Innovations

Project Planning: An Imperative for Performance of Housing Estate Construction Firms in North Central Nigeria

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Abstract

Real Estate construction projects often fail due to several reasons related to management such as poor planning, lack of leadership, inadequate knowledge, people problems, and lifecycle problems. This study investigates the pivotal role of project planning in influencing the performance of housing estate construction firms within the North Central region of Nigeria. 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 statistical techniques such as regression analysis to ascertain the correlation between project planning proxies and performance metrics. A notable finding of this study was the strong positive correlation between project completion time and project efficiency. Projects with longer completion times were found to exhibit higher levels of efficiency, indicating that timely project delivery 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 completion time and stakeholder satisfaction emerged as significant determinants of project performance. Recommendations regarding the impact of project planning on project performance efficiency within housing estate construction firms in North Central Nigeria. Concerning project scope 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 were recommended.

Keywords:*project efficiency, project scope, project completion time, project completion cost, project deliverables and project stakeholders' satisfaction*

Introduction

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 unskilled, semi-skilled, and skilled 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, roads, bridges, drainages, dams, stadia, rail line and other infrastructure construction like hospitals, schools, airport, etc (Saidu&Shakantu, 2017,Igwe&Ude, 2018,Nguyen, 2020, and Bukar, 2022).Residential housing estate construction is both labour- and capital-intensive undertaking that is meant to provide basic physiological need(Mcleod, 2018) of people living or working within or around the area.

Many of these estates have also suffered abandonment, taking more time, money and resources 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 (Sisay, 2017).Nigeria is divided into six geopolitical zones. They include North-West, North-East, North-Central, South-West, South-East and South-South. The North Central is the geo-political entity for this study.There are six states in the zone and the FCT Abuja.

The success of a project can be described as achieving the goals set in the project plan. Therefore, a successful project can be considered a project that has achieved its technical performance, met its schedule, and was ran within budget (Oghomwen et al., 2022). Good preparation is useful in the management of time, costs, processes of transition, risks and quality issues (Addo-Parker et al., 2021). Similarly, Larsen et al. (2018)believes Pre-planning of construction projects is important for the performance of cost, time, and quality. 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).

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 has on scope, time, cost, stakeholders, and deliverables of project while considering the collective effect onperformanceand the project success, which has not been addressed previously by researchers.The problem addressed in this study was that lack of proper project planning and control process in construction projects is known to cause project failure for the established fact that project success and performance to a greater extent depend on planning (Urbański et al., 2019 :24).

Based on the aforemention problems, this study seeks to empirically assess project planning as an imperative for the performance of housing estate construction firms in North Central Nigeria. The study was guided by the following specific objectives, which are to:

i. assess the impact of Project Scope on Efficiency of housing estate construction firms in North Central Nigeria
ii. evaluate the impact of Project Completion Time on Efficiency of housing estate construction firms in North Central Nigeria
iii. determine the impact of Project completion cost on Efficiency of housing estate construction firms in North Central Nigeria
iv. examine the impact of Project deliverableson Efficiency of housing estate construction firms in North Central Nigeria
v. ascertain the impact of project stakeholder satisfaction on Efficiency of housing estate construction firms in North Central Nigeria

To determine the impact of project planning onproject performance (efficiency) of selected housing estates in Abuja and to effectively answer the research questions, the following set of null hypotheses is provided.

$H0_1$:Project Scopehas no significant impact on Efficiency of housing estate construction firms in North Central Nigeria

$H0_2$:Project Completion Time has no significant impact onEfficiencyof housing estate construction firms in North Central Nigeria.

$H0_3$:Project completion costhas no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

$H0_4$:Project deliverableshas no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

$H0_5$: Project Stakeholder Satisfactionhas no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

The findings of the study will benefit policy makers such as Federal and State Government, Institutes like Chartered Institute of Project Management and other

stakeholders who has say in the construction industry. The findings of the research will serve as an informed policy input and guide for the policy makers.

Literature Review

Conceptual Review

This study uses five (5) variables as proxy for project planning (Independent/predictor/explanatory variable). They include project scope, project completion time, project completion cost, project deliverables and project stakeholders' satisfaction; whereas performance (dependent/criterion variable) is proxied by efficiency. Even though in the literature, there are several other variables used in measuring project performance. Over the years, various scholars have used different metrics in measuring project performance including efficiency, effectiveness (Sicotte&Delerue, 2021, Zwikael& Gilchrist, 2021) project management success which comprise time, cost and quality (Shekare et al., 2022, Moradi & Moradi, 2021, Radujkovic&Sjekavica, 2017), on a similar vein Rani et al., (2021) discovered other performance indicators such as customer satisfaction.

Project Planning

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. Project planning is of different kinds, Majumder et al., (2022) talked about three major types of project planning. These are i) strategic planning, ii) operational planning, and iii) scheduling.Strategic planning is a special action planning that is created by the owner's corporate planners.Operational planning is done by construction teams. Scheduling in a construction project includes a planned start and end date along with listing tasks, activities, and milestones. planning helps to minimize the stress of the project team, it provides confidence among team members, project team unity is ensured, it generates accountability, team overloads syndrome can be prevented, it mitigates project risk factors, enhances the level of profitability, effective communication is created and plan helps to meet deadlines in the project work (Ibid). In a nutshell, going by the aforementioned one can deduce that project planning boosts project performance and success rates.

According to Soumi Majumder, (2021) there are eight steps to create an effective construction project plan, and they are to discuss key components of the project with shareholders, designating the roles and responsibilities, hold kick off meeting,

developing scope statement, create baseline management plans, schedule development, develop a staffing plan and finally analyze project quality and risk plans. These afore listed activities even though one among many variations is a steps that help in creating an effective construction project planning that will yield performance, and for the purpose of this work Majumder (2021) model of planning steps suffice our need.

Project Scope

Project scope is synonymous with work to be done in a project. In project management, the project scope is the base of significant project planning processes such as estimating the cost, schedule and building work breakdown structure. Poor project scope definition directly affects project cost and schedule (Althiyabi& Qureshi, 2021). A software project scope is defined as the work that needs to be carried out to create the required product with its necessary functions and features (Hans, 2021). Derenskaya, (2018) sees project scope management as process meant to substantiate and bring to the realization the necessary amount of work that ensures the successful implementation of the project. Project Management Institute has defined project scope management as a process that contains the procedures which confirm that project will be completed as planed and intended if it is only comprises the required work (PMI, 2018) PMI went further and provided the project scope management process steps on scope management, these steps are six, which are plan the scope, collect requirement, define the scope, create work breakdown structure, validate scope and control scope (Ibid).

Project Stakeholders

Stakeholders are all internal or external actors, social and economic partners of a company(Riahi, 2017). In a more concise definition a project's stakeholders are individuals or organisations that may have either a positive or negative impact on the project (Asiedu&Iddris, 2022) on a similar note Rahman et al., (2017) assert that in every life cycle of the project there are numerous people or organizations involved either directly or indirectly. While these type of people and organizations involved are called stakeholders and these may include the project team, client or customer, community, environment, suppliers, government.

Project Cost

Project cost can best be described as project activities associated costs (Asiedu&Mkansi, 2023)The main work of project cost management includes: feasibility estimation, preliminary design budget, construction drawing budget, bidding price limit, completion settlement and final settlement and so forth (Bai et al., 2023)

Project Performance

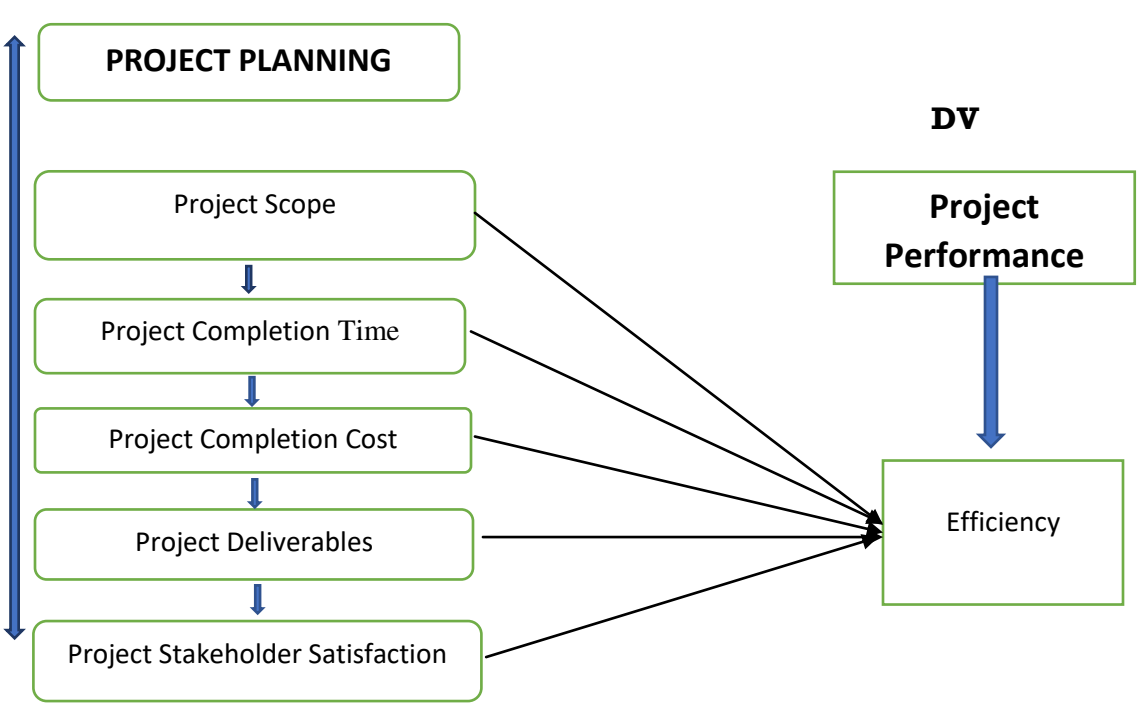
In plethora of literature, the term performance and success were used interchangeably(Adeleke et al., 2019). Performance is result oriented, were success is a result, this makes success an end result of performance.Zwikael and Meredith, (2021) in line to this notion enumeratedtypes of performance, there is a performance of the project manager in achieving project plan, second is the performance of project owner and the performance of the project as an investment for the founder. These trio performance leads to Project Management success, Project ownership Success and Project investment success respectively.On a similar note Unegbu et al., (2022) referred project success criteria as project performance measures, they include myriad of measures which include project iron triangle of cost, time and quality, then added stakeholder, cost per unit, speed of construction and delivery, growth of schedule and cost, safety and health, the satisfaction of participants, performance of the environment, good understanding of customer requirement amongst others.

Ikediashi et al., (2012),categorized performance in terms of effectiveness, efficiency and quality in terms of both workmanship and product. Apart from the categorization, performance indicators were identified as either qualitative and quantitative. Quantitative measures such as workers' behavior on the job. Qualitative performance indicators are not commonly accepted as reliable performance evaluation technique due to their perceived difficulty and/or inability to be measured and its subjective approach (Ibid).

Project success and performance to a greater extent depend on planning (Urbański et al., 2019), for it is the prime focus of project management teams to improve performance (Urbański et al., 2019 in Lemma, 2014). Momanyi and Kamau, (2020) corroborated this notion by proclaiming that planning strategies played a key role in influencing the overall projects performance. This indicates that project performance will be surely suffered if there is a lack of careful planning. (Majumder et al., 2022). Larsen et al. (2018) while examining the effect of commissioning confirmed that the quality of pre-planning together with the quality of management during construction are the most important parameters to ensure high performance on both time, cost, technical issues, and end-user satisfaction. Avoidance of project delay and delibering project on time is dependants on construction planning, construction schedule controlling, construction schedule directing, and project finance organizing have significant positive effects on project schedule (Nguyen, 2020).

Conceptual Framework

Figure 1: Conceptual Framework of the study



Source: Author's conceptualization.

Theoretical Review

There are several theories that could be used because they are relevant to this work in one way or the other. However, given the objective set out for this subject the Douglas McGregor Theory X and Theory Y are more relevant. The management style Theory X that requires close, firm supervision coupled with the aspect of clearly specified tasks issues of control and commitment to objective in Theory Y makes it effectively practical in managing a project morethan the aforementioned theories as such is what made the choice of this theory as the theoretical framework of this study.

Theory X-Y in Project Management

Douglas McGregor (1906-1964) an American scholar McGregor believed that managers' basic beliefs have a dominant influence on the way that organisations are run. Managers' assumptions about the behaviour of people are central to this. McGregor argued that these assumptions fall into two broad categories - Theory X and Theory Y. These findings were detailed in The Human Side of Enterprise, first published in 1960. Theory X and Theory Y describe two views of people at work and may be used to describe two opposing management styles.

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

This segmentwill review the past literature in related field of study. It concentrated on how project planning influence performance of Housing estate construction projects.

Global Review

Impactof effective construction planning in project performance improvement is the study that observed theProject performance of the construction sector. The project performance can be improved significantly by ensuring proper project planning and scheduling. A plethora of literature clearly shows that the project performance can be enhanced by hovering the efforts invested in project planning,scheduling, and controlling activities. In India, construction sector is the second largest employment sector after agriculture. When it comes to the economic development of the country and a large labour force are engaged in this sector, definitely a high work effort we can consider from appropriate project planning activity (Majumder et al., 2022).

Planning to fail: when is project planning counterproductive? is an article focused on planning-performance theory. The work suggests positive impact of formal planning on performance. The article investigates when formal planning is effective, when it is counterproductive, and which amongst the strategic planning or tactical planning approaches is more effective taking into account the project risk levels and performance efficiency and performance effectiveness dimensions. Results from analyzing 2002 projects suggest that strategic planning has a higher value than tactical planning. The result also suggests that, tactical planning has a negative impact on project efficiency in low-risk projects as it increases project duration and cost but adds little value. The article sets boundaries of effectiveness for planning-performance theory and advances the literature on the planning fallacy(Zwikael& Gilchrist, 2021).

Smith, (2021) examines project planning and performance of construction industry: perspective from the United States of America. It analyzes the influence of task planning has on efficiency of building sector in America. The study found out that the yearly expenditure of over $1,293 billion in the country's construction sector. The study concluded by exploring the relevance of strategic plan on project change and performance. It suggested thatconstruction job preparation in other word planning

is imperative in determining a precise evaluation of the expenses associated with a project in addition to a project completion time.

Project planning system improvement in residential development project: A risk analysis, is a study that assert Project planning must be an integral part of the housing construction industry so that project performance can be achieved more efficiently and have an impact on schedule performance. A clear and detailed understanding is needed of what is within the scope of the project and what are the risks identified in the project planning phase. Project planning is expected to be able to provide solutions to detailed work structures as well as flexibility to be able to adapt to the environment of unique project activities and to accommodate the project's organizational system and business changes or improvements made by the company. The study aimed to parse the risks in project planning of residential development projects by identifying 10 knowledge areas and 24 planning processes using PMBOK 2017 via the use of qualitative risk analysis approach for better understanding and high-risk factor mitigation. Referring the research results, a preventive action in each of the high-risk indicator has been prepared to be integrated in the planning guideline. This risk analysis performed to be used as a strategy to improve the residential development schedule performance(Arief&Latief, 2021).

Impact of Enterprise Resource Planning (ERP) on business performance: With the discussion on its relationship with open innovation, was a study conducted primarily to investigate the impact of an ERPs usage on the financial and non-financial performance of the Saudi SMEs. It was used to identify the factors contributing to the effective and successful use of an ERP system. The result provided seven contingency factors. To that effect, three hypotheses were tested. 200 questionnaires were sent to Saudi SMEs that adopted the ERP systems out of which 120 valid responses was received. The data was analysed and hypothesis tested, and a structural equation modelling was adopted. The results depict that ERP the performance of ERP so also management support, user satisfaction, and capacity building significantly impact the ERPs usage(AlMuhayfith&Shaiti, 2020).

Critical variables Influencing project performance in real estate building construction sectors in Ethiopia, East Africa was examined. The study aimed to find the critical variables that influence project performance in Real Estate construction sectors. The researchers developed a new theoretical framework, developed and six hypotheses were tested. For this, six independent variables: Personnel Factors, Technical Factors, Administrators Factor, Material and Infrastructure Factors, Organizational Culture Factors and Project Management Factors, on the other hand

one dependent variable Project Performance Factors were identified. 137 questionnaires were administered to personnel including project managers, supervisors, Forman and site project managers of the selected Real Estate construction firms out of which 117 were properly filled and returned for analysis indicating 85.40% of response rate. The result of the research indicated that the six independent input factors explained 78.9% of project success factors and three input factors: Personnel, Admin, and Project management factors were identified that influences project performance in Real Estate construction sectors(Lemma et al. 2020).

The Nigerian Perspective

Oghomwen et al., (2022) explore the factors affecting project performance of building construction projects in Federal Capital Territory (FCT) Abuja, Nigeria. This study identifies factors that influence construction project performance, evaluated the factors and examined the impact of these factors. A cross-sectional questionnaire survey was adopted. Purposive sampling technique was used. The data was analysed using frequency, percentile, and Relative Importance Index (RII) to rank the factors. The results shows the top three cost-factors, time factors, and quality factors and "others" factors affecting project performance. Finally, the study revealed the top three modalities to ensure effective project performance. The paper shows among others that the factors affecting project performance are rising material prices, design changes, discrepancies in contract documents and slow resource availability as planned throughout the project.

Mahe and Umar (2021) Assess the effect of strategic planning on performance of construction projects in Nigeria. A quantitative research approach was adopted where the primary data was obtained through Internet mediated questionnaires targeting 100 personnel of construction companies in Abuja, Nigeria. The findings of the study show that despite the pros of traditional project management approach, it is faced with lack of customer involvement, issues of risk management and undefined roles and responsibilities. It also shows that the agile method is not usually adopted; however, adoption of a combination of both traditional and agile method is more suitable and effective to execution of construction projects. The study suggests that trainings and understanding of hybrid method should be carried out to create awareness of its advantages on flexibility and techniques that will improve the delivery of construction projects.

Akinola et al., (2019) investigate factors influencing construction project planning and implementation: lessons from south western Nigeria. The study evaluates the

factors influencing construction project planning and implementation on construction sites. The study adopted questionnaire survey. A total of 108 respondents selected through random sampling techniques participated in the survey. Ranking analysis of the major factors using Relative Importance Index (RII) showed that type of client and type of project were the top two factors influencing project planning while insufficient finance and changes in client requirements were the top two factors influencing implementation of project plans. The study also revealed statistically significant difference in the perceptions of the respondents to some of the factors when classified into different groups. The study concludes that the knowledge of the identified factors influencing project planning and implementation will assist construction stakeholders in re-evaluating their project planning endeavors and methods in order to enhance them and in this manner enhancing the performance of construction projects.

Studies by Igwe and Ude, (2018) on project planning and implementation in Nigeria: Revisiting international best practices. The purpose of the paper is to explore the current issues around project planning and implementation in Nigeria's public sector vis-à-vis international best practices. The methodology adopted was a documentary review of past and current literature which enhance critical and contextual analysis of project implementation and execution culture in the country. It was found that the three tiers of government have not really planned, implemented and executed projects with due diligence in accordance with global best practices. Thus, there exists a widespread institutional mediocrity in project execution, deficiency of vision, and inadequate budgetary allocations leading to high cost of project financing and corruption in the long run.

Akande et al. (2018) did his studies by Exploring Factors Influencing Project Management Success in Public Building Projects (PBP) in Nigeria. The study evaluates the application of project planning techniques in PBPs in Nigeria and project planning challenges related to their successful delivery. Review of relevant literature combined with experts' input revealed twenty-three factors; this forms the basis for designing a questionnaire adopted to collect relevant data from BEPs. Findings identified poor strategic project planning aligned to project success, unrealistic expectation and overly bureaucratic hiccups from project initiators as the most critical factors influencing project management practices (PMP) affecting success in PBP delivery. The study suggests that unsuccessful project delivery is a reflection of inappropriately applied project planning techniques leading to serious project planning challenges.

Literature Gap

Based on the review carried out of empirical studies all published within the last ten years (2013-2022), four research gaps were identified based on the research methodology, section of construction industry and geographical context.The literature gaps identified were based on the conceptualization of planning by the various scholars. This scholar's definition of planning was based on the individual perception as it relates to subject of research areas (Catherine, et al 2021; Abase et al, 2020; Onifade, et al., 2017; Sultana et al, 2020). Although, the definition has unique means of clarification on what planning entails to understanding project planning and performance (Leariwala & Kamau, 2021; Adefolarin 2017; Afomachukwu, 2021). However, this study identified this gap which it clearly addresses to appreciate planning and project performance.

Methodology

This study adopted a pragmatist research philosophy and a cross-sectional survey research design 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). Primary Data used for this study was collected using close-ended questionnaire from the selected estate construction firms in the NorthcentralZone.. The designed questionnaire has two sections – A and B. All the questions in section A were drawn and aimed at providing some general information from the respondents while the remaining questions in section B were meant to directly address the research questions using five-point Likert scale.

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 performanceis proxied by Efficiency (EFF).The model specification is adopted from the studies of SicotteandDelerue (2021) and Zwikaeland Gilchrist (2021).

PERF= f(PP)…….. ……..…… (3.1)

PERF= EFF…… ……..…… (3.2)

PP= (PS, PCT, PCC, PD, PSS) ……..…… (3.2)

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

$EFF= ß_0 + ß_1PS + ß_2PCT + ß_3PCC + ß_4PD + ß_5PSS + ε$……(3.3)

Where:PERF = Project Performance; PP = Project Planning; Project Scope = PS; Project Completion Time = PCT; Project Completion Cost = PCC; Project Deliverables= PD; Project Stakeholders' Satisfaction = PSS; Efficiency (Project Performance) = EFF.; $ß_0$ = Constant; $ß_1$- $ß_5$ = Coefficients; $εi$ = Error term.

The data collected for this study was analysed using multiple regression analysis because it enables the researcher to establish direct and indirect relationships with the study's variables (Nayyar, 2022).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.

Result and Discussion of Findings

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PERF	357	2.3557	1.55771	.649	.129	-1.200	.257
PS	357	2.5574	1.65413	.447	.129	-1.509	.257
PCT	357	2.3333	1.54095	.708	.129	-1.101	.257
PCC	357	2.2437	1.44156	.834	.129	-.759	.257
PD	357	2.3221	1.45721	.753	.129	-.897	.257
PSS	357	2.1933	1.39990	.863	.129	-.667	.257
Valid N (listwise)	357						

Source: Author's Computation, (2024)

The descriptive statistics in Table 1 offer insightful glimpses into the distribution and central tendencies of the variables encompassed in the regression model. Within the sampled projects, the average efficiency score (PERF) stands at approximately 2.36, showcasing a moderate level of variation with a standard deviation of 1.56. This suggests that project performance outcomes within the dataset vary moderately.

Additionally, the mean values for the predictor variables, including Project Scope (PS), Project Completion Time (PCT), Project Completion Cost (PCC), Project Deliverables (PD), and Project Stakeholders' Satisfaction (PSS), hover around similar ranges, indicating consistent levels across projects.Examining skewness, which measures distribution symmetry, reveals that all variables display slight positive skewness, hinting at a propensity towards higher values. However, this skewness is relatively minor, indicating only a slight deviation from perfect symmetry. Conversely, kurtosis, which gauges distribution peakedness, indicates slightly flatter distributions for all variables, as evidenced by their negative kurtosis values. Despite this, the kurtosis values remain relatively low, implying distributions that closely resemble normal distributions.

For instance, the skewness for Project Scope (PS) is 0.447, suggesting a slightly positively skewed distribution, while the kurtosis is -1.509, indicating a relatively flatter distribution with slightly heavy tails. Similarly, Project Stakeholders' Satisfaction (PSS) exhibits a skewness of 0.863 and a kurtosis of -0.667, indicating a slightly positively skewed yet relatively flatter distribution.

Correlations

Table 2 Correlations		PERF	PS	PCT	PCC	PD	PSS
Pearson Correlation	PERF	1.000	.770	.951	.570	.649	.797
	PS	.770	1.000	.768	.724	.854	.872
	PCT	.951	.768	1.000	.572	.636	.773
	PCC	.570	.724	.572	1.000	.844	.654
	PD	.649	.854	.636	.844	1.000	.849
	PSS	.797	.872	.773	.654	.849	1.000
Sig. (1-tailed)	PERF	.	.000	.000	.000	.000	.000
	PS	.000	.	.000	.000	.000	.000
	PCT	.000	.000	.	.000	.000	.000
	PCC	.000	.000	.000	.	.000	.000
	PD	.000	.000	.000	.000	.	.000
	PSS	.000	.000	.000	.000	.000	.
N	PERF	357	357	357	357	357	357
	PS	357	357	357	357	357	357
	PCT	357	357	357	357	357	357
	PCC	357	357	357	357	357	357
	PD	357	357	357	357	357	357
	PSS	357	357	357	357	357	357

Source: Author's Computation, (2024)

The correlation matrix provided in Table 2 offers valuable insights into the relationships between project performance (PERF) and its predictor variables within housing estate construction firms. Strong positive correlations are observed between project performance and project completion time ($r = 0.951$, $p < 0.001$), as well as project stakeholders' satisfaction ($r = 0.797$, $p < 0.001$). These findings suggest that longer project completion times and higher levels of stakeholder satisfaction are associated with better project performance outcomes.Moderate positive correlations are also observed between project performance and other predictor variables, including project scope, project completion cost, and project deliverables. These correlations range from 0.570 to 0.854, all of which are statistically significant at $p < 0.001$. These results indicate that a broader project scope, higher completion costs, and better deliverables quality are positively associated with improved project performance.

Additionally, examining the significance levels (Sig. values), it is noteworthy that all correlations are statistically significant at the 0.001 level, underscoring the robustness and reliability of these associations within the dataset.These correlation findings provide empirical evidence supporting the importance of various project planning factors in influencing project performance within housing estate construction firms.

Table 3 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.956[a]	.914	.913	.45925	1.812

Source: Author's Computation, (2024)

Table 3 provides a comprehensive model summary of the regression analysis conducted to predict project performance (PERF) within housing estate construction firms. The statistical metrics outlined in the table offer valuable insights into the effectiveness and reliability of the regression model.The coefficient of determination (R Square) for the model is 0.914, indicating that approximately 91.4% of the variance in project performance (PERF) can be explained by the predictor variables included in the model. This high R Square value underscores the substantial influence of the selected predictors on project performance outcomes within the context of housing estate construction.The Adjusted R Square, which considers the number of predictors in the model, is also noteworthy at 0.913. This adjusted value accounts for the completion cost of the model and provides a more accurate representation of its explanatory power, indicating a strong fit between the

predictors and project performance.The Standard Error of the Estimate, reported as 0.45925, signifies the average deviation of observed values from the regression line. This metric reflects the accuracy of the regression predictions, with lower values indicating a better fit of the model to the observed data.Furthermore, the Durbin-Watson statistic, with a value of 1.812, is utilized to detect the presence of autocorrelation in the residuals of the regression model. A value close to 2 suggests no significant autocorrelation, indicating that the independence assumption of the regression analysis is maintained.

Table 4 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	789.790	5	157.958	748.926	.000[b]
	Residual	74.030	351	.211		
	Total	863.821	356			

Source: Author's Computation, (2024)

Table 4 presents the ANOVA (Analysis of Variance) results, which assess the overall significance of the regression model in predicting project performance (PERF) within housing estate construction firms. The ANOVA table provides essential information about the variability in the dependent variable explained by the regression model.The table indicates that the regression model accounts for a significant amount of variance in project performance, as evidenced by the highly significant F-statistic of 748.926 ($p < .000$). This F-value indicates that the variation in project performance explained by the regression model is much larger than what would be expected by chance alone.The regression sum of squares (SSR) is reported as 789.790, with 5 degrees of freedom (df), resulting in a mean square of 157.958. This value represents the average variance explained by each predictor variable in the model.The residual sum of squares (SSE), representing unexplained variance in project performance, is 74.030, with 351 degrees of freedom. The mean square for the residuals is 0.211, indicating theThe ANOVA results confirm the statistical significance of the regression model in predicting project performance within housing estate construction firms.

Table 5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	.029	.049		.593	.553			
	PS	.010	.036	.011	.288	.773	.770	.015	.005
	PCT	.833	.028	.824	30.252	.000	.951	.850	.473
	PCC	.025	.033	.023	.744	.457	.570	.040	.012
	PD	-.073	.049	-.068	-1.474	.141	.649	-.078	-.023
	PSS	.214	.045	.193	4.786	.000	.797	.248	.075

a. Dependent Variable: PERF

Source: Author's Computation, (2024)

Table 5 provides insights into the coefficients of a regression model used to predict efficiency (PERF) within a housing estate construction firm. Analyzing the unstandardized coefficients (B), we can discern the change in project performance associated with a one-unit change in each predictor variable, while holding all other variables constant. However, it's essential to consider the standardized coefficients (Beta), which allow for comparisons of the relative importance of each predictor variable in explaining the variance in project performance. Project completion time emerges as a highly significant predictor of project performance (Beta = .824, $p < .001$), suggesting that longer project completion times correlate with higher project performance. Conversely, project scope, project completion cost, and project Project deliverables exhibit non-significant effects on project performance, implying that variations in these factors do not significantly influence project outcomes.Project Stakeholder satisfaction stands out as another highly significant predictor of project performance (Beta = .193, $p < .001$).

This finding emphasizes the need for housing estate construction firms to prioritize stakeholder engagement and satisfaction throughout the project lifecycle to enhance overall performance.While project completion time and project stakeholder satisfaction demonstrate significant positive correlations with project performance,

project scope, project completion cost, and project Project deliverables show weaker or non-significant correlations.

Test of Hypotheses

Based on the results of the regression analysis and the interpretation provided, we can now test the hypotheses regarding the impact of various factors on the efficiency of housing estate construction firms in North Central Nigeria:

H_{01}: Project Scope has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

The analysis indicates that project scope (PS) does not exhibit a significant effect on project performance (PERF) (Beta = .011, p = .288). Therefore, we fail to reject the null hypothesis H01, suggesting that project scope does not significantly impact the efficiency of housing estate construction firms in North Central Nigeria.Project scope, defined as the extent and boundaries of the work to be performed, was found to have a negligible effect on project performance.

H_{02}: Project Completion Time has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

The results reveal a highly significant positive effect of project completion time (PCT) on project performance (Beta = .824, p < .001). Hence, we reject the null hypothesis H02, indicating that project completion time significantly influences the efficiency of housing estate construction firms in North Central Nigeria. Project completion time emerged as a pivotal factor affecting project efficiency. The analysis revealed a strong positive correlation between longer project completion times and higher project performance.

H_{03}: Project Completion cost no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

Project completion cost (PCC) does not demonstrate a significant effect on project performance (Beta = .023, p = .457). Thus, we fail to reject the null hypothesis H03, suggesting that project completion cost does not have a significant impact on the efficiency of housing estate construction firms in North Central Nigeria. Upon meticulous scrutiny of the regression analysis results, it becomes evident that variations in project completion cost do not wield a statistically significant influence on project efficiency within this context. This implies that fluctuations in project expenses do not markedly alter efficiency outcomes. Thus, Hypothesis H03 is corroborated, affirming that project completion cost exerts negligible impact on efficiency in housing estate construction firms.

H_{04}: Project deliverables has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

Similarly, project deliverables (PD) does not exhibit a significant effect on project performance (Beta = -.068, p = .141). Therefore, we fail to reject the null hypothesis H04, indicating that project deliverables does not significantly influence the efficiency of housing estate construction firms in North Central Nigeria. Upon meticulous examination of the regression analysis, it emerges that variations in project deliverables do not engender a statistically significant alteration in project efficiency within this context. This implies that irrespective of the nature or quality of project deliverables, efficiency outcomes remain largely unaffected. Thus, Hypothesis H04 is affirmed, signifying that project deliverables exert minimal influence on efficiency in housing estate construction firms.

H05: Project Stakeholder Satisfaction has no significant impact on Efficiency of housing estate construction firms in North Central Nigeria.

Project Stakeholder satisfaction (PSS) emerges as a highly significant predictor of project performance (Beta = .193, p < .001). Consequently, we reject the null hypothesis H05, suggesting that stakeholder satisfaction significantly impacts the efficiency of housing estate construction firms in North Central Nigeria. Stakeholder satisfaction emerged as a key determinant of project efficiency. The analysis revealed a strong positive correlation between stakeholder satisfaction and project performance, highlighting the importance of actively engaging and meeting the needs of stakeholders throughout the project lifecycle. High levels of stakeholder satisfaction not only contribute to smoother project execution but also foster positive relationships and trust.

These findings provide valuable insights into the factors that affect the efficiency of housing estate construction firms in North Central Nigeria, highlighting the importance of project completion time and stakeholder satisfaction in driving performance outcomes.

Discussion of Findings

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 efforts 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. 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.

Additionally, the empirical evidence supports the imperative of effective conflict management strategies highlighted by Shekare et al. (2022) in mitigating the adverse effects of conflicts on project performance. The observed correlations between stakeholder satisfaction and project performance efficiency underscore the importance of stakeholder engagement and collaboration in driving project success, aligning with McGregor's emphasis on participatory management approaches.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.

Conclusion and Recommendations

This study comprehensively examined the dynamics of project management factors and their implications for project efficiency withsiSAin housing estate construction firms in North Central Nigeria. Through rigorous analysis of data collected from 357 construction projects, several key findings have emerged, shedding light on the intricacies of project management practices in the region.The findings underscore the critical importance of certain factors in shaping project efficiency. Specifically, project completion time and stakeholder satisfaction emerged as significant determinants of project performance. 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.

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 and delivering successful projects that meet the needs and expectations of all stakeholders involved.

Areas of Further Research

The study on the impact of project planning on project performance efficiency within housing estate construction firms in North Central Nigeria has opened avenues for further research to deepen understanding and address remaining gaps in knowledge. Firstly, future studies could explore the long-term effects of project planning practices on various dimensions of project success beyond efficiency, such as quality, safety, and stakeholder satisfaction.

Secondly, investigations into the effectiveness of different project planning approaches and methodologies in diverse contexts could yield valuable insights. Comparative studies could analyze the outcomes of traditional project planning methods versus more innovative or agile approaches, considering factors such as project size, complexity, and industry sector.

Examining planning practices and performance outcomes at multiple stages throughout the project lifecycle, researchers can identify critical junctures where planning interventions may have the most significant influence on project success.

Additionally, exploring the role of technology and digital tools in enhancing project planning effectiveness represents a promising area for future research. Investigating the adoption and impact of emerging technologies such as Building Information Modeling (BIM), artificial intelligence, and data analytics in project planning processes could provide valuable insights into how firms can leverage technological advancements to optimize planning outcomes.

Moreover, cross-cultural studies comparing project planning practices and performance outcomes across different regions and countries could offer valuable insights into the influence of cultural and contextual factors on project management practices. By examining how cultural norms, regulatory frameworks, and institutional factors shape project planning approaches and outcomes, researchers can develop more nuanced and context-specific recommendations for practitioners.

Lastly, qualitative research methods such as case studies and interviews could complement quantitative analyses by providing deeper insights into the underlying mechanisms and contextual factors influencing the relationship between project planning and project performance. By exploring the perspectives and experiences of project stakeholders, researchers can uncover nuanced insights that quantitative data alone may not capture.

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