© JAN 2026 | IRE Journals | Volume 9 Issue 7 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I7-1713612

Impact of Partnering as a Procurement Method on Construction Project Delivery in Enugu State, Nigeria.

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Abstract- ***The construction industry continues to experience persistent challenges related to cost overruns, time delays, quality shortfalls, and safety risks, thereby necessitating the adoption of more collaborative procurement approaches. This study examined the impact of partnering as a procurement method on construction project delivery in Enugu State, Nigeria, using cost, time, quality, and safety as key performance indicators. A descriptive survey research design was adopted, and data were obtained from 676 respondents comprising consultants, contractors, and clients, selected from a population of 1,808 construction stakeholders through stratified random and purposive sampling techniques. Data were collected using a structured questionnaire, which achieved a Cronbach's Alpha reliability coefficient of 0.81. Descriptive statistics, Relative Importance Index, and one-way Analysis of Variance were used for data analysis. The results showed that partnering had a high positive impact on all performance indicators, with group mean RII values of 0.805 for cost, 0.804 for time, 0.806 for quality, and 0.808 for safety. The highest-ranked effects included improved value-for-money outcomes (RII = 0.819), enhanced communication leading to faster workflow (RII = 0.816), improved construction quality through shared accountability (RII = 0.819), and improved site safety through joint planning (RII = 0.816). One-way ANOVA results indicated no statistically significant difference in the effects of partnering across cost, time, quality, and safety performance indicators (F = 1.729, p = 0.192), suggesting a relatively uniform influence of partnering on overall project delivery performance. The study concluded that partnering is an effective and holistic procurement method capable of simultaneously improving cost efficiency, time performance, construction quality, and safety outcomes in construction projects. It recommended increased adoption of partnering by public and private sector clients in Enugu State to enhance sustainable and high-performing construction project delivery.***

Index Terms- ***Partnering, procurement method, construction project delivery, cost, time, quality, safety, Enugu State.***

I. INTRODUCTION

The construction industry is a cornerstone of economic development worldwide, playing a crucial role in employment generation, infrastructure provision, and overall GDP growth across both developed and developing economies (Ofori, 2020). Yet, despite its importance, the sector is widely recognized as one of the most fragmented globally. As highlighted by Dainty, Moore, and Murray (2021), the multiplicity of actors ranging from clients and consultants to contractors, subcontractors, and suppliers often results in misaligned interests and coordination challenges. This fragmentation contributes to persistent issues such as adversarial relationships, cost escalations, schedule delays, and substandard project outcomes (Hughes, Hillebrandt, and Greenwood, 2021).

It is worth mentioning that the procurement method that is chosen for a given project will influence the degree of integration that occurs between project team members, as this will depend upon the point in time when the contractor is appointed in the procurement process (Ekung *et al* 2013).In order to increase productivity and efficiency in the construction industry, a strong focus has to be set on better integration of the different parties selected for a project (Al-Amoudi, 2011).

Construction procurement methods processes are organized with contractual relationships which lead to the delivery of construction projects by the contractors (Love, Edward, Irani and Shariff, 2012; Abdul, Mat, Wan, Nasid, Ali and Mohdzainordin,

2006). Consequently, Ojo and Aina (2010) stated that it is imperative to select the appropriate procurement method despite the fact that it does not guarantee a successful project execution but with other factors in consideration, a successful project is delivered. Wrong selection of procurement methods has contributed much in the area of poor performance of construction projects in Nigeria (Oyedele, 2013).

As stated by Ali, Paulos, Ole, Bjørn and Ola (2018), the prospects of partnering, when understood and implemented by the construction industry may help the industry to achieve the benefits of partnering concept. According to William (1994) establishment of mutually agreeable goals and close communication at the beginning of the project gives rise to outstanding results without advocating for the services of outside lawyers. Partnering is focused on establishing a good relationship among project teams for the successful execution of a project (Naoum 2003; Rahman and Kumaraswamy, 2002; Rowlinson and Cheung, 2004; Colledge, 2005; Cheung, Yiu and Chim, 2006).

According to Nwachukwu *et al* (2023) there is low utilization of partnering in Enugu State, and it has greatly contributed to its low potential benefits in the construction industry in the State. The low utilization of Partnering has suffered a great challenge in its application as a procurement method in construction project delivery.

It is therefore against this background and in line with various literature-based findings and arguments that this paper considers it necessary to examine the impact of partnering as a procurement method on construction project delivery in Enugu State, Nigeria

II. LITERATURE REVIEW

a. The Concept of Partnering

Partnering came into existence due to the adversarial culture and high levels of conflict which is commonly associated with the construction industry (Hong et al, 2011; Eriksson 2008). According to Carr, Polkinghorn, La, and La (2010), Partnering in the construction industry has its roots in the 1980s. It is known from research that the first introduction of the idea of partnering was by the U.S. Army Corps of Engineers in the late 1980s. From the popularly cited definitions of Construction Industry Institute CII, (1991) partnering is defined as a; ‘‘A long-term commitment by two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant’s resources.

However, partnering is the act of collaboration, joining forces, or forming an alliance between two or more individuals, organizations, or entities to achieve common goals, and share resources. The relationship revolves around certain elements such as commitment, equity, trust, and the development of mutual goals/objectives. Chan, Chan and Ho (2010) defined it as a process that encourages good working relationships based on commitment, trust, and good communication. Eriksson (2010) defined partnering as an enhanced cooperation achieved through cooperative governance with cooperative procedures. According to Thomas and Thomas (2008), partnering is an integrated teamwork approach that could lead to the creation of value in projects.

Partnering is a project approach designed to allow the design and construction process to be performed within the environment of mutual trust, commitment to shared goals, and open communication among the client, architect, engineer, construction manager and sub-contractors (William, 1994). A long-term commitment between two or more organizations is important for achieving specific business objectives by maximizing the resources of each participant. Such a relationship is based on trust, dedication to common goals, and an understanding of individual expectations and values. It is also important to note that the longer the partnering relationship, the greater the benefits, for there is likely to be more opportunity in building good working relationships, finding improvements, and planning investment. For there to be effective implementation of contracts that require the use of modern practices such as partnering, clients must work collaboratively with their contractors to share the risks, costs, and benefits of innovation appropriately (The National Academies of Sciences, 2009).

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the industry to achieve the benefits of partnering concept. According to William (1994) establishment of mutually agreeable goals and close communication at the beginning of the project gives rise to outstanding results without advocating for the services of outside lawyers. Partnering is focused on establishing a good relationship among project teams for the successful execution of a project (Naoum 2003; Rahman and Kumaraswamy, 2002; Rowlinson and Cheung, 2004; Colledge, 2005; Cheung, Yiu and Chim, 2006). For there to be effective implementation of partnering, it must be conceived at the early stage of the project. Project partnering techniques have been gradually applied to some projects, and because of the growing quest of people's demand for substantial improvement in project performance, corporate bodies, professional organizations, financial institutions, international and local donor agencies are working harmoniously to participate effectively in partnering to achieve the sole desire (Awodele and Ogunsemi, 2018).

b. Partnering as a Procurement Method

Procurement method is a major factor which determines the success or failure of a construction project; therefore, it is imperative for one to choose wisely the procurement method which best fits a particular project. However, different definitions have been allotted to construction procurement method in construction management literature (Francom Asmar and Ariaratnam, 2014). For instance, Ogunsanmi and Bamisile (1997) and Ashwort and Hogg (2007) defined procurement method as the management of the total process involved in construction project delivery. Popic and Moselhi (2014), defined it as a strategy to satisfy the development needs of a client with respect to the provision of constructed facilities for a discrete life-cycle. Francom *et al* (2014) defined procurement method as the comprehensive process by which a facility of the project is designed and constructed.

Partnering which can be traced back to the United States of America is a procurement strategy that was developed to address many construction issues particularly contract disputes in the construction industry by improving communication, processes and relationships across the project team (Jon, 2019). The use of a partnering strategy is the voluntary decision to which all team members agreed at the beginning of the project; hence it describes how parties will behave and conduct themselves with the intention that any agreement will lead to increased client satisfaction and future workload for all the project team (Jon, 2019).

Almost any type of construction project can have partnered innovation applied to its execution, hence, as the project's risk increases, the potential benefit of partnering the project increases too (Allan Lowe Partnering and Scorecards Inc., 2019). According to Samaraweera (2013), partnering is suitable for large public sector projects and more complex projects where the risks cannot be fully identified or measured properly. Allan Lowe Partnering and Scorecards Inc., (2019) noted that the evaluation of the risk can be based on design and the complexity of the construction, budget limitations, and number of major stakeholders involved.

Partnering process, however, can also be effectively applied in private projects where the risks are considerably low which is obtainable in project-specific types of partnering. Project-specific types of partnering are established around freestanding and non-binding partnering agreements for single projects (Allan Lowe Partnering and Scorecards Inc., 2019). Awodele (2012) noted that procurement strategies such as Alliancing, Prime Contracting, Joint Venture and Public Private Partnership (PPP)/Private Finance Initiative (PFI) are all contracting relationships that are based on partnering principles currently being used in one form or another worldwide.

III. RESEARCH METHODOLOGY

This study adopted a descriptive survey research design in order to systematically obtain information from construction stakeholders and describe existing conditions as they occurred in practice. The study area was Enugu State, Nigeria, selected due to its active construction sector and the presence of key professional bodies and public institutions involved in infrastructure delivery.

The target population comprised consultants, contractors, and clients involved in construction activities in Enugu State, with a total population of

1,808 respondents. This population consisted of 1,435 consultants drawn from the Nigerian Institute of Building, Nigerian Society of Engineers, Nigerian Institute of Quantity Surveyors, and Nigerian Institute of Architects in Enugu State, 106 contractors obtained from the Enugu State Ministry of Works and Infrastructure, and 267 clients sourced from the Enugu State Ministry of Housing.

Cochran's sample size formula (Equation 1) was first applied to determine the initial sample size, after which Cochran's correction formula (Equation 2) was used to obtain the final sample size. For consultants, the corrected sample size was computed as 303. Owing to the manageable population sizes of contractors and clients, their entire populations were adopted as their sample sizes. The total sample size for the study was therefore 676 respondents, comprising 303 consultants, 106 contractors, and 267 clients.

$$n_o = \frac{(t^2)\,x\,(p)(q)}{(d^2)} \quad \text{----------Equation 1}$$

$$n_1 = \frac{n_0}{\left[1 + \left(\frac{n_0 - 1}{N}\right)\right]} \quad \text{---------- Equation 2}$$

For the Consultants only,

$$n_0 = \frac{(1.96^2) \times (0.5)(0.5)}{(0.05^2)} = 384$$

$$N = \frac{384}{1 + \left(\frac{383}{1435}\right)} = 303$$

The study employed a combination of stratified random sampling and purposive sampling techniques. Stratified random sampling was used to ensure adequate representation of the different professional groups, while purposive sampling was adopted to select respondents with relevant knowledge and experience in construction project delivery.

Data were collected mainly through a structured questionnaire. To ensure the reliability of the research instrument, a pilot study was conducted using 20 construction professionals, including consultants, contractors, and clients, who were not part of the main study but possessed similar characteristics. The pilot data were analyzed using Cronbach's Alpha coefficient, which is a widely accepted measure of internal consistency. The instrument yielded a Cronbach's Alpha value of 0.81, indicating a high level of reliability and confirming the consistency of the questionnaire items.

Data analysis involved both descriptive and inferential statistical techniques. Descriptive statistics were used to summarize and present the data, while inferential statistics were applied to test relationships and draw valid conclusions. The analyzed data were presented using Tables for clarity and ease of interpretation.

IV. RESULTS AND DISCUSSION

Table 1: Distribution of the Respondents responses on the impact of partnering as a procurement method in construction project delivery in the study area

Options	∑f	∑fx	RII	Rank	G. mean	G. rank
Cost						
Partnering helps reduce overall project costs through collaborative planning	626	2552	0.814	2nd		
Partnering minimizes cost overruns through joint risk management	626	2542	0.811	3rd		
Shared financial obligations in partnering lower the cost burden	626	2488	0.795	5th		
Early cost estimation is improved through collaborative design	626	2466	0.788	6th	0.805	2nd
Enhances value-for-	626	2572	0.819	1st		

money outcomes in execution						
Reduces costly variations and reworks	626	2514	0.802	4th		
Time						
Contributes to timely completion	626	2548	0.811	2nd	0.804	3rd
Reduces delays via early involvement	626	2512	0.800	3rd		
Ensures faster issue resolution	626	2512	0.800	3rd		
Collaborative scheduling shortens duration	626	2500	0.797	5th		
Improves communication to speed workflow	626	2557	0.816	1st		
Joint decision-making reduces delays	626	2512	0.801	4th		
Quality						
Ensures higher quality via accountability	626	2572	0.819	1st	0.806	1st
Enables better quality control	626	2542	0.811	2nd		
Enhances material specification	626	2518	0.803	4th		
Fosters continuous improvement	626	2519	0.803	3rd		
Reduces defects and rework	626	2518	0.803	4th		
Meets benchmarks via joint evaluation	626	2508	0.800	5th		
Safety						
Stronger safety culture	626	2553	0.814	2nd	0.808	4th
Joint planning improves safety	626	2557	0.816	1st		
Reduces accidents via shared risk	626	2526	0.807	4th		
Promotes awareness via training	626	2505	0.800	5th		
Improves compliance with regulations	626	2526	0.807	4th		
Early safety hazard mitigation	626	2515	0.802	6th		

Table 1 presents an analysis of respondents' perceptions regarding the effects of partnering as a procurement method in construction project delivery, using four key performance indicators (KPIs): cost, time, quality, and safety. From the cost dimension, respondents generally agreed that partnering significantly reduces project costs through mechanisms such as collaborative planning, joint risk management, and value-for-money strategies. The highest ranked cost-related effect was "Partnering enhances value-for-money outcomes in project execution" with a Relative Importance Index (RII) of 0.819, suggesting a strong consensus that shared financial responsibility and early cost estimation contribute to financial efficiency in project delivery.

In terms of time performance, partnering was acknowledged as a vital approach for reducing delays and improving workflow. Respondents rated "Improves project communication, which speeds up workflow" (RII = 0.816) and "Contributes to timely

completion of construction projects" (RII = 0.811) very highly. This indicates that early involvement of stakeholders, joint decision-making, and collaborative scheduling help mitigate common time-related setbacks in construction projects. These findings confirm that partnering encourages an integrated approach to project execution that supports faster resolution of issues and eliminates bureaucratic bottlenecks.

The quality and safety dimensions also recorded strong ratings, with mean group scores of 0.806 and 0.808 respectively, reflecting the high value respondents place on partnering's role in improving construction standards and site safety. Notably, "Partnering ensures higher construction quality through shared accountability" and "Joint safety planning in partnering improves site safety outcomes" both received RIIs above 0.81. These results suggest that integrating stakeholder input across all project phases fosters a culture of quality assurance and safety consciousness. Overall, the table demonstrates that partnering not only delivers technical and financial efficiencies but also enhances collaboration, transparency, and risk-sharing all of which are critical for achieving successful project outcomes in Enugu State.

In order to establish the level of impact of partnering as a procurement method in construction project delivery, the study employed one way ANOVA. This helped to determine if there is any significant difference in the impacts of partnering on cost, time, quality, and safety performance indicators as presented in Table 2

Table 2: Descriptive statistics of the One-way ANOVA

Performance Indicator	N	Mean	Std. Deviation	Std. Error
Cost	6	0.805	0.0116	0.0047
Time	6	0.804	0.0073	0.0030
Quality	6	0.806	0.0072	0.0029
Safety	6	0.808	0.0062	0.0025
Total	24	0.806	0.0082	0.0017

The descriptive statistics in Table 2 shows the respondents' perceptions of the impacts of partnering as a procurement method on four key performance indicators in construction project delivery: cost, time, quality, and safety. Each performance category consisted of six measured variables, resulting in a total of twenty-four RII observations. The analysis revealed that the mean RII scores across the four categories were closely aligned, with cost having a mean of 0.805, time at 0.804, quality at 0.806, and safety at 0.808. The slight variations in the means indicate that respondents generally perceived partnering to be effective across all performance areas, with safety having the highest mean, suggesting a marginally stronger effect in enhancing site safety outcomes. Moreover, the standard deviations within the groups were relatively low, ranging from 0.0062 to 0.0116, which implies a high level of consistency in the responses. The overall group mean was 0.806, indicating a generally high level of agreement among respondents on the positive impact of partnering on project delivery.

Table 3: ANOVA Table

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.000524	3	0.000175	1.729	0.192
Within Groups	0.002024	20	0.000101		
Total	0.002548	23			

The One-Way ANOVA results in Table 3 were used to statistically determine whether there were significant differences in the mean impacts of partnering across the four performance indicators. The analysis showed a between-groups sum of squares of 0.000524 and a within-groups sum of squares of 0.002024, resulting in a total sum of squares of 0.002548. The F-value calculated was 1.729, with a significance (p-value) of 0.192. Since the p-value was greater than the standard alpha level of 0.05, the result was not statistically significant. This implies that there is no sufficient evidence to conclude that partnering has a significantly different

impact on any one of the four performance indicators more than the others. In essence, partnering as a procurement method appears to exert a relatively uniform influence on cost, time, quality, and safety in construction project delivery within the study area. In other words, partnering as a procurement method influences all four performance aspects relatively equally, without any significant variation in their individual effects.

V CONCLUSION

This study examined the impact of partnering as a procurement method on construction project delivery in Enugu State, Nigeria, with specific emphasis on cost, time, quality, and safety performance indicators. The findings demonstrated that partnering was perceived by construction stakeholders as a highly effective procurement approach that enhanced overall project performance. Across all indicators, respondents consistently acknowledged that collaborative planning, early stakeholder involvement, shared risk allocation, and joint decision-making contributed positively to improved project outcomes.

The study established partnering as a viable and effective procurement method for improving construction project delivery in Enugu State. Its demonstrated ability to enhance collaboration, transparency, and mutual trust among project participants made it particularly suitable for mitigating longstanding inefficiencies in the Nigerian construction industry. The study therefore concluded that wider adoption and institutionalization of partnering practices in construction procurement would contribute significantly to achieving sustainable, efficient, and high-performing construction projects. The study recommends that public and private sector clients in Enugu State should increasingly adopt partnering as a preferred procurement method for construction projects.

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