwork, empowering employees, incentivizing performance, and leveraging technology, firms can optimize project deliverables without compromising efficiency. These measures will streamline operations, mitigate risks, and drive sustainable growth in the construction sector of the region.
  - v. Stakeholder satisfaction is pivotal to project success. Embracing a stakeholder-centric approach, characterized by transparent communication and active engagement, will foster trust and collaboration among stakeholders. Regular feedback solicitation and incorporation into project planning processes will ensure alignment with stakeholder expectations, ultimately enhancing overall satisfaction and project outcomes.
- By implementing these recommendations, housing estate construction firms in North Central Nigeria can navigate the complexities of the construction landscape more effectively, driving operational efficiencies, mitigating risks, and delivering successful projects that meet the needs and expectations of all stakeholders involved.

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