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RESEARCH ARTICLE

EMPIRICAL STUDY ON THE IMPLEMENTATION SUCCESS OF COMMUNITY BASED PUBLIC PROCUREMENT MODEL FOR WORKS CONTRACTS IN IMO STATE NIGERIA

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ABSTRACT

The study investigated the principal component facilitator groups that influence the implementation success of community based public procurement model for works contracts in Imo State Nigeria. It also assessed the success rate and rate of delay in project delivery associated with the use of community based public procurement models for works contracts in the state. The study used survey research design method which comprised of questionnaire and checklist for collection of primary data from Imo State Oil Producing Areas Development Commission (ISOPADEC) funded projects, in oil bearing communities in three LGAs. The data obtained were analyzed using Principal component Analysis (PCA), the log-linear multiple regression analysis, and the descriptive statistics. The result of the study indicates that the determinant community-based facilitator groups that significantly influence the successful use of community based public procurement model for works contracts in Nigerian communities include: the community-based project development board ($\boldsymbol{DEVOP_{member}}$), the infrastructure security and safety committee ($\boldsymbol{SAF_{overseer}}$), the community based supply contractors ($\boldsymbol{SUP_{contractors}}$) and the use of the community based project advisory board ($\boldsymbol{AD_{board}}$). Each of these significant components has Eigen values greater than 1.0. The findings of the study also show that the coefficient of the success rate of public works project executed with the use of community based public procurement model (CBPM) is 76.57%. The coefficient of average delay in the execution and delivery of public works project executed relative to the use of CBPM is 6.7 months. Also, there is no significant relationship between the success rate of public works project in Imo State communities and the contributions of the determinant community based facilitator groups in the use of community based procurement models for works contracts. This study recommends for the adoption of better strategies to avert delays in the delivery of public projects executed using CBPM

Keywords: public-works, community-based-procurement, logistics, project, success-rate, project-delivery

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1.0. INTRODUCTION

Public procurement is viewed as the act and operation of procuring raw materials and semi-finished products as input into production processes and the procurement of fished goods, and services on behalf of a public authority, such as a Government of Government agency. For example, the act and operations of procuring construction materials for the construction of Federal roads in Nigeria by the Federal Ministry of Works, on behalf of the Federal Government of Nigeria, is termed public procurement. All Government Ministries and agencies are involved in the purchasing of operational materials for work as well as input materials for development projects, the process and act of procurement and acquisition of these operational and input materials is termed public procurement and the Act of parliament regulating such procurement by government and government agencies is called the public procurement Act. The importance of public procurement is seen in the huge amount of resources committed by Government into it for purposes of guaranteeing socio-economic development and public good (Yeow & Edler) 2012).

However, Government procurement is observed to be prone to high risk of corruption, as a result of the huge financial resources usually committed into procurement processes and contracts. Secondly, the complexities and bureaucratic bottlenecks involved in public procurement practices in most developing countries like Nigeria, has oftentimes led to failure in project execution and abandonment, increase cost of project delivery, delay and project execution and failure to deliver on the goals of development (Soylu et al, 2020). Most times, funds committed into public procurement contracts are embezzled by staff of government agencies, politicians and private government contractors. The effects are that the community development projects for which the fund in intended is abandoned. The community and society continue to live in hardship without enjoying the expected dividends of the projects. The corrupt embezzlement of funds meant for development projects in developing countries through corrupt procurement processes currently constitute a major challenge in several such countries.

To prevent and overcome fraud, waste, corruption, in the process of public procurement, Countries develop laws and Acts of parliament termed Public procurement Acts, for purposes of being used to implement public procurement contracts. However, the use of the Acts of parliament seems to have equally failed to address the corruption in public procurement practices. This has led to researches attempting to develop strategic purchasing in public procurement practices that limits the occurrence of project failure and abandonment, arising from corruption in public procurement practices (Stiglitz, 2000).

One of the strategic and innovative purchasing and public procurement strategy is the “Community based Public Procurement Model” (CBPM), which is an innovation in public procurement developed by the World Bank through research collaborations. The essence of the community based public procurement model is to involve the host community of the development project in the process of conceptualization of the project goals, formation of community based organizations to oversee and handle the procurement of materials for the projects and it successful realization to serve the need of the community. The CBPM thus serves in successfully eliminating or reducing corruption in public procurement through host community participation in all stages of project execution (De-Silva, 2000).

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Community based Public Procurement in the realization of Community-driven development (CDD) is defined an approach of in projects execution that gives control of decisions, procurement of resources and execution of the project, to community groups. It involves the creation of community based organizations (CBO) for design, procurement, implementation and management of local development works in order to eliminate the corruption in the Top-Bottom approach in public procurement practices in most developing countries, and which has most times led to project failures in rural communities (DeSilva, 2000; Yeung Albert, Chan & Daniel, 2009; Mansuri and Rao, 2004).

DeSilva (2000) note that one of the guiding principles underpinning community driven development initiatives is that communities have a comparative advantage in local planning based on their knowledge of their own needs and the local context. In the views of DeSilva (2000), while standard public procurement structures view informal networks like the CBPM as unreliable, it is also possible to that a one size fits all approach does not work and informal like the CBPM processes can succeed where formal standards of procurement are not fully met. Thus, the CBPM have worked in some developing Countries Like India, where community based organizations have successfully delivered community driven development projects, following the use of the model.

According to Edmonds & Johannessen (2003) variants of Community based procurement models exists reflecting the composition of the community based organizations and actors involved and assets generated within each project. Four distinct CBPM models are currently identified to be operating in community driven development projects implementation with relation to procurement processes. They include the following:

1. Family Based Private Asset Generating Procurement: This involves the use of close-knit family based Common Interest Groups are formed on economic and livelihood considerations and their procurement generates private assets for livelihoods like agricultural implements, cattle, etc. In this model, funds are channeled to and managed entirely by the community.

2. Village Organization Based Force Account Type Procurement: Village level community based organizations manage procurement for community goods and services like roads, check dams, community tanks, watersheds, etc. that follow more or less force account method etc. The funds are channeled to and managed entirely by the community.

3. Non-Governmental Organization (NGO) Based Procurement Service Agency (PSA) Type Procurement for CDD Implementation: In this category, NGOs act as service providers (running clinics, after-school centers etc.), agents or change managers in implementing specific activities (like forming and operating dairy federations) and procurement is often carried out for the benefit t of the community. The NGOs working closely with the communities submit proposals on their behalf, and the funds flow into the books of the NGOs or in to a joint account with the community project management committee through a fi nuancing agreement.

4. Third Party Contracted Procurement. Common interest groups or self-help groups outsource sub-projects to contractors when the communities cannot manage subprojects like construction of school buildings, pipelines, setting up power transformers etc. In this model, the communities participate in identifying and selecting contractors. The funds are channeled

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either from the project or the community organization to the contractor (DeSilva, 2000, Alan, 2005; Skuhrovec & Palanský, 2016).

In Nigeria, following the spate of project abandonment in in most communities as a result of corruption in the public procurement practices, the need for implementation of community based public procurement practices hs become crucial. This however cannot be immediately deployed without researches carried out to establish basic empirical relationships that will guide the use of the model as well secure the acceptance of and the views of the host community on the acceptability otherwise of the CBPM in implementation of public projects in rural communities in Nigeria. It is equally important that knowledge of the successful implementation of the CBPM in the execution of existing projects in Nigerian communities be provided basis for determining to what extent the use of the model can guarantee successful project delivery, eliminate or reduce delay in project execution and ensure speed delivery of projects.

The influence of the various components groups or units involved in a typical community based public procurement model for community driven development projects equally needs to be assessed in order that the determinant groups that influences successfully project executive significantly, can be prioritized and consistently evaluated to achieve better results with the Community based public procurement model. For example, studies by Till and Roman (2020) notes that a Village Organization Based Force Account Type Procurement CBPM used in the implementation of community driven project, may comprise of the following community based organization for successful project delivery: LGAs designated member (for government sponsored or supervised projects); Community advisory board; Community based project developer(managing developer); Community based financier or boards (funding); Community based suppliers (supply contractors); and Infrastructure Safety and security board members (usually community youth).

As a result, the individual groups exert varying levels of influence in the project execution with the common goal of ensuring successful project delivery to the host community. However, groups whose decisions significantly influence the success rate and speed of project delivery must be identified and consistently evaluated and monitored in order to have a community based public procurement and project execution model that works efficiently and effectively in delivery project goals.

Some of the challenges faced by public works procurement contracts in Nigerian states are the complexities and bureaucratic bottlenecks involved in public procurement practices which oftentimes have led to failure in project execution and abandonment, increased cost of procurement and project delivery, delay in project execution and failure to deliver on the goals of development. Most times, funds committed into public procurement contracts are embezzled by staff of government agencies, politicians and private government contractors. The effects are that the community development projects for which the fund in intended is abandoned. The community and society continue to live in hardship without enjoying the expected dividends of the projects. The corrupt embezzlement of funds meant for development projects in developing countries through corrupt procurement processes currently constitute a major challenge in several such countries.

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The development of use of community based public procurement models and practices will offer alternative approaches towards overcoming the challenges of the formal public procurement system. However, available empirical literature is unclear as to what model of community based public procurement practices can preferably be used best to overcome the procurement challenges occasioned by the use of the formal system. it is also seemingly unclear which among the component groups of the Village Organization Based Force Account Type Procurement model of community based procurement for example, constitute the determinant group that significantly influence the success rate of community driven development projects, implemented by the use of the CBPM. Furthermore, an understanding of the relationship between the success rate of projects involving the use of CBPM and the probability of delay in projects delivery are important information to guide against delay in project delivery occasioned by the choice of procurement methods. This information associated with the use of community based public procurement models is also seemingly unavailable. These are the problems which the identified in the study and for which the study seeks solutions to in order to ensure the availability of adequate empirical information for informed implementation of community based public procurement models and practices in Imo State, Nigeria**.** In line with the aforementioned challenges, the study identified the specific objectives of the study below.

1.2. Objectives of the Study

The specific objectives of the study include:

i. To determine the determinant group of actors (facilitators) that significantly influence the successful use of community based public procurement model for works.
ii. To establish the success rate of public projects executed through community based procurement model in Imo State, Nigeria.
iii. To model the relationship between the success rate of public projects in Imo State communities and the significant components of community based project facilitator groups in the implementation of a community procurement model.
iv. To determine the extent of delay in project execution relative to the implementation of community based public procurement models for works in Imo State

1.3. Research Questions

i. What are the determinant groups of actors (facilitators) that significantly influence the successful use of community based public procurement model for works?
ii. What is the success rate of public works projects executed through community based procurement model in Imo State, Nigeria?
iii. What is the extent the relationship between the success rate of public works project in Imo State communities and the significant components of community based project facilitator groups in the implementation of a community procurement model?
v. What is the extent of delay in project execution relative to the implementation of community based public procurement models for works?

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1.4. Research Hypotheses

The following null hypotheses are formulated to guide this study.

1. There is no determinant group of actors (facilitators) that significantly influence the successful use of community based public procurement model for works in Nigeria.
2. The success rate of public works projects executed through community based procurement model in Nigeria is indeterminate
3. There is no significant relationship between the success rate of public works project in Nigerian communities and the contributions of the significant community based facilitator groups in the use of community procurement model for works.
4. The level of adaption and implementation of community based procurement methods in project development in Nigerian Communities cannot be accurately ascertained.
5. There is no delay in the execution of public works projects relative to the implementation of community based public procurement model in Nigeria communities

2.0 Literature Review

Carmen and Holloway (2015) implemented a study on Community-Led Procurement. The aim of the study was to among other things expose the extent to which the Top-down government procurement strategies have historically been plagued by inefficiency and waste and determine how the use of community-led procurement in the execution of public projects in host communities can be used to overcome the challenges of government led procurement. The study identified that the lack of knowledge at the local level of the costs, the processes and actors involved, and the slow but often cumbersome systems for transfers of government finances, not only hinder the procurement process but also render it obscure (Carmen and Hollyway, 20015). According to Carmen and Hollyway 2015), lack of transparency and accountability makes the procurement processes susceptible to the abuse of funds and corruption. In some cases the government stipulates national level 'accredited' service delivery organizations which often result in the use of technologies that are inappropriate to local conditions and inefficient expenditure patterns. It is against this backdrop that Community-led Procurement (CLP) has gained momentum as a participatory tool to foster greater accountability and transparency in the procurement process. The study used survey method to obtained primary data from host communities of public projects, on how community involvement in procurement of project materials can enable the overcoming of the challenges existing in government led procurement practices (Carmen and Hollyway, 2015). It was found that, the involvement of communities through community based organization in the public procurement for community driven projects led to reduction of procurement costs associated with the projects and increased the speed of project delivery (Carmen and Hollyway, 2015).

Mehmet & Roberto (2021) carried out a study in title "positioning public procurement as a procedural tool for innovation: An empirical study". The study note that government spending is a major component of economic activity, and public procurement, in particular, accounts for around 12 percent of GDP in OECD countries. The aim of the study was to provide empirical information for the innovative use of public procurement practices in achieving economic growth and community development. It identifies an important limitation

of current research in procurement practices, which is the fact that most studies on procurement do not engage directly with our understanding of policy tools; instead, they implicitly treat procurement as a *substantive tool* (Mehmet & Roberto, 2021).. Indeed, the main functions of public procurement are certainly 'substantive,' such as purchasing goods and services and thus affecting production in society or in other organizations (Mehmet & Roberto, 2021). The study used primary data obtained from survey to determine that while the substantive impact of procurement on innovation in society and the market has been explored, there is need for a change in perspective that allows society to reflect on the procedural impact of procurement; that is, how public procurement can be used as a procedural tool to increase innovation in the public sector. The study found the intensity of innovations in public procurement practices – the number of innovations (including service, process, and communication innovations) implemented by organizations and communities based public procurement models present alternate public procurement approaches that eliminates or reduces the complexities, corruption and bureaucratic bottlenecks in the top-bottom government approach to public procurement. It also found the existence of strong evidence that there is a positive relationship between the activities of public procurement and the intensity of innovation in public organizations (Mehmet & Roberto, 2021). However, the study failed to provide empirical information on the influences of the facilitating groups in a community based public procurement model, on the success rate of community driven development project implementation.

In another study, Peter, Anthony, Katarzyna & Laurence (2023) did a study on public procurement as a policy tool: the territorial dimension. The study viewed public procurement as 'the purchase by governments and state-owned enterprises of goods, services and works' from other organizations, such as from firms. It notes that procurement is not only an operational act (the purchase) but also an administrative process, which (despite national differences in procurement practices) in general consists of several stages: the initial recognition of a public need (conceptual stage); the craft of the procurement contract (design stage); the call for tenders (tendering, or offering stage); the decision-making on proposals and the award of the contract (contract stage); the actual purchase (supply or execution stage); and the post-procurement evaluation of the provision (auditing stage) (Peter et al, 2023). The aim of the study was to investigate how the use of public procurement as a public tool can help to actualize the sustainable development goals and to what extents countries and regional government defer in the practices and models of public procurement. Peter et al (2023) notes that the European context of public procurement, the European Commission explicitly aims to promote procurement 'to boost jobs, growth and investment, and to create an economy that is more innovative, resource and energy efficient, and socially-inclusive' and to improve public procurement practices across Europe as 'even a 1% efficiency gain could save €20 billion per year (peter et al, 2023). The study notes that this is not the same in most developing Countries and in Africa where the processes of public procurement is marred by corruption, the implication is development projects meant for cities and societies are not delivered to the disadvantage of host communities. This underscores the need for the involvement of the host community as critical stakeholders, in the procurement and implementation of development projects in their community. This concept of involving the host communities in the development of projects in their communities has metamorphosed into the community based public procurement model, championed by the World Bank (Peter et al, 2023).

Karen L., Helen W., Irina H., Jane L.(2020) also did a study on Maximizing "Community Benefits" in public procurement: tensions and trade-offs. The aim of the study was to illuminate the challenges involved in implementing community benefits (CBs), a sustainable public procurement policy that ensures that there are positive social and economic outcomes for the local community when public money is spent on goods, works and services (Karen, Helen, Irina, and Jane 2020) the study used interviews and focus groups as survey instrument with public sector buyers and suppliers in Wales with experience in implementing CBs. Resource dependence theory was used to examine the extent to which dependence on resources effects CBs implementation. The findings of the study confirm that implementation of CBs improves economic and social outcomes, and that there can also be challenges for public sector organizations and their constituent supply chains. These include tensions between CBs and other policies, differing views between buyers and suppliers, and the unintended consequences of promoting one form of CBs over another (Karen, 2020). The findings of the study support the use of community based public procurement practices to oversee the implementation of community driven development projects.

Moreover, Evelyn, Ana, and Mohammad (2022) carried out a study on community social capital, political values, or organizational capacity? Indicators of engagement in sustainable public procurement at the local level. The study note that local governments are responsible for addressing environmental, social, and economic issues affecting their communities. Sustainable public procurement (SPP) offers a mechanism for local governments to address such issues by strategically utilizing government funds to efficiently and effectively achieve policy outcomes while also promoting the wellbeing of the environment, economy, and society (Evelyn, Ana, and Mohammad, 2022). The study identifies that while sustainability has become an increasingly popular approach among governmental actors and the general public in procurement adopting practices and the impacts, the factors driving local governments' sustainability efforts are largely unclear. This study therefore introduced novel measures of SPP which include: Green Procurement Index and Social Equity Index; and utilizes Poisson regressions to analyze procurement practices of 264 local governments to determine how community social capital, political values, and organizational capacity affect local government SPP implementation (Evelyn, Ana, and Mohammad, 2022). The findings of the study show that support from executive leadership and political ideology are significant predictors in two models of SPP.

However, there are other factors present in the operating environment that impact green and social equity procurement differently (Evelyn, Ana, and Mohammad, 2022). The implication of the findings is that, host communities should be involved as stakeholders in the procurement contracts for the execution of public projects so as to ensure maximum community benefits and successful implementation of the projects, (Evelyn, Ana, and Mohammad, 2022).

Iryna, Elina, Aki, Katriana, Jusi, Anni-Kiasa, (2022) did a study in title "Capturing the value creation in public procurement: A practice-based view". The study observes that public procurement has struggled to fulfill its mission to create public value to society, due to a narrow interpretation of value emphasizing the costs of procured goods and services without deeper reference to effects of inefficient procurement practices on the execution and delivery of public projects. The study was aimed at doing a holistic review of multi-

dimensional value creation of public procurement (Iryna, Elina, Aki, Katriana, Jusi, and Anni-Kiasa, 2022). The purpose of this paper is to fill this gap by analyzing the value components and means of value creation developed through public procurement activities. It used the method of a systematic literature review and did a content analysis of 171 research articles to determine the constituents of the value of public procurement and the practices needed to achieve them (Iryna, Elina, Aki, Katriana, Jusi, and Anni-Kiasa, 2022). Using the theoretical lens of the practice-based view, the study proposes a conceptual framework that holistically integrates different components of the value of public procurement for the public buyer, supplier, and user, along with the practices needed to achieve them. It however did not examine how much the delay in procurement contracts relate with the speed of execution of public developmental projects in communities.

Jad, Elina and Katrina (2023) explored the role of social capital in public procurement. The study aimed at determining ways of building on social capital theory (SCT) and its dimensions by examining the role of social capital in the public procurement process and by identifying related contingencies that may influence procurement performance (Jad EL., Elina and Katrina , 2023). The used a systematic literature review and a thematic analysis regarding social capital in procurement was conducted. The antecedent–behavior–consequence (ABC) model was employed for illuminating linkages between social capital, contingencies and procurement performance. The findings of the study indicate that the dimensions of social capital are investigated in the procurement process; however, the extent of social capital role can vary between the phases of the process. It concluded that the contingencies of social dynamics are linked with social capital and may influence the outcomes and performance of the procurement process. The findings imply that social capital can ease interactions between public buyers and private suppliers by contributing to effective tendering, improving social interaction in negotiations and balancing rigidity in contract management, supporting the interests of both parties. The provided framework helps decision makers to comprehend the social dynamics in public procurement. Thus, host communities can in line with the findings of the study can positively influence the outcome of community driving development projects through the use community based public procurement models and practices. Community based organization represent such form of social capitals that can be used to positively influence the successful delivery of development projects.

Zev (2012) did an empirical study of work contracts with emphasis on the cottage industries. The study opined that since the mid-2000s, the cottage industry has slowly blossomed of empirical research dedicated to advancing knowledge of work contracts. The study examined the behavior of contracting parties toward ensuring the success of works projects. The findings of the study identified eight critical questions organized by two propositions that span across disciplines that have most contributed to the success of works project once they are properly addressed. These questions bother on the skill and competence of the developing contractor, the speed of job delivery, the timely provision of funds for project execution by the project funders or owners, the quality of supervision of progress of work by both the regulatory authorities, project developers and owners, issues around safety and security of materials and staff, degree of timeliness and responsiveness of suppliers to needs of developers/ construction contractors, and lastly, the extent of willingness to implement and adhere to the provisions of the law with regards to the procurement of works contract (zev, 2012).

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In another study, Geleta, Mohd and Kefyalew (2020) did a study in title, determinants of public construction works contract performance application: an empirical survey. The overall purpose of the study was to identify determinants of public works contract performance, in Benishangul Gumuz region, Ethiopia. The researchers used survey method for the study and data were collected from the target population by means of self-administrative questionnaire and sample was selected by using stratified sampling. Descriptive and inferential analysis was employed to analyze the determinants of public construction works contract performance (Geleta *et al.*, 2020). The consequence shows that all determinants like contractor performance, consultant performance, contract management, and risk management significantly and positively affect public works contract performance; on the other hand cost overrun significantly and negatively affects public works contract performance.

Therefore, the researchers recommend that existing low level of public works contract performance should be improved in order to facilitate public service delivery and properly use of public money (wisely use of public resource). Moreover, contractors, consultants and clients should increase their performance (Geleta et al., 2020). Thus, owners, contractors, consultants and the concerned Government bodies who struggle to promote growth of public construction works contract should start at giving tremendous effort on this very prominent area. Following this public construction can be used as an engine for basic delivery of public service especially for the poor's and that improving public construction projects performance hence progress the welfare of the society at large (Geleta et al., 2020). The findings reveal that the estimated coefficient of contractor performance is 0.257, holding other independent variables constant, a one percent increase in contractor performance results in a 25.7% increase in Public Construction Works Contract Performance. The estimated coefficient of risk management is 0.168, holding other independent variables constant, a one percent increase in risk management results in a 16.8% increase in Public Construction Works Contract Performance. The estimated coefficient of contract management is 0.291, holding other independent variables constant, a one percent increase in contract management results in a 29.1% increase in Public Construction Works Contract Performance. The estimated coefficient of cost overrun is -0.164, holding other independent variables constant, a one percent increase in cost results in a 16.4% decrease in Public Construction Works Contract Performance. The estimated coefficient of consultant performance is 0.226.

Dimensionally, Chidiebube *et al.* (2021) evaluated the Factors Affecting Contractors Tender for Project Construction in small scale indigenous contractors in Awka, Nigeria. The study note that in Nigeria, small scale indigenous works contractors perform vital role that impacts on the economic stability of the Country. The small-scale indigenous works contractors contribute prominently to the economy by creating more noteworthy work openings, making higher creation volumes, growing convey, and introducing progression and business capacities in the construction industry. The study used survey method in which a total sample of 250 was used out of 400 small-scale indigenous works contractors and other professionals in the construction industry in Awka, Anambra State, Nigeria. Data for the study were generated using a questionnaire validated and endorsed by different professionals in the construction industry before being administered to the respondents (Chidiebube et al., 2021). The results and findings of the study showed that the company's strength, project risk, and competition all positively affect the determination of the indigenous contraction's willingness

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to bid for contracts in Awka, Anambra State, Nigeria (Chidiebube et al., 2021). The findings also revealed that the company's strength, project risk, and competition positively impact the contactor's decision to tender for construction projects.

Though the available empirical literature as aforementioned support the development and use of community based public procurement practices and models in which host communities leverage on the social capital to ensure the participation of community in the procurement process for the successful delivery of development projects in communities. There exist knowledge gaps such that no empirical study has been able to determine the determinant group of actors (facilitators) that significantly influence the successful implementation of community based public procurement model in Imo state Nigeria. Available empirical studies have also not been able to model empirical the relationship between the success rate of public project in Nigeria communities and the contributions of the individual facilitators in the implementation of a community procurement model. It is also lacking in available empirical literatures what constitute the nature and probability of delay in project execution relative to the implementation of community based public procurement model in Nigeria. These are the knowledge gaps, which this study is determined to address.

3.0. RESEARCH METHODS

3.1 Study Area and Research Design

The area of study for this study include about 9 rural communities in spread across 3 selected oil producing Local Government Areas (LGAs) in Oguta, Oru-East and Ohaji Egbema in Imo state where ISPADEC public works sponsored Water projects, road projects, school building projects, etc. are located. These include Oguta, omuma, Akiri, Awara, Mmahu, Umudike, Ikwerede, Obosima, Okporo, etc. in Imo state. The various projects in these communities represent examples of construction public works projects in rural communities necessitating the use of the CBPM for its successful implementation as itemized in Table 3.1.

Table3.1: Public works Projects used for the Study

S/No	Project
1	Omuma main market project (OMMP)
2	Omuma-Okporo Road (OOR)
3	Micheal Uzodinma General Hospital Omuma (MUGH)
4	Senator Francis Author Nzeribe General Hospital (SANGH)
5	Akiri Health Center Oguta (AHC)
6	Community Primary School, Amapu, Ohaji (CPSA)
7	Powerline Primary School, Okwuowerre, Abia Oru-East (PPSO)
8	solar powered water borehole project, umudike Ohaji Egbema (SBHU)
9	Construction of six classroom block, Mmahu Primary School, Ohaji Egbema (CMPS)
10	solar powered bore hole project, Ikwerede,(SPBHI) Awara, Ohaji

Source: ISOPADEC Reports (2021).

This study employed the survey research design method in achieving the objectives of the study. It used survey design in which questionnaire and checklist were used as survey instrument to elicit the responses of the stakeholders involved executed ISOPADEC (Government) sponsored public works projects in the oil-bearing rural communities Oru-East, Oguta and Ohaji Egbema LGAs in Imo Nigeria. The measurable responses of the

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participant stakeholders provided information on the use of community based public procurement model in the execution of the projects, the contributions of each component group in the community based public procurement model namely: LGA designated members, the private developer (managing member), private project funder(s), community based advisory board, and community based supply contractors to the expected successful execution of the projects will be obtained. Primary data on the numbers of projects successfully delivered through the implementation of community based public procurement model (CBPM) in oil bearing communities in the selected LGAs and the expected completion time and actual completion and inauguration dates between 2020 and 2024 were obtained by the use of checklist Table 3.1 is a pictorial illustration of the research design used in the study.

3.2 Population and Sampling Methods

The population of the study consists of the about 607400 inhabitants of the three LGAs in Imo state which constitute the study area. From the population, samples were purposively randomly selected from the stakeholders in the CBPM in the execution of the selected projects, and other inhabitants in the project host communities and the LGAs; and the survey instruments was delivered to each respondent for responses. For the purpose of conducting the survey, the study adopted a purposive random sampling technique in which the responses of project stakeholders, LGAs designated members, community groups and other relevant individuals that have capacity to provide reliable and needed information for the implementation of the study, will be purposively and randomly sampled. The reason for the purposive random sampling was because these group of respondents are better positioned to provide accurate information and data for the realization of the study objectives and some of them are directly involved in the procurement, handling and storage during the project execution stage. The sample size was determined by the use of Taro Yammane formula for determination of sample for known population that:

$$n = \frac{N}{1+N(e)^2)} \qquad (3.1)$$

Where： n= sample size required; N = number of people in the population; e = allowable error (%) = 0.05; n = 400

The sample size consists of 400 participants with requisite knowledge and information on the dynamics of the implementation of community based public procurement practices in the execution and delivery of public projects in rural communities and LGAs in Imo state and is stakeholders in such community projects at some point in time. However, out of the 400 questionnaires distributed, only about 282 people representing about 71 percent of the respondents returned correctly filled questionnaires and checklist.

3.3. Reliability of the Study

An instrument is reliable when it can measure a variable accurately and constantly and obtain the same results under the same conditions of a period of time. Reliability of a questionnaire is concerned with the consistency of responses to the researchers' questions. Correlation analysis was used to assess the reliability of the responses by the respondents using a test-retest reliability measurement. The test indicated a correlation coefficient of 0.75; which indicates about 75% positive correlation. Thus, the instrument was reliable.

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3.4. Method of Data Analysis

The study employed various methods to analyze the data collected. It used the principal component (PCA) method to determine which component group of facilitators (stakeholders) constitute the determinant group that significant group that significantly influence the successful delivery of public projects using the community based public procure model.. The study also employed the log-linear multiple regression (LMR) method to model the relationship between success rate of public projects relative to the implementation of community based public procurement model and the contributions of the facilitator groups in the CBPM.

The occurrence probability model will be used to estimate the probability of delay and speed project delivery while the percentage method will be used to determine the success rate of public project implemented by the use of community based public procurement practices.
Lastly, the multiple regression analysis method will be used to model the relationship between success rate of public project delivery and the speed cum probability of delay in the execution of the projects.

3.4.1 Principal Component Analysis (PCA)

The Principal Component Analysis (PCA) will be employed to determine which component group of facilitators (stakeholders) constitute the determinant group that significant group that significantly influence the successful delivery of public projects using the community based public procure model. PCA constitute is a statistical tool used as a data reduction method to determine which sets of component groups in the community based procurement model whose contributions significantly influence the successful delivery of the public project more than the contributions of others. It is important to note that simple model of community based public procurement model for execution of work in rural communities is primarily composed for example of LGA designated members ($LGA_{designate}$); the private project developer and Managing member ($DEVOP_{memeber}$); private project funder(s) or financiers ($FIN_{memeber}$), that leverages public funding; Community based advisory board (AD_{board}); Community based supply contractors ($SUP_{contractors}$); and Community based security, safety, maintenance overseers ($SAF_{overseers}$).

Since the first objective of the study is to determine the determinant group of facilitators that significantly influence successful project implementation relative to the use of community based public procurement model; the PCA method forms a good tool used to achieve that objective of the study. Using the SPSS version 20.1, the study employed the PCA analytical method in analyzing the data obtained from the field survey.

3.7.1: Log-Linear Multiple Regression Model

A multiple regression model is the extension of the simple regression model to the case in which, there is more than one (multiple) independent variables under study. The multiple regression model is a system of equation in which one dependent variable is regressed on more than one explanatory variables to determine the significance of the relationship between the explanatory variables and the dependent variable.

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Recall that the second objectives of the study is to model the relationship between the success rate of public project execution relative the use of community based public procurement model and the component facilitating groups in the CBPM.

Thus we assume that the success rate (SUC_{rate}) of public project execution with the use of the CBPM is dependent on the influence of the component facilitating groups in the CBPM identified to include: LGA designated members ($LGA_{designate}$), the private project developer and Managing member ($DEVOP_{memeber}$), private project funder(s) or financiers ($FIN_{memeber}$), that leverages public funding, Community based advisory board (AD_{board}), Community based supply contractors ($SUP_{contractors}$), Community based security, safety, maintenance overseers ($SAF_{overseers}$).

We formulate a regression equation to show the influence of the contributions of the components groups of the community based public procurement model on the success rate of project delivery as follows:

$$SUC_{rate} = LGA_{designat} + DEVOP_{memebe} + FIN_{memeber} + AD_{boar} + SUP_{contractors} + SAF_{overseers} \quad (3.2)$$

$$SUC_{rate} = \beta_0 + \beta_1 LGA_{designat} + \beta_2 DEVOP_{memebe} + \beta_3 FIN_{memeber} + \beta_4 AD_{boar} + \beta_5 SUP_{contractors} + \beta_6 SAF_{overseers} \quad (3.3)$$

Where : SUC_{rate} = rate of successful project delivery; $LGA_{designat}$ = Contribution of the LGA designated members ($LGA_{designate}$); $DEVOP_{memebe}$ = Contribution of the private project developer and Managing member ($DEVOP_{memeber}$); $FIN_{memeber}$ = contribution of the private project funder(s) or financiers ($FIN_{memeber}$), that leverages public funding; AD_{boar} = contribution of Community based advisory board (AD_{board}); $SUP_{contractors}$ = contribution of Community based supply contractors ($SUP_{contractors}$); $SAF_{overseers}$ = contribution of Community based security, safety, maintenance overseers ($SAF_{overseers}$).

B_0= regression constant; B_1---- B_6 = coefficients of regression; ε = random error term.

Taking the natural log of the variables to be able to implement the log-linear regression we have: $LogSUC_{rate} = \beta_0 + \beta_1 LogLGA_{designat} + \beta_2 LogDEVOP_{memebe} + \beta_3 LogFIN_{memeber} + \beta_4 LogAD_{boar} + \beta_5 LogSUP_{contractors} + \beta_6 LogSAF_{overseers}$ **(3.4)**

Using equation 3.4, we achieved the second objective of the study.
Similarly, the sixth objective of the study seeks to determine the relationship between the success rate of public project delivery relative to the use of the CBPM and the speed (PRO_{speed})d cum probability of delay ($DLY_{project}$) in the execution of the project. We also used the multiple regression analysis method to actualize the objective using success rate of project execution in the use of community based public procurement model as the dependent variable. We write that:

$$SUC_{rate} = \beta_0 + \beta_1 PRO_{speed} + \beta_2 DLY_{project} \quad (3.5)$$

$$LogSUC_{rate} = \beta_0 + \beta_1 LogPRO_{speed} + \beta_2 LogDLY_{project} \quad (3.6)$$

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4.0. PRESENTATION OF RESULTS AND DISCUSSIONS

Table4.1a: Principal Component actors (facilitators) that significantly influence the successful implementation of community based public procurement model

	Mean	Std. Deviation	Analysis N
$DEVOP_{member}$	26.2455	5.07587	282
$SAF_{overseer}$	18.6655	7.36171	282
$SUP_{contractors}$	18.2527	7.39343	282
AD_{board}	16.0925	8.36084	
$LGA_{designate}$	11.5303	4.60666	282
FIN_{member}	11.3701	3.87183	282

4.1b: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.992	40.289	40.289	3.992	40.289	40.289
2	2.244	24.404	64.693	2.244	24.404	64.693
3	1.241	13.479	80.172	1.241	13.479	80.172
4	1.145	10.205	90.377	1.145	10.205	90.377
5	.039	7.537	99.914	.039	7.537	
6	.643	4.086	100.000	.643	4.086	

Extraction Method: Principal Component Analysis. [a] a. 4 components extracted.
Source: Authors calculation.

Table 4.1 shows the results of the principal component factor analysis (PCA) conducted to determine the significant component community based facilitators that influence delivery of public projects using the community based public procurement strategy. The result shows the perception of host communities about the most important group of community facilitators and level of community participation in the execution of public projects in Nigeria. The results of the study, as shown in Table 4.6, indicate that involvement of host community as LGA designate members ($LGA_{designate}$) which involves the nomination of host community representatives in Local Government designated members to monitor the progress of the project, has a mean value of 11.53 percent with standard deviation of 4.606. The involvement of the members of the host community as part of the financial facilitators (FIN_{memebr})of the project and funders has mean score of 11.370 percent with standard deviation of 3.872.

The used of Community based advisory board (AD_{board}) which are members of the host community inaugurated to form an advisory board to ensure the success of the public project has mean score of 16.0925% with standard deviation of 8.36084 while the involvement of Community based supply contractors ($SUP_{contractors}$) which are members of the host community in the supply of work materials for the execution of given public projects has a mean score of 18.2527% with standard deviation of 7.39343. The involvement and use of Private Project Developers which are indigenes of the host community ($DEVOP_{member}$) to participate in the execution of public projects and the involvement and use of Community

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based security, safety and maintenance overseers ($SAF_{overseers}$) which are majorly youths of the host community recruited to participate in the execution of the project as security, safety and maintenance overseers has mean scores of 26.2455 percent and 18.6655 percent respectively with respective standard deviations of 5.07587 and 7.36171.

The results of the PCA further reveal that the significant components of community based facilitators or groups that contribute greatest to the guaranteed successful execution and delivery of public projects in host communities in the selected oil bearing communities in Imo state Nigeria include: The involvement and use of Private Project Developers which are indigenes of the host community ($DEVOP_{member}$), the involvement and use of Community based security, safety and maintenance overseers ($SAF_{overseers}$), the involvement of Community based supply contractors ($SUP_{contractors}$), and the used of Community based advisory board (AD_{board}) which are members of the host community inaugurated to form an advisory board to ensure the success of the public project.

Since each of the identified significant components have Eigen values greater than one (Eigen value>1), we assert that they (four of them) constitute the detainment component community based facilitators preferred by the project host communities to participate in the procurement of public works projects in the communities in order to guarantee the success of the projects. The implementations of the significant components have implications on the confidence of the host communities that the the particular public projects may successfully be delivered while the project objectives and goals from the perspectives of the host communities will be actualized. Note that the other components which include the LGA designated members ($LGA_{designate}$) and private project funder(s) or financiers ($FIN_{memeber}$), each with their respective Eigen values of less than 1 (Eigen<1); are not significant components considered by the host communities as guaranteeing their participation in the procurement of public works contracts in Nigerian communities. The extent of influence of the significant components was tested further in the third objectives of the study used t-test, corresponding to a multiple regression analysis.

Table4.2: The success rate of projects executed through CBPM

Column1	$SUC_{score}(\%)$		
Mean	76.57295	Mean	#DIV/0!
Standard Error	1.148288	Standard Error	65535
Median	80	Median	#NUM!
Mode	100	Mode	#N/A
Standard Deviation	19.24882	Standard Deviation	#DIV/0!
Sample Variance	370.517	Sample Variance	#DIV/0!
Kurtosis	-0.29711	Kurtosis	#DIV/0!
Skewness	-0.64548	Skewness	#DIV/0!
Range	80	Range	0
Minimum	20	Minimum	0
Maximum	100	Maximum	0
Sum	21517	Sum	0
Count	281	Count	0
Confidence Level(95.0%)	2.260374	Confidence Level(95.0%)	#NUM!

Source: Author's calculation.

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The result of the study on Table4.2 above shows the result of the respondent's perception of the success of public works projects executed by ISOPADEC in the various oil bearing communities in the three Local Government Areas (LGAs) in Imo state Nigeria sampled in the study. The result shows that the average success score of the public works projects executed in the selected host communities is 76.57 percent with a standard deviation of 19.2488 and standard error of 1.1483. The range showing the difference between the maximum and minimum success score is 80 percent.

The implication is that public works projects executed by ISOPADEC in the Imo host communities that adopted various communities based public procurement models achieved a success rate of 76.57 percent. This implies that apart from the successful completion of the projects, the goals and objectives of the projects to the host communities were 76.57 percent achieved. This underscores the need for the increased adoption and use of the Community based Public Procurement Models for the execution of public works projects in Nigeria.

The models of relationships among and between the success rate of public works projects and the significant components of community based project facilitator groups are summarized in Tables 4.3a, 4.3b, and 4.3c respectively.

Table 4.3a: Multiple Linear Regression Model of the Relationships among dependent and Independent Variables

Model	Multiple R	R Square	Adjusted R Square	Standard Error
1	0.81151	0.65851	0.30892	18.94917

Source: Authors' Analysis (2025).

Table 4.3b: ANOVA Test of Variations among Dependent and Independent Variables

Model	Sum of Squares	Mean Squares	df	F	Sig
Regression	4641.94	1160.299	276	5.231392	0.012964
Residual	99103.56	359.0709	280		
Total	103744.8				

Source: Authors' Analysis (2025).

Table 4.3b: Partial Regression Model and T-test of Variation between Variables

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	95.52677	6.908349	13.82773	2.12E-33	81.92702	109.1265
$SAF_{overseer}$	0.22684	0.15421	1.87101	0.01442	0.53042	0.076734
$SUP_{contract}$	0.31029	0.159496	1.94543	0.02738	0.62427	0.003695
$DEVOP_{memeber}$	0.24487	0.136856	1.87922	0.04675	0.51428	0.024548
AD_{board}	0.2003	0.23039	0.86938	0.38595	0.65384	0.253249

Source: Authors' Analysis (2025).

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Table4.3 above shows the result carried out in order to address the third objective of the study which sought to derive the relationship between the success rate of public works projects in host communities and the components of community based public project facilitators. The result shows that the correlation which measures the level of association between success rate of public works projects implemented by the use community based public procurement strategy and the significant component groups of community based public works project facilitators is 0.81151. This implies that there exists about 81% positive correlation between success rate of public works projects executed and the significant components of community based facilitators groups that contribute to the guaranteed successful execution and delivery of public works projects in host the communities which include: the involvement and use of Private Project Developers which are indigenes of the host community ($\boldsymbol{DEVOP_{member}}$), the involvement and use of Community based security, safety and maintenance overseers ($\boldsymbol{SAF_{overseers}}$), the involvement of Community based supply contractors ($\boldsymbol{SUP_{contractors}}$), and the used of Community based advisory board ($\boldsymbol{AD_{board}}$) which are members of the host community inaugurated to form an advisory board to ensure the success of the public project.

The equation which depicts the extent of relationship and influence of the involvement and use of Private Project Developers which are indigenes of the host community ($\boldsymbol{DEVOP_{member}}$), the involvement and use of Community based security, safety and maintenance overseers ($\boldsymbol{SAF_{overseers}}$), the involvement of Community based supply contractors ($\boldsymbol{SUP_{contractors}}$), and the used of Community based advisory board ($\boldsymbol{AD_{board}}$) on the success rate of public works project incorporating CBPM is:

$$\boldsymbol{LogSUC_{rate}} = 95.52677 + 0.24487LogDEVOP_{memebe} + 0.2003LogAD_{boar} + 0.31029LogSUP_{contractors} + 0.22684LogSAF_{overseers} \quad (4.1)$$

The implication is that a percentage increase in the involvement and use of Private Project Developers which are indigenes of the host community ($\boldsymbol{DEVOP_{member}}$) in the procurement of public works project will increase the success rate of the project by 0.24487% while a percentage increase in the use of Community based advisory board ($\boldsymbol{AD_{board}}$) which are members of the host community inaugurated to form an advisory board in the execution of public works projects will increase the success rate of the project by 0.2003%. Similarly, a percentage increase in the involvement of Community based supply contractors ($\boldsymbol{SUP_{contractors}}$) in the execution of public works contract in host communities will lead to an increase of about 0.31029% in the success rate of public works projects. Lastly, a percentage change in the participation and use of Community based security, safety and maintenance overseers ($\boldsymbol{SAF_{overseers}}$) in the procurement of public works contract will increase the success rate of the project by 0.24484%.

The coefficient of determination which measures the explanatory power of the model is 0.65851. This implies that about 66% variation in the success rate of public works projects that adapted the use of CBPM is explained by the significant components of community based facilitators groups that contribute to the guaranteed successful execution and delivery of public works projects in host the communities which include: the involvement and use of Private Project Developers which are indigenes of the host community ($\boldsymbol{DEVOP_{member}}$), the involvement and use of Community based security, safety and maintenance overseers ($\boldsymbol{SAF_{overseers}}$), the involvement of Community based supply contractors ($\boldsymbol{SUP_{contractors}}$), and the used of Community based advisory board ($\boldsymbol{AD_{board}}$) which are members of the host

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community inaugurated to form an advisory board to ensure the success of the public project. The extent and significances of the influences of each of the four significant components identified above, is discussed in section 4.3 under the test of hypotheses.

Table4.4: The Extent of delay in project execution relative to the implementation of community based public procurement model

	SPBHI (%)	OOR (%)	SBHU (%)	MUGH (%)	OMMP (%)	SANGH (%)	CMPS(%)	AHC (%)	CPSA (%)	PPSA (%)	Average(%)
Labour supply	28	30.66	24	36	56	40	48	33.33	53.33	60	40.93
Community advisory board	33.3	21.33	26.66	13.33	-	10.66	-	20	-	-	12.52
Community based financier or boards	0	-	0	-	-	-	-	-	-	0	0
Community based material suppliers	4.0	2.69	13.33	6.66	6.66	6.66	10.67	10.67	13.33	6.66	8.133
Infrastructure Safety and security board members	29.33	6.66	33.33	14.67	10.67	16	13.33	18.66	9.33	6.66	15.86
Community-based Develop. & compensation negotiation team	5.33	38.66	2.66	29.33	26.66	26.66	28	17.33	24	26.66	22.53
Expected completion time (in months)	6	12	6	12	18	12	12	8	12	12	12.2
Actual delivery time (ADT) (in months)	8	17	8	15	progressing	15	progress	12	On going	On going	-
Delay (in months)	2	5	2	3	12	3	12	4	12	12	6.7
Remarks	Completed	Done	done	Done	-	Done	On going	Done	On going	On going	

OMMT= Omuma main market project, OOR= Omuma-Okporo Road (OOR) project, MUGH = Micheal Uzodinma General Hospital Omuma; SANGH= Senator Francis Author Nzeribe General Hospital, Oguta; AHC= Akiri Health Center Oguta; CPSA= Community Primary School, Amapu, Ohaji; PPSO = Powerline Primary School, Okwuowerre, Abia Oru-East; SBHU = Solar Powered Water Borehole Project, Umudike Ohaji Egbema; CMPS = Construction of six classroom block, Mmahu Primary School, Ohaji Egbema; SPBHI = Solar Powered Bore Hole Project, Ikwerede, Awara, Ohaji;

The result of the study as shown in table4.4 shows the percentage scores of the different extent of adoption and integration of various components of community facilitators in the procurement of public works projects in Nigerian communities, the average expected delivery dates of the various ISOPADEC projects used as cases studies and the actual delivery or completion dates of the projects as well as the associated delay. The result indicates that the mean expected date of completion of each of the projects is 12.2 months while the mean delay encountered in the delivery date of the projects is 6.7 months. The result also reveal that public works projects which had the highest level of participation of host communities as adhoc labour force with lower level of community participation as advisory board members. Community based developers and infrastructure security and safety committee members recorded the most delay in execution.

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For example, the Ommuma Main Market Project (OMMP), Construction of six classroom block, Mmahu Primary School (CMPS), Ohaji Egbema LGA, Community Primary School, Amapu (CPSA), Ohaji and Powerline Primary School, Okwuowerre (PPSO), Abia Oru-East LGA; had respective of 56%, 48%, 53.33% and 60% scores of host communities participation as adhoc labour force in the execution of the project. These projects equally recorded the highest delay in execution and are still on going. They had the least level of host community participation in the project advisory board, project developer groups and infrastructure security and safety board. Similarly, the public works projects with higher participation of host community members in project advisory board, project developers group, infrastructure security and safety committee have lower involvement of host community members as adhoc labour force and have the least project delay records.

4.0. Discussion of Findings

4.1: Test of Hypotheses

In this section, the various hypotheses proposed for the research were tested as shown below.

Table4.5: Test of hypothesis H_{01}: There is no determinant group of actors (facilitators) that significantly influence the successful use of community based public procurement model for works in Nigeria.

Components CBP Facilitation levels	Initial Eigen values	Decision
$DEVOP_{member}$	3.992	Significant, Reject H_{01}
$SAF_{overseer}$	2.244	Significant
$SUP_{contractors}$	1.241	Significant
AD_{board}	1.145	Significant
$LGA_{designate}$	.039	Not significant
$FINmember$	.643	Not significant

Source: Author's calculation. Reject *null hypothesis if Eigen value ≥ 1; Accept null hypothesis if Eigen value. < 1.*

The test of hypothesis H_{01} indicate that the determinant community based facilitator groups that significantly influence the successful use of community based public procurement model for works in Nigerian communities include: the community based project development board ($DEVOP_{member}$), the infrastructure security and safety committee ($SAF_{overseer}$), the community based supply contractors ($SUP_{contractors}$) and the use of the community based project advisory board (AD_{board}). Each of the significant components have Eigen values greater than 1. We reject the null hypothesis H_{01} and accept the alternative that there are determinant groups of actors (facilitators) that significantly influence the successful use of community based public procurement model for works in Nigeria.

Table4.6: H_{02}. The success rate of public works projects executed through community based procurement model in Nigeria cannot be ascertained.

Variable	Coefficient of average success rate	Decision: if $SUC_{score}(\%) = 0$, Accept H_{02}
$SUC_{score}(\%)$	76.57295	$SUC_{score}(\%) = 76.57295 > 0$; Reject H_{02}

Source: Author's calculation

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The test of hypothesis H_{02} shows that the coefficient of the success rate of public works project executed with the use of CBPM is 76.57295 percent. Since the coefficient of the success rate is greater than zero, we reject null hypotheses H_{02} and accept the alternate. We conclude that the success rate of public works projects executed through community based procurement model in Nigeria is 76.57295 percent.

Table4.7: *H_{03}*. There is no significant relationship between the success rate of public works project in Nigerian communities and the contributions of the significant community based facilitator groups in the use of community procurement model for works.

	Hypotheses	**F-score.**	**p-value/sig.**	**Decision**
	H_{03}	5.231392	0.012964	Reject ***H_{03}***
variables				
		t-score		
$SAF_{overseer}$	-	1.87101	0.01442	significant
$SUP_{contract}$	-	1.94543	0.02738	significant
$DEVOP_{memeber}$	-	1.87922	0.04675	significant
AD_{board}		0.86938	0.38595	Not significant

Source: Authors calculation. Reject *null hypotheses if F-cal > f-critical; Accept null hypotheses if F-cal.< F-critical. or Reject H_{01} if p-value<0.05; Accept H_{01} if p-value>0.05*

The test of hypothesis H_{03} reveal that the f-score is 5.2314 and the p-value is 0.012964. Since the p-value is less than the alpha value of 0.05, (i.e.: 0.012964<0.05); we therefore reject the null hypothesis **H_{03}** to conclude that there is no significant relationship between the success rate of public works project in Nigerian communities and the contributions of the significant community based facilitator groups in the use of community procurement model for works.

Similarly, the t-score which is used to test the significances of the effects of the individual explanatory variables of use of host community member in infrastructure security and safety committee, project developer board member, material suppliers and contractors, and project advisory board, reveal that, the use of host community members in infrastructure security and safety committee, project developer board member and material suppliers and contractors each have with t-scores of 1.87101, 1.94543, and 1.87922 respectively with respective p-values of 0.0142, 0.05 ad 0.046 have significant effects on success rate of public works projects procured by the use of the CBPM. The use of community members as in the project advisory board has no significant effects on success rate of public projects executed by the use of CBPM.

Table4.8: *H_{05}*. There is no delay in the execution of public works projects relative to the implementation of community based public procurement model in Nigeria communities

Variable	**Coefficient of average delay in project delivery**	**Decision: if Delay=*0, Accept H_{05}***
Delay(months)	6.7moths	*Delay = 6.7>0; Reject H_{05}*

Source: Author's calculation

The test of hypothesis H_{05} shows that the coefficient of average delay in the execution and delivery of public works project executed with the use of CBPM is 6.7 months. Since the coefficient of average delay is greater than zero, we reject null hypothesis H_{05} and accept the

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alternate. We conclude that there is no delay in the execution of public works projects relative to the implementation of community based public procurement model in Nigeria communities

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The study conclude in line with the result and findings of the study that the determinant community based facilitator groups that significantly influence the successful use of community based public procurement model for works in Nigerian communities include: the community based project development board($DEVOP_{member}$), the infrastructure security and safety committee($SAF_{overseer}$), the community based supply contractors ($SUP_{contractors}$) and the use of the community based project advisory board(AD_{board}). Each of these significant components has Eigen values greater than 1. This provides evidence of the realization of the first objective of the study.

The findings of the studies that addressed the second objective of the study which seeks to establish the success rate of public projects executed through community based procurement model in Nigeria indicate that, the coefficient of the success rate of public works project executed with the use of CBPM is 76.57295 percent.

The coefficient of average delay in the execution and delivery of public works project executed relative to the use of CBPM is 6.7 months. This provides evidence of the realization of the third objective of the study. There is no significant relationship between the success rate of public works project in Nigerian communities and the contributions of the determinant community based facilitator groups in the use of community procurement model for works. This supports the realization of the fifth and last objective of the study.

5.2. Recommendations

It is recommended that;

1. The Government should increase the rate of adaption and use of the community based public procurement models for public works in rural communities in Nigeria. This is because majority of such public works projects executed using this strategy are successfully delivered and the goals of the projects achieved.

2. The use of host community members in infrastructure security and safety committee, project developer board member, material suppliers and contractors, and project advisory board, reveal that, the use of host community members in infrastructure security and safety committee, project developer board member and material suppliers and contractors each have significant influence on the success rate of the project and therefore should be prioritized in the implementation of CBPM.

3. Strategies should be developed to limit the delay encountered in the delivery of public projects executed based on the CBPM.

Competing Interest

The authors declare that no conflicting interest exist in this paper.

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