Covenant Journal of Research in the Built Environment (CJRBE)

Public Private Partnership System Initiation Challenges for the Procurement of Public Infrastructure.

[1]Ojelabi Rapheal A., [2]Oyenubi Adebayo and [3]Afolabi Baruwa

[1]Department of Building Technology, Covenant University Ota, Ogun State

[2]Turner and Townsend, 50 Carlifonia St 27th Floor Suite 2700, San Francisco, CA, 94111, USA

[3]Setscape Nigeria Limited, 172 Oworonshoki Expressway, Gbagada, Lagos, Nigeria.

Corresponding Author Email: rapheal.ojelabi@covenantuniversity.edu.ng

Abstract

This study investigates the severity of the challenges associated with the Public-Private Partnership system initiation phase in the procurement of public infrastructure. Also, strategies for managing the barriers associated with the procurement system were evaluated. The study adopted a quantitative research method, conducting a questionnaire survey targeted at selected PPP stakeholders, which includes Architects, Builders, Structural engineers, estate managers, and Quantity surveyors in Lagos and Abuja. The stakeholders were elicited from selected 19 PPP projects using a project-based approach. The data generated were analysed with SPSS 21 using descriptive and inferential tools. Findings from the study revealed the most severe factors associated with PPP procurement system failure to deliver public infrastructure at the inception phase, including a lack of PPP development fund to promote PPP, corruption among the political class, and investors' perception of the country as high-risk for investment. Likewise, strategies considered significant to managing the PPP initiation barriers were unveiled including establishing policies to facilitate PPP at the inception phase, improving transparency in information sharing and providing guarantee legal framework to protect investors. The findings will grant PPP stakeholders insights to the issues responsible for the termination of PPP project collaboration at initiation phase of the procurement system. Also, the unveiling of the PPP challenges and mitigating strategies at the inception phase could guide stakeholders in developing a framework to a successful PPP implementation in a bid to encouraging more participation at this level.

Keywords – Barriers, Infrastructure delivery, Implementation, Initiation phase, Nigeria, Procurement, Public private partnership.

1. Introduction

The delivery of public infrastructural facilities worldwide has gone through different procurement systems. The change in the procurement system has been influenced by the government's quest to attain a sustainable procurement option for socio-economic infrastructure provisioning (Neto *et al.*, 2020; *Ojelabi et al.* 2022; *Stepanov et al.* 2025). The rising demand for socio-economic infrastructure beyond the

government's capacity triggered the adoption of a PPP procurement system (*Adetoro et al*. 2024). The PPP procurement system permits the inclusion of the private partner's finance and expertise in public infrastructure delivery. Hamilton and Holcomb (2013) revealed that PPP is a dependent procurement route for developing countries that are yearning for social and environmental development. Ogunsanmi (2014) affirmed that developing countries in Asia, like Pakistan, India, and Nepal, had adopted the PPP procurement option to meet their countries' socio-economic infrastructure needs. According to Ogusanmi (2014), some African countries, like Ghana, South Africa, Egypt, Mozambique, and Mauritius, have found PPP highly instrumental in their social and environmental development plan. Like other countries worldwide, the Nigerian government adopted the PPP procurement option to enhance its infrastructure (Edogbanya and Adeleke, 2024). However, despite the country's infrastructure gap, the number of ongoing PPP projects has not increased due to issues leading to the termination of the procurement system implementation at the inception phase. Sun, Sun, and Li (2022) study affirmed that there are factors contributing to the early termination of PPP construction projects. The inception phase of the PPP procurement system is the phase that initiates the process towards infrastructure project delivery (Osei-Kyei and Chan, 2018; Bagenda & Ndevu, 2023). The inception phase is highly important in PPP procurement because it encompasses the project identification and feasibility studies that are essential in PPP initiation and successful execution in construction project delivery (Osei-Kyei and Chan, 2016). This procurement stage's success establishes the need for the government to interact with private investors for partnership under a PPP arrangement for socio-economic infrastructure procurement. Hence, from the preceding, it can be inferred that until the PPP inception phase is completed and approved, the procurement system cannot transit to the next phase, which is critical in determining the infrastructure project delivery. Meanwhile, a number of PPP projects have been terminated at this phase, and the termination of the PPP procurement system at the inception phase is a pointer to some key issues associated with the procurement system. Hence, the study aimed at investigating the barriers truncating the PPP procurement system at the inception phase in infrastructure procurement.

Several studies have been conducted on PPP. For example, Sanda *et al.* (2016) study, focused on identifying and managing risks in the implementation of PPP for housing delivery in Nigeria. Dantata (2014) study, examined PPPs as an answer for Nigeria's development challenges. Also, several studies have examined general challenges that are affecting the implementation of PPP procurement option for construction project delivery (Babatunde *et al.*, 2015; Akampurira *et al.*, 2015; Chan *et al.*, 2010). Likewise, studies have concentrated on success factors for PPP projects in different countries across the globe (Alteneiji *et al.*, 2020; Ahmed and Sipan, 2019; Muhammad and Johar, 2019; Ojelabi *et al.*, 2018; Osei-Kyei and Chan, 2017; Onyemaechi *et al.*, 2015; Alinaitwe and Ayesiga, 2013). However, there is a dearth of studies investigating the barriers truncating the PPP procurement system at the inception phase in infrastructure provisioning and the strategies for managing the barriers at this phase. Hence, the study focused on the research gaps to advance knowledge in PPP research by investigating the barriers associated with the implementation of the PPP procurement option at the inception phase and identifying strategies for managing barriers at the PPP inception phase.

This study contributes more effectively to PPP studies by highlighting barriers associated with PPP failure at the inception phase and strategies for managing barriers at the PPP inception phase. The unveiling of the PPP inception challenges could guide PPP stakeholders across different levels (e.g. government) to map out tailored strategies to resolve the challenges of PPP implementation at the initiation stage. It will also help the PPP stakeholders, including government agencies, contractors, concessionaires, consultants and financiers, to identify factors significantly affecting their collaborations for better management at the initiation phase of the procurement system and the strategies to manage barriers at the PPP inception phase.

2. Literature review

2.1 Theoretical framework

The study is grounded in the actor-network theory. The theory evolved based on the arrays of networks in the procurement of construction projects using the PPP arrangement. The arrays of networks are due to the parties involved, the procurement phases, and the different entities involved in the procurement system. The PPP arrangement entails the collaboration between the public and private stakeholders in infrastructural procurement at the inception phase of the PPP lifecycle. At the inception phase, interactions between human and non-human entities determine the successful transitioning of the procurement system. Dankert (2011) viewed actor-network theory

as a theory that defines the connections between human and non-human entities. Researchers have proved that humans are not the only major players that are significant in achieving a goal as there are other players in a non-human form that might be visible or invisible. Creswell *et al.* (2010) believed that the complexity of reality can be unveiled and appreciated through the approach of actor-network theory. The theory helps to explain the correlation between human and non-human entities in reality. To shed light on the actor-network theory, Latour (2005) stated that an actor in an actor-network simply justifies the fact that there are some measures of uncertainty about the source of the action. Montenegro and Bulgacov (2014) also buttressed that the word actor in actor-network theory is not the source of action but the centre of focus of an array of entities acting toward its direction. The researcher stated further that there are many questions involved in an action, such as other actors, the available object, inhibiting factors, emotion, and time, among others. The expression of the actor-network theory in the PPP procurement system proved that it is not just the interaction of the human actors that matters under the PPP arrangement in attaining the collective goal. The success or failure across the phases of the PPP procurement system in delivering its end-product can be influenced by factors interacting with the actors. At the inception phase of the PPP procurement system, there have been mixed results in the transitioning process. Therefore, the study primarily focuses on unveiling the other actors, such as the inhibiting factors, interacting with the human actors (partners) in the execution of PPP for socio-economic infrastructure provision. Hence, a hypothesis test will be conducted to determine the PPP stakeholders' acceptance of challenges confronting their successful collaboration at the inception stage of the PPP procurement system.

2.2 Inhibiting factors at the PPP procurement inception phase

PPP is one of several procurement methods used in socio-economic infrastructure delivery (Liu *et al.*, 2015). The PPP procurement system is a synergy between the public and private sectors in bridging the existing infrastructure supply deficit through private sector financial support, technical know-how, and otherwise. Ferreira and Marques (2020) affirmed that the adoption of PPP in public infrastructure delivery is mainly driven by the need to reduce financial pressure on the public treasury through private investment. Liang and Wang (2019) reinforced that PPP enhances global public infrastructure shortfall with less public finance and more private capital. However, unlike other procurement routes, PPP has a defined process in infrastructure delivery.

The first phase of the PPP delivery process, which is the inception phase, is one of the most challenging phases of the PPP procurement option. The decision to commence or terminate PPP project implementation is being established at this phase. Identifying the inception phase as one of the most challenging phases of the PPP procurement route lies in the rate of abortive PPP projects at this stage. Nathan Associates (2017) affirmed that many PPP-initiated projects do not go beyond the inception phase of the procurement route due to existing overwhelming barriers associated with the procurement phase. The barriers at this phase have been identified as the major obstacle limiting the PPP construction project's growth across different sectors in developing countries. Anvuur and Kumaraswamy (2006) disclosed that the lack of PPP skills in the developing world is one of the major factors limiting the expansion of PPP markets within the continents. The researchers further revealed that the lack of PPP expertise among the construction professionals operating in the developing world could be linked to the poor track record of PPP project execution. Unlike other existing procurement methods, the construction stakeholders in the developing countries, especially Nigeria, are not privileged to participate in several PPP construction projects due to the limited number of projects in the country. Therefore, the local professionals' inadequate participation in PPP projects limits opportunities to enhance their PPP procurement system skills, which is key to participating in future PPP projects. Also, Mahalingan (2009) revealed three key barriers associated with PPP implementation at the inception phase in India: lack of political willingness, absence of an enabling environment for PPP, and poor public sector capacity in PPP procurement planning. The researcher pointed out that these issues have caused distrust between the public and private sectors, halting the private partner's readiness to commit their resources to advancing to the next phase of the procurement implementation process.

Furthermore, Babatunde *et al.* (2015) uncovered several challenges hindering the progress of PPP implementation process in Nigeria, and among which are peculiar to the inception phase of the procurement option in the country are weak enabling policies for PPP implementation, poor legal and regulatory framework, poor political commitment, public sector lack of capacity to implement PPP procurement system and corruption in the public sector. Similarly,

Rezouki and Hassan (2019) conducted a study to unveil the key issues halting PPP progress at the initiation phase of implementing the procurement system in Iran. The researchers identified the following factors: corruption, lack of legal and regulatory framework, and the problem of administration processes among the top issues responsible for the lack of advancement beyond the initiation phase of the PPP procurement system. Likewise, Osei-Kyei and Chan (2017) conducted a study to determine the implementation challenges inhibiting the PPP procurement process progress in Ghana, and the key issues identified from the study include a lack of experience of the PPP stakeholders on appropriate skills in executing the procurement system, unstable economic and commercial conditions, and lengthy delays due to political debate.

Beyond the preceding PPP inception barriers identified in the paper, the literature review uncovered other research findings on the issues hindering PPP progress at this phase. Hence, the summary of all the barriers unveiled in the study was documented in Table I.

Table I: Summary of Inception Barriers in the Implementation of PPP Procurement

Barriers at Initiation and Preparation	References
Public sector corruption.	Babatunde, Perera, Zhou and Udeaja (2015)
Poor political commitment to PPP.	UNECE (2008); Akampurira, Root and Shakantu (2009); Gidado (2010)
Lack of expertise & experience among PPP stakeholders.	Gomez-Ibanez, Lorrain and Osius (2004); Mahalingam (2009)
Land acquisition problem.	UNESCAP (2007); Yang, Yang and Kao (2010)
Lack of project development fund to promote PPP.	UNESCAP (2007)
Weak or poor enabling policies.	Mahalingam (2009); UNESCAP (2007)
Lack of PPPs enabling environment.	Leiringer (2003); Akampurira et al. (2009)
Poor stakeholder's consultation for PPP acceptance.	Chen (2007); UNECE (2008); UNESCAP (2007)
Problem of administrative procedure and guidelines	Gidado (2010)
Lack of legal framework for PPP projects.	The World Bank, ICA and PPIAF (2009).
Project investor's poor capacity to fully meet the challenges of investing in large PPP projects.	Gunnigan and Rajput (2010); UNESCAP (2007)
Potential conflicts of interest among stakeholders.	Akintoye, Hardcastle, Back, Chinyio and Asenova (2003)
Lack of detailed project information by public sector.	The World Bank, ICA and PPIAF (2009).
Non-availability of model concession agreement.	UNESCAP (2007); Gidado (2010)
Perception of a country as high-risk economy by investors.	Akampurira et al. (2009); Gidado (2010)
Incapability of the public sector to manage PPP projects.	Kwak, Chih and Ibb (2009).
Shortage of professionals to handle PPP projects.	Gunnigan and Rajput (2010)
Cultural impediments.	Gunnigan and Rajput (2010)
Lengthy delay due to bureaucratic procedures.	Chan, Chan and Lam (2006)

2.3 Strategies for managing PPP inception barriers

The existing barriers at the inception phase of the PPP procurement system lifecycle necessitate strategies to mitigate them for transitioning to the next phase. Hence, researchers have unveiled several measures to manage these barriers. Meidutė and Paliulis (2011) revealed that one of the key approaches to handling barriers at the inception phase of PPP is through the execution of a robust feasibility study prior to PPP adoption for construction project procurement. The outcome of the feasibility study can unveil inherent issues that need to be addressed for the PPP procurement system to succeed throughout the procurement phases, especially the inception phase. Likewise, Maktabi (2014) disclosed that creating a reliable communication channel and a transparent system are essential and effective measures to managing the barriers limiting PPP at the inception phase. One thing synonymous with a PPP procurement system is the significant number of participants compared to other procurement methods. Therefore, to guarantee the successful implementation of the PPP procurement system at the inception phase, transparency is critical to build trust among all the participants. It is achievable by creating an effective communication system among the parties. In the same vein, Alfen (2014) underscores that the success of PPP adoption, which marks the inception phase of the procurement system, is dependent on the adequacy of the governing policies supporting PPP and the defined legal and regulatory framework establishing the procurement system. At the inception phase of the procurement system, partners are more concerned with how the policies and legal framework will benefit their investments. Therefore, policies that meet the investors' needs and a defined legal framework protecting their investment are essential to the successful interaction of parties at the inception phase of the procurement system.

Furthermore, Omobowale *et al.* (2010) disclosed that the propensity for the success of the PPP procurement system at the inception phase, among others, is dependent on its conflict resolution readiness. The conflict resolution factor is important because conflict is inevitable among the parties to PPP due to their divergent views. Nathan Associate (2017) also disclosed that timely access to information among PPP stakeholders and land availability before considering the adoption of PPP finance for a construction project will help reduce the bottleneck that is likely to strain the success of the procurement system at the inception phase. Goran *et al.* (2020) opined that establishing a sustainable funding model to support PPP is vital to PPP project success. The necessity of funding cannot be downplayed in any of the phases of the procurement system. The certainty of the financial plan at the inception phase is a good booster to PPP stakeholders' collaboration and success at the early phase of the procurement system. Mistarihi *et al.* (2013) stated that identifying the appropriate skills is one of the crucial requirements for the success of PPP projects. Hence, developing a human resource plan for PPP projects will help provide competent individuals who can contribute to the project's success, even beyond the inception phase of the PPP procurement system.

3. Research methods

The study investigates the inception barriers associated with PPP procurement option implementation in the delivery of social and economic infrastructure and the strategies for managing the barriers. The study was conducted in Lagos and Abuja, and the targeted respondents are public and private stakeholders within the built environment. The study area was selected based on the record of PPP projects procured within the two jurisdictions compared to other parts of Nigeria and the number of PPP stakeholders operating from the locations. The study adopted a survey method in a bid to elicit the PPP stakeholders, who are the study's targeted respondents. The study adopted a project-based approach. Taking a queue from Babatunde (2015), 19 PPP projects were selected through a project-based approach, and 62 partnering firms were identified. Hence, from the 62 partnering firms, 384 PPP stakeholders operating as concessionaires (36), financiers (18), contractors (125), consultants (97), and government agents (108) were identified and targeted as the study representative sample. The study adopted a survey design due to the large population of the targeted respondents and their diversity. Also, a project-based approach was used to attain the targeted respondents in the study due to the knowledge base of the participants required for the study. Hence, only existing and ongoing PPP PPP projects were used to elicit the stakeholders that account for the research population.

The questionnaire was divided into three sections. The first section addressed the characteristics of the PPP stakeholders, who are the key respondents to the study. The second section addressed the barriers at the inception of PPP implementation in social and

economic infrastructure procurement using the severity index Likert scale range of "1 = least severe" to "5 = most severe". Pawlovich (2002) confirmed that the severity index is suitable for variables identified as barriers or threats from past studies. The severity was calculated using the formula:

Severity Index=

$$\Sigma a\left(\frac{n}{N}\right)X100/5 \quad \text{..... (i)}$$

Where a = constant expressing weighting attributed to each response (ranges from 1 for least severe to 5 for most severe); n = frequency of the responses, and N = the total number of responses. The third section of the questionnaire focused on the strategies to mitigate the effect of the PPP barriers at the inception stage using the Likert Scale "1 = strongly disagree" to "5 = strongly agree".

4. Results

4.1 Background information on the survey participants.

This section was centered on the respondents' demographics in the study. The breakdown of the respondent's background information is presented in Table II. It captures the respondents' summary, including the respondent sector, respondents' roles, professional background, industrial experience, and highest academic qualification. The respondents' background information also revealed that the public sector representation is 35% (96), and the respondents from the private sector represented 65% (178) of the total population in the study survey. The role of the respondents gathered from the study shows that the majority of the role were contractors with 33.2% (91), while the role that participated least was the financier with 4% (11) of the study population. The breakdown of the respondents' professional background in Table II shows that the majority of the respondents were architects, with 27% of the study population. The highest academic qualification of the respondents from the survey conducted revealed that most of the respondents were M.Sc./MPM/M.Tech. Degree holders account for 61.3% of the total survey population. The construction industry experience of the respondents from the survey, as indicated in Table II, revealed that 84.3% of the study participants have more than 5 years' experience.

Table 2: Respondent Characteristics

Characteristics	Frequency	Percentage
Respondent Sector		
Public	96	35.0
Private	178	65.0
Total	**274**	**100**
Respondent Role		
Contractor	91	33.2
Consultant	76	27.7
Government Agent	70	25.5
Concessionaire	26	9.5
Financier	11	4.0
Total	**274**	**100**
Respondent Background		
Architect	74	27.0
Quantity Surveyor	49	17.9
Builder	57	20.8
Structural Engineer	59	21.5
Estate Manager	21	7.7
Others	14	5.1
Total	**274**	**100**
Highest Qualification		
HND	4	1.5
BSc/B.Tech/B.Eng	91	33.2
MSc/MPM/M.Tech	168	61.3
Others	11	4.0
Total	**274**	**100**

Industrial Experience		
1-10 years	154	56.0
11-20 years	116	42.0
21-30 years	4	2.0
Total	**274**	**100**

4.2 Barriers at inception phase in PPP procurement implementation

The severity of the barriers at the initiation phase of the procurement implementation is presented in Table III. The study adopted the severity percentage range of "1-20 = Least Severe", "21-40 = Slightly Severe", "41-60 = Moderately Severe", "61-80 = Severe" and "81-100 = Most Severe" to interpret the findings. Hence, the result showed that the public and private sector PPP stakeholders rated most of the barriers identified at the inception stage in implementing the PPP procurement option as being most severe. However, 3 of the 19 factors identified were rated in the slightly severe category: cultural impediments, shortage of professionals to handle PPP, and land acquisition problems. It can be inferred that beyond the established fact that the factors identified in the study are barriers to the PPP procurement system at the initiation and preparation phase, the severity of the factors at this phase is more evident in the study. Hence, the severity ratings of the study's barriers indicated their level of contribution in limiting the procurement system transition beyond the initiation phase.

Furthermore, the study carried out an analysis to test if there is a significance difference between the public and private sector PPP stakeholders' agreement on the factors inhibiting their collaboration at the inception phase of the PPP procurement system using Mann-Whitney U. The dependent variables are the respondents' sector which consists of public and private sector participants in the study, and the independent variables are the factors identified as challenges at the PPP procurement inception and preparation phase. The acceptable significant value for testing the significant difference between the public and private stakeholders on barriers at the inception and preparation phase of the procurement route using Mann-Whitney U is set within the range of 0.00 to 0.05. The result from the analysis is presented in Table III and it showed that the view of the public and private sector stakeholders differs on the following barriers, which include weak or poor enabling policies, lack of a legal framework for PPP projects, lack of PPPs enabling environment, lengthy delay due to bureaucratic procedures, non-availability of a model concession agreement, potential conflicts of interest among stakeholders, and cultural impediments.

Table 3: Severity Indices and Mann-Whitney U T result on the Difference between the Public and Private Stakeholder view on the factors acting on their effective collaboration at the Initiation and Preparation Phase of PPP Procurement System

	Severity Index (%)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Lack of project development fund to promote PPP.	91.8 (Most Severe)	7915.000	23846.000	-1.179	.238
Public sector corruption.	91.0 (Most Severe)	8436.000	13092.000	-.197	.844
Perception of a country as risk prone by financiers.	90.4 (Most Severe)	7628.000	12284.000	-1.684	.092
Poor political commitment to PPP.	90.2 (Most Severe)	8384.500	24315.500	-.294	.769
Problem of administrative procedures and guidelines.	88.4 (Most Severe)	7859.000	23790.000	-1.224	.221
Incapability of the public sector to manage PPP projects.	88.2 (Most Severe)	7750.000	12406.000	-1.418	.156
Weak or poor enabling policies.	87.8 (Most Severe)	7088.000	23019.000	-2.689	**.007**
Project investor's poor capacity to fully meet the challenges investing in large PPP projects.	87.0 (Most Severe)	7852.500	23783.500	-1.243	.214
Lack of legal framework for PPP projects.	86.8 (Most Severe)	7216.000	23147.000	-2.386	**.017**
Poor stakeholder's consultation to enhance PPP acceptance.	86.0 (Most Severe)	8238.000	12894.000	-.539	.590
Lack of expertise & experience among PPP stakeholders.	86.0 (Most Severe)	8293.500	24224.500	-.443	.658

Lack of PPPs enabling environment.	85.6 (Most Severe)	7186.000	23117.000	-2.410	**.016**
Lengthy delay due to bureaucratic procedures.	84.0 (Most Severe)	7064.500	11720.500	-2.572	**.010**
Non-availability of model concession agreement.	80.0 (Severe)	7333.500	23264.500	-2.061	**.039**
Potential conflicts of interest among stakeholders.	79.4 (Severe)	6711.500	22642.500	-3.268	**.001**
Lack of detailed project information by public sector.	77.2 (Severe)	7819.500	23750.500	-1.221	.222
Cultural impediments.	32.0 (Slightly Severe)	6714.000	11370.000	-3.283	**.001**
Shortage of professionals to handle PPP projects.	31.8 (Slightly Severe)	8115.000	12771.000	-.724	.469
Land acquisition problem.	25.8 (Slightly Severe)	7815.000	23746.000	-1.485	.138

4.3 Strategies for managing barriers at the inception phase of PPP construction projects.

The strategies for managing the PPP inception barriers are displayed in Table IV. Evidence gathered from the results showed that the PPP stakeholders rated the need to establish a policy to support PPP at the inception phase, facilitate a timely access to information, and establish a dependable legal framework highly with mean scores of 4.27, 4.20, and 4.00, respectively. Other highly rated measures identified by the PPP parties to mitigate barriers at the inception phase of the PPP procurement route include the need to develop a system to manage conflict of interest with a 3.96 mean score, create a reliable communication channel with a 3.95 mean score, and operate a transparent system with a 3.93 mean score. Other measures, which include creating a sustainable funding model to support PPP, executing a thorough feasibility study, developing an efficient human resource plan and guaranteeing land availability, were agreed upon by the PPP stakeholders as means to mitigate PPP barriers at the inception phase.

Table 4: Measures to Managing Barrier at the Inception Phase of PPP Construction Projects

Strategies to Managing PPP Inception Barriers	Overall Mean	Overall Rank	Remark	Public Mean	Private Mean
Establish a policy to support PPP at the inception phase.	4.27	1	Agree	4.27	4.26
Facilitate timely access to information.	4.20	2	Agree	4.10	4.25
Establish a dependable legal framework.	4.00	3	Agree	3.90	4.05
Develop a system to manage conflict of interest.	3.96	4	Agree	3.97	3.95
Create reliable communication channel.	3.95	5	Agree	3.96	3.94
Operate a transparent system.	3.93	6	Agree	3.89	3.95
Create a sustainable funding model to support PPP at the inception phase.	3.80	7	Agree	3.98	3.70
Execute a robust feasibility study.	3.75	8	Agree	3.89	3.67
Develop efficient human resource plan.	3.66	9	Agree	3.70	3.64
Guaranteed land availability.	3.64	10	Agree	3.77	3.54

5. Discussions

Findings from the study unveiled the barriers to the inception phase in PPPs and the various measures to mitigate their effects. The lack of public sector project development funds is one of the barriers identified by the study as a key constraint to implementing PPP at the inception phase. UNESCAP (2007); Babatunde, Perera, Zhou, and Udeaja (2015) corroborate the findings, as the researchers indicated that the lack of project development funds in implementing the PPP procurement option is an issue of concern in the Nigerian PPP procurement system implementation. The funding factor is inevitable due to its significance in setting up the platform for adopting PPP for infrastructure delivery. Also, Winch, Onishi, and Schmidt (2012) stressed that the infrastructure development fund is one of the key policy initiatives essential for successfully adopting and implementing the PPP procurement option at the preparation phase.

Furthermore, Public sector corruption is equally highlighted as a critical barrier limiting the PPP

procurement routes beyond the inception phase. Babatunde et al. (2015) and Arimoro (2020) studies supported the findings as their study emphasized that corruption is a critical barrier to the successful implementation of PPP in any climate across the globe. Corruption in PPP procurement implementation is a threat to the successful execution of the procurement option and a possible trigger to other barriers contributing to the failure of PPP procurement in infrastructural delivery. Arimoro (2020) further stresses that a corrupt system is a deterrent to investors' willingness to collaborate with the government under a PPP arrangement for infrastructure provisioning. Also, the investors' perception of a country as high-risk was mentioned in the study as a key issue affecting PPP at the inception stage. Hence, Tamosaitiene, Sarvari, Chan, and Cristofaro (2021) indicated that economic risk is one of the key triggers that can place a nation in a high-risk zone to investors and discourage any collaboration under a PPP arrangement. Babatunde (2015) further stressed that the economic threat to investors under a PPP arrangement could be attributed to poor policy execution supporting PPP implementation, force majeure, and government unwillingness to commit to PPP implementation, among others. Likewise, the position of poor political commitment as a PPP inception barrier in the study was equally affirmed by Babatunde et al. (2015) study on PPP barriers. The study indicated that the political gladiator's commitment is inevitable under any PPP arrangement because they play a critical role in establishing guiding rules essential for PPP successful implementation, but their lack of readiness to support PPP has stalled potential collaborations and hindered ongoing PPP initiation in the developing world, especially in Africa.

In the face of the varying barriers associated with the inception phase of the procurement system, strategies to manage the barriers are essential for the successful transition of the procurement system beyond this phase. Hence, the study underscores the need to create a detailed policy as one of the important measures to manage successful PPP implementation at the inception phase in the study. Farquharson, Torres de Mästle, Yescombe, and Encinas (2011) stressed that establishing a detailed policy is a viable tool that can help dispel issues attributed to partners' responsibilities from the inception phase of the procurement system. Alfen (2014) also revealed that a well-prepared policy document for PPP operation is determinant to initiating a contractual agreement between the government and the private sector at the initiation phase. The study also indicated that facilitating timely access to information is crucial for managing PPP barriers at inception. Maktabi (2014) disclosed that access to information at any stage of PPP gives a sense of direction to partners and trust in the procurement system. The flow of crucial information at the inception phase of PPP will solve significant issues associated with the procurement system. It will also engender transparency, which is another factor that is critical for the successful initiation of PPP construction projects. Likewise, the need to establish a reliable legal framework to support PPP at the inception stage was also given more credence in the study. Farquharson, Torres de Mästle, Yescombe, and Encinas (2011) supported the study position on the necessity for a reliable framework in managing inherent issues with PPP at the inception phase. The researchers further stressed that the factor would help reduce investors' uncertainty to engage the government in successful collaboration at the inception phase of the PPP procurement implementation. Also, creating an effective communication channel was equally prioritized in the study as one of the potent measures that can help bridge the barriers at the inception phase of PPP for transitioning to the next stage. Maktabi (2014) stressed that creating a medium of expression and feedback in PPPs is a viable measure to successfully implement the procurement system across the different stages.

6. Implication of Findings

The successful implementation of the PPP procurement route in infrastructure delivery depends on its smooth execution at the different phases of the procurement system. Among the PPP phases, the inception stage is one of the most strategic phases because it determines the possibilities of adopting and implementing the procurement route in infrastructure provisioning. However, there have been mixed reports on the outcome of the actor's partnership at the PPP's inception phase. Hence, the study unveiled factors truncating the successful initiation of the PPP procurement system at the inception phase. The study revealed 19 factors, and seven were found to be mutually agreed on by the parties under the PPP arrangement as key factors responsible for PPP failure at the inception stage. Likewise, the study revealed the strategies for managing the varying factors associated with the PPP procurement route at inception. The implication of the PPP procurement system inhibiting barriers at the inception stage shows why some PPP projects are terminated at this phase and why some expected PPP deals do not see the light of day in Nigeria; hence, contributing to reduced private investment in infrastructure procurement within the built

environment in Nigeria. The findings can inform the PPP stakeholders on the key factors to prioritise prior to initiating collaborations under the PPP arrangement and the approaches to tackle the inherent challenges for its successful transitioning. Also, properly managing these factors can help boost PPP stakeholders' confidence in the procurement system and enhance investors' collaborations under the PPP arrangement.

Conclusion

The advantage the PPP procurement system has over other infrastructure procurement routes lies in its capacity to accommodate different actors. However, the actor-network- theory stated that the partners or actors under PPP arrangement is not all that is crucial in the procurement system. The theory underscores that other things interact with the actors in implementing the PPP procurement system. Hence, the study was conducted to uncover those things (inhibiting factors) interacting with the other actors under a PPP arrangement at the inception phase. Evidence gathered from the study showed that the following inhibiting factors, which include a poor enabling environment, weak policies, unreliable legal framework, conflict of interest, non-availability of a model concession agreement, delay due to bureaucratic procedures, and cultural impediments, were the significant challenging factors. These factors were responsible for halting the transition of some PPP projects beyond the initiation and preparation phase of the procurement system. Also, the implications of the barriers identified at the initiation phase of the PPP procurement route can be attributed to the investors' fear of engaging in the country's PPP environment and the slow growth of the procurement system within the Nigerian economy.

Likewise, the study highlighted strategies critical to managing the inhibiting factors limiting actors' interaction at the inception phase of the PPP procurement system. The strategies uncovered in the study include establishing a reliable policy for PPP, ensuring timely access to information, establishing a dependable legal and regulatory system implementation, and developing a system to manage conflicts of interest, among others.

Therefore, the study recommended that some of the measures or strategies highlighted in the study should be adopted to improve the successful implementation of the PPP project at the initiation phase.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships which have, or could perceived to have, influenced the work reported in this article.

References

Ahmed Y, Sipan I.A.B., 2019. Critical factors for implementation of Public–Private Partnership for affordable housing in Nigeria. *International Journal of Scientific and Technology Research*, 8(9), 1125–1131.

Akampurira, E., Root, D. and Shakantu, W., 2009. Stakeholder Perceptions in the Factors Constraining the Development and Implementation of Public Private Partnerships in the Ugandan Electricity Sector. *Journal of Energy in Southern Africa,* 20(2), 2-9.

Akintoye, A., 2015. PPP: Variations and country context. Keynote Address at the Faculty of Environmental Design and Management International Conference at Obafemi Awolowo University, Ile Ife Nigeria.

Alasad, R., Motawa, I., and Ogunlana, S., 2011. Identifying Demand Risk in Public Private Partnership (PPP) infrastructure projects. *CIB.TG72/ARCOM Doctoral Research Workshop,* University of Central Lancashire, United Kingdom.

Alteneiji, K., Alkass, S. & Abu Dabous, S., 2020. A review of critical success factors for public–private partnerships in affordable housing. *International Journal of System Assurance Engineering Management*. https://doi.org/10.1007/s13198-020-00976-x.

Anvuur, A and Kumaraswamy, M., 2006. Making PPPs Work in Developing Countries: Overcoming Common Challenges. *CIB W107 Construction in Developing Economies International Symposium*, pp. 18-20 January, Santiago, Chile.

Arimoro, A., (2020). Corruption and Public-Private Partnerships in Nigeria: Good Governance and Ethical Consideration. [ONLINE] Available at: https://www.academia.edu/43636262/Corruption_and_Public_Private_Partnerships_in_Nigeria_Good_Governance_and_Ethical_Considerations. [Accessed on 10th of March, 2021].

Asare B, and Asante, W., 2014. Implementing Multilateral Environmental Agreements in Developing Countries: The Case of the 1973 Washington Convention in Ghana. *British Journal of Education, Society and Behavioural Science,* 4(11), 1489-1503.

Babatunde, S., 2015. Developing Public-Private Partnership Strategy for Infrastructure Delivery in Nigeria. *Doctoral Thesis*, Northumbria University, UK.

Babatunde, S.O., Perera, S., Zhou, L., and Udeaja, C., 2015. Barriers to Public Private Partnership projects in Developing Countries: A Case of Nigeria. *Engineering, Construction and Architectural Management,* 22(6), 669-691.

Bagenda, B., & Ndevu, Z. (2023). Principal Risks Associated with Public-Private Partnership Projects in Uganda. *Public Works Management & Policy*, 29(2),183-230. https://doi.org/10.1177/1087724X231167326.

Bamidele A.O., Adenusi, R.D and Osunsanmi, T.O., 2015. State of Infrastructure Procurement in Lagos State, Nigeria: The PPP Approach. *Global Journal of Management and Business Research,* 15(2), 6-18.

Chan, D.W.M., Chan, A.P.C., Lam P.T.I., 2006. A Feasibility Study of the Implementation of Public Private Partnership (PPP) in Hong Kong. *Proceedings of the CIBW89 International Conference on Building Education and Research*, Hong Kong, 10-13 April.

Corbett, P. and Smith, R., 2006. An Analysis of the Success of the Private Finance Initiative as the Governments Preferred Procurement Route. Proceedings Accelerating Excellence in the Built Environment Conference, Birmingham, October 2-4.

Creswell, K.M., Worth, A., and Sheikh, A. (2010). Actor-Network Theory and its role in understanding the implementation of information technology developments in healthcare. Available at: www.ncbi.nlm.nih.gov/articles/PMC2988706/. (Accessed on April 15th, 2023)

Dantata, D. (2014). Public-Private Partnership: The Nigerian's development challenges. Journal of Economics and Sustainable Development, 5(22), 143-147.

Dankert, R. (2011). Using Actor Network Theory doing research. Available at: ritskedankert.nl/using-actor-network-theory-ant-doing-research/. (Accessed on July 3rd, 2023).

Edogbanya, V. O., and Adekeye, J. A. (2024). Impact of Public Private Partnership on the Development of Critical Infrastructure in Nigeria during the Fourth Republic. Journal of Applied and Theoretical Social Sciences, 6(3), 233-246.

El-Gohary, N.M., Osman, H. and El-Diraby, T., 2006. Stakeholder Management for Public Private Partnerships. *International Journal of Project Management* 24(7), 595-604.

Ferreira, D.C and Marques, R.C., 2020. Public-private partnerships in health care services: Do they outperform public hospitals regarding quality and access? Evidence from Portugal, Socio-Economic Planning Sciences, 10.1016/j.seps.2020.100798, (100798).

Farquharson, E., Torres de Mästle, c., Yescombe, E.R., and Encinas, J. (2011). How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets. Available at: https://ppiaf.org/documents/16/download. [Accessed on 12th April, 2023].

Gibson, H. and Davies, B., 2008. The Impact of Public Private Partnerships on Education: A Case Study of Sewell Group Plc. and Victoria Dock primary School. *International Journal of Educational Management*, 22(1), 74-89.

Gidado, K., 2010. PFI Implementation and Evaluation Model for Developing Economics: Example of Nigeria. Proceeding of the 2010 International Conference on Engineering, Project, and Production Management, National Pingtung University of Science and Technology, Pingtung, Taiwan, 14-15 October, Available at: www.ppml.url.tw/EPPM/conference/2010. [Accessed on 15th April, 2023].

Gomez-Ibanez, J.A., Lorrain, D. and Osius, M., 2004. "The Future of Private Infrastructure", Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University, Cambridge, MA.

Goran, A., Rado, M., and Sonja B. (2020). Critical Success Factors for Sustainable Public-Private Partnership (PPP) in Transition Conditions: An Empirical Study in Bosnia and Herzegovina. *Sustainability,* 12, 7121; doi:10.3390/su12177121.

Gunnigan, L and Rajput, R., 2010. Comparison of Indian PPP Construction Industry and European PPP Construction Industry: Process, Threshold and Implementation. Proceedings of CIB World Congress, Salford, May 10th-13th.

Hamilton, G., and Holcomb V., 2013. Public Private Partnership for sustainable development, [online] Available at: http//www.commonwealthministers.com/articles/public-private partnerships for sustainable development/. (Accessed on 3rd February, 2022).

HM Treasury. (2013). Public Private Partnership signed project list. [online]. Available at http://www.hm-treasury.gov.uk/ppp_pfi_stats.htm [Accessed on June 3rd, 2017].

Hodge, G.A and Greve, C., 2007. Public-Private Partnerships: An International Performance Review. Public Administration Review, 67(3), 545-558.

Ibem, E., 2010. An assessment of the role of Government Agencies in Public Private Partnerships in housing Delivery in Nigeria. *Journal of Construction in Developing Countries,* 15(2), 23-48.

Kumaraswamy, M and Zhang, X.Q., 2001. Government Role in BOT-Led Infrastructure Development. *International Journal of Project Management,* 19(4), pp.195-205.

Kwak, Y.H., Chih, Y.Y. and Ibb, C.W., 2009.Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development. *California Management Review* (2), .51-78.

Lamech, R. and Kazim, S., 2003. What International Investors Look for When Investing in Developing Countries: Results from a Survey of International Investors in the Power Sector, Energy and Mineral Sector Board? Discussion Paper No. 6. The World Bank, Energy and Mining Sector Board, Washington, DC.

Latour, B. (2005). Reassembling the social: an introduction to Actor-Network-Theory. New York: Oxford University Press Inc.

Leiringer, R., 2003. Technological Innovations in the Context of Public Private Partnership Projects. Being an Unpublished PhD Thesis, Royal Institute of Technology, Stockholm.

Liang Y and Wang H., 2019. Sustainable Performance Measurements for Public-Private Partnerships Projects: Empirical Evidence from China. *Sustainability,* 11, 3653; doi:10.3390/su11133653.

Li, B., Akintoye, A., Edwards, P.J. and Hardcastle, C., 2005. Perceptions of positive and negative factors influencing the attractiveness of PPP/PFI procurement for construction projects in the UK: findings from a questionnaire survey. *Engineering, Construction and Architectural Management*, 12(2), 125-148.

Liu, J., Love, P.E.D., Davis, P.R and Smith, J., 2015. Conceptual Framework for the Performance of Public-Private Partnerships. *Journal of Infrastructure System,* https://doi.org/10.1061/(ASCE)IS.1943-555X.0000210.

Mahalingan, A., 2009. PPP Experiences in Indian Cities: Barriers, Enablers and the Way Forward. *Journal of Construction Engineering and Management*, 136(4), 419-429.

Mistarihi, A., Hutchings, K., and Shacklock, A. (2013). Differing Opinions Do Not Spoil Friendships: Managing Public-Private Partnership (PPP) Infrastructure Projects in Jordan. *Public Administration and Development,* 21 (3), 187–200. Doi: http://hdl.handle.net/10072/55972.

Montenegro, L.M. and Bulgacov, S. (2014). Reflections on Actor-Network Theory, governance networks and strategic outcomes. Available at: www.anpad.org.br/bar/ (Accessed on 10th April 2016).

Muhammad, Z and Johar, F., 2009. Public-private partnership for housing construction projects a comparative analysis of the success factors between Malaysia and Nigeria. *IOP Conference Series: Materials Science and Engineering,* 620 (012007).

Nathan Associates, 2017. Public-Private Partnerships: A Basic Introduction for Non-Specialists. [online]. Available at: https://assets.publishing.service.gov.uk/media/5977576ee5274a289a000031/Topic_Guide_Public-Private_Partnerships.pdf. [Accessed on 4th February, 2019].

Neto, D.C., Cruz, C.O., Rodrigues F and Silva, P., 2020. PPP Development and Governance in Latin America: Analysis of Brazilian State PPP Units. *Journal of Infrastructure System,* https://doi.org/10.1061/(ASCE)IS.1943-555X.0000544.

Ng, S.T., Wong, Y.M.W and Wong, J.M.W., 2012. Factors Influencing the Success of PPP at Feasibility Stage. A Tripartite Comparison Study in Hong Kong. *Habitat International,* 36, pp.94-111.

Nigeria PPP Review, 2012. The ICRC and its Retinue. Nigeria PPP Review, 1(1), pp.1-6. [online] Available at: www. detailsolicitors.com/media/archive2/articles/PPPreviewed.pdf. [Accessed on 23rd July, 2018].

Ojelabi, R. A., Fagbenle, O. I., Afolabi, A. O., Tunji-Olayeni, P. F. and Amusan, L. M., 2018. Appraising the Barriers to Public-Private Partnership as a Sustainable Tool for Sustainable Development of Infrastructures in Developing Economy. Being a 2nd International Conference on Environmental and Energy Engineering (IC3E), IOP Conference Series*: Earth and Environmental Science,* 146, 1-6.

Omobowale, E.B., Kuziw, M., Naylor, M.T. (2010). Addressing conflicts of interest in Public Private Partnerships. *BMC Int Health Hum Rights* 10,19. https://doi.org/10.1186/1472-698X-10-19.

Osei-Kyei, R. and Chan, A.P.C., 2016. Implementing Public–Private Partnership (PPP) policy for public construction projects in Ghana: critical success factors and policy implications. *International Journal of Construction Management,* 17(2), 113-123.

Osei-Kyei, R. and Chan, A.P.C., 2017. Comparative analysis of the success criteria for Public–Private Partnership projects in Ghana and Hong Kong. *Project Management Journal,* 48 (4), 80-92.

Osei-Kyei, R. and Chan, A.P.C., 2017. Implementation constraints in Public-Private Partnership: Empirical Comparison between Developing and Developed Countries. Journal of Facilities Management, 15(1), 90-106

Osei-Kyei, R and Chan, A.P.C., 2018. A Best Practice Framework for Public-Private Partnership Implementation for Construction Projects in Developing Countries: A Case of Ghana", *Benchmarking: An International Journal,* 25(8) 2806-2827

Pawlovich, M.D. (2002). Safety Improvement Candidate Location (SICL) Methods. [online]. Available at: https://www.iowadot.gov/crashanalysis/pdfs/sicl_methodologies.pdf. [Accessed on 13th December, 2018].

Psiru, D.H., 2014. Why Public-Private Partnerships don't work: The Many Advantages of the Public Alternatives. Public Service International Research Unit, University of Greenwich, UK.

Sambrani, V.N., 2014. PPP for Asia and African Perspective towards Infrastructure Development: A Case Study of Greenfield Bangalore International Airport, India. *Social and Behavioral Sciences,* 157, 285-295.

Sanda, Y.N., Anigbogu, N.A. and Molwus, J.B., 2016. Critical success factor of Public-Private Partnership project in Nigeria. *Journal of Sustainable Development* 9(5), 152-161.

Sanni A.O., and Hashim, M., 2014. Building Infrastructure through Public Private Partnership in Sub-Saharan Africa. *Procedia-Social Behavioral Sciences,* 143, 133-138.

Stepanov, M., Legostayeva, A., Fyliuk, H., Jazykbayeva, B., & Yerzhanova, S. (2025). Optimization of public-private partnership project management: Challenges and solutions. Journal of Governance & Regulation, 14(2), 186–198. https://doi.org/10.22495/jgrv14i2art19.

Sun, G., Sun, J., and Li, F. (2022). Influencing Factors of Early Termination for PPP Projects Based on Multicase Grounded Theory. Journal of Construction Engineering and Management, 148 (11):334-356. https://doi.org/10.1061/(ASCE)CO.1943-7862.0002388.

Tamošaitiene, J., Sarvari, H., Chan, D.W.M., and Cristofaro, M., 2021. Assessing the Barriers and Risks to Private Sector Participation in Infrastructure Construction Projects in Developing Countries of Middle East. https://doi.org/10.3390/su13010153.

The World Bank Institute, 2012. Public-Private Partnerships. Reference Guide Version 1.0. International for Reconstruction and Development Association, Washington D.C, USA.

The World Bank, ICA and PPIAF, 2009. Attracting investors to African Public Private Partnerships. [online]. Available at: https://openknowledge.worldbank.org/handle/10986/2588. (Accessed on 25th May, 2023).

This Day Dailies, 2014. World Economic Forum and the Challenges of PPP in Nigeria. [online]. Available at: http://www.thisdaylive.com/articles/wef-and-the-challenges-of-ppp-in-nigeria/178753/ [Accessed on 9th October, 2017].

United Nations Economic Commission for Europe, 2008. Guide Book on Promoting Good Governance in Public Private Partnerships. [online]. Available at: www.unece.org/fileadmin/DAM/ceci/publications/PPP.pdf. [Assessed on 28th July 2022].

United Nations Economic Commission for Europe (2012). Can Public Private Partnership Improve Infrastructure and Deliver Better Public Services? Available at: https://www.cscollege.gov.sg/Knowledge/Pages/Can-Public-Private-Partnerships-Deliver-Better-Public-Services.aspx [Accessed on 12th April, 2022].

United Nations Economic and Social Commission for Asia and the Pacific, 2007. Public-Private Partnerships for Infrastructure Development: An Introduction to Issues from Different Perspectives. The High-level Expert Group Meeting Jointly Organized by UNESCAP and the Ministry of Planning and Budget, Seoul, 2nd-4th October.

Yang, J.B., Yang, C.C and Kao, C.K., 2010. Evaluating Schedule Delay Causes for Private Participating Public Construction Works under the Build-Operate-Transfer Model. *International Journal of Project Management*, 28, 569-579.

Zhang, X., 2005. Paving the Way for Public Private Partnerships in Infrastructure Development. *Journal of Construction Engineering and Management*, 131(1), pp.71-80.

Zhang, X., and Cheng S., 2013. A Systematic Framework for Infrastructure Development through Public Private Partnerships. *International Association of Traffic and Safety Sciences (IATSS) Research*, 36, 88-97.