



RESEARCH ARTICLE

PROCUREMENT DYNAMICS EVALUATION IN INFRASTRUCTURE DEVELOPMENT THROUGH PUBLIC-PRIVATE PARTNERSHIPS (PPPS) IN NIGERIA

SUNDAY MORDI, B.A., OZURUMBA, E.E., DURU, M.I. NMECHA, E. UBA

Universal Basic Education Commission & Centre of Excellence in Sustainable Procurement,
Environmental and Social Standards, Federal University of Technology, Owerri

ABSTRACT

Public–Private Partnerships (PPPs) have become an essential response to Nigeria’s massive infrastructure gaps, especially in health, power, and transportation. However, navigating the PPP terrain isn’t without challenges. Procurement under PPPs is often slowed down by weak institutions, poor technology usage, financial constraints, and corruption. This study explored how these obstacles shape procurement outcomes in Nigeria's PPP efforts. Drawing from the views of 391 stakeholders engaged in PPP projects—particularly across Ghana’s infrastructure space—we analyzed key bottlenecks using descriptive statistics and one-sample t-tests. The results were striking: corruption ($t = 57.217$, $p < 0.001$) and capacity gaps significantly hurt procurement efficiency. Slow tech adoption further dampens transparency and execution. All five problem areas tested proved statistically relevant ($p < 0.001$). For Nigeria to benefit from PPPs as a sustainable path to infrastructure growth, deep structural reform is needed—particularly in reducing corruption, strengthening institutions, and embracing e-procurement and financial innovation. Countries like Nigeria can’t afford to delay these changes, as they hold the key to unlocking transparent partnerships and successful infrastructure delivery.

Keywords: Public procurement, public-private partnerships, institutional capacity, corruption in infrastructure projects-procurement technology, procurement reform.

Corresponding Author

MORDI SUNDAY:

Email Address: mordisken@gmail.com

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1.0. INTRODUCTION

Governments use public procurement as a vital tool to achieve development goals—buying not just goods and services, but also building roads, power plants, and hospitals. In Nigeria, the Public Procurement Act (PPA) of 2007 set the tone for transparency, competition, and value-for-money in public contracting. But as infrastructure demands grow in both scale and complexity, the traditional model struggles to cope. That's where Public–Private Partnerships (PPPs) come in—offering a way to combine public oversight with private sector expertise and funding.

PPPs run within and alongside public procurement's institutional and legal frameworks, but they are not a replacement for it. Effective procurement planning, open bidding, strong contract administration, and ongoing oversight are necessary for their successful execution. Prominent PPP-driven projects in Nigeria, such as the Azura-Edo Independent Power Plant and the Lekki Deep Sea Port, highlight how these agreements can raise private funds for the general good (Grimsey & Lewis, 2007).

Strong PPP procedures are necessary to reduce the financial burden on the public sector due to Nigeria's infrastructure deficit, which is predicted to require over \$100 billion in investment (Igwe, Ude, & Chukwu, 2021). Nigeria has adopted reforms to enhance procurement procedures as PPPs develop, including instituting anti-corruption frameworks, integrating digital technology, and implementing global best practices. Enhancing credibility, luring investors, and guaranteeing project sustainability are the goals of these reforms (Olojede et al., 2023; Arimoro, 2019).

Systemic issues still exist in this area, though. Project delays and disagreements are caused by the often unclear and unbalanced risk distribution in Nigerian PPPs (Hydari, 2021). Furthermore, project planning and supervision are compromised by the underdevelopment of institutional capacity, which includes the technical, financial, and legal capabilities of procurement agencies (Chileshe, Kavishe, & Edwards, 2023). Simultaneously, the sluggish adoption of technology in public procurement limits operational efficiency and transparency (Afolabi et al., 2022).

With greater community and civil society involvement in PPP lifecycles, stakeholder participation has improved recently. To enforce compliance and performance monitoring, there is also increasing movement to create independent regulators or to fortify already existing organizations, such as the Infrastructure Concession Regulatory Commission (ICRC) (Diaz, 2017). The investigation analyzes the way procurement outcomes in Nigeria and PPP effectiveness respond to institutional capability along with technology innovation and risk management and corruption management. This study works to deliver actionable recommendations which improve sustainability and efficiency and transparency in infrastructure delivery.



1.1. Problem Statement

In Nigeria, the promise of Public–Private Partnerships (PPPs) is constantly undermined by deep-rooted institutional and systemic challenges—many of which stem from a public procurement system that struggles to evolve. Delays, cost overruns, and abandoned projects are common, largely due to poor planning, weak oversight, and outdated practices. A major pain point is the limited capacity of procurement agencies. Many lack the technical know-how, legal muscle, and strategic tools needed to manage complex PPP deals from negotiation to delivery (Eneanya, 2018). The highlighted gaps scare off investors and make projects hard to finance.

Add to that Nigeria’s stubborn reliance on paper-based systems, which makes procurement processes slow, opaque, and ripe for manipulation. Modern tools—like e-tendering portals, contract monitoring dashboards, or procurement analytics—are still underused (Afolabi et al., 2022), leaving decision-makers flying blind. Although issues like financing and political instability remain relevant, this study zooms in on two critical angles: institutional capacity and the use (or non-use) of technology. These are the levers Nigeria must pull to improve transparency, restore trust, and unlock the real value of PPPs.

1.2. Objectives of the Study

This study sets out to evaluate how two major forces—institutional strength and technological integration—shape the success or failure of PPP-based public procurement in Nigeria. Specifically, the objectives are to:

1. Examine how corruption and weak institutions affect procurement outcomes and PPP performance.
2. Assess how poorly structured risk-sharing and limited institutional capacity impact project delivery and financial sustainability.
3. Identify the capacity gaps in government agencies tasked with managing PPPs and how these gaps translate into project inefficiencies.
4. Investigate the limitations faced by local financiers in supporting PPP infrastructure, especially where institutional credibility is in question.
5. Explore how the slow roll-out of digital procurement tools affects transparency, efficiency, and accountability in PPP execution.

1.3. Research Hypotheses

To ground the analysis, this study tests five null hypotheses:

1. Corruption has no significant effect on public procurement outcomes or PPP performance, nor does it impact institutional integrity.



2. Risk factors facing both public and private partners in PPPs do not affect the financial sustainability of projects, regardless of institutional strength.
3. Capacity gaps in Nigerian procurement agencies do not significantly affect the implementation and success of PPP infrastructure projects.
4. The inability to access local finance does not influence PPP success, provided procurement planning is sound.
5. Limited use of modern procurement technology does not significantly affect the transparency, efficiency, or impact of PPPs in Nigeria.

2.0. LITERATURE REVIEW

2.1. Theoretical Foundations

This study draws its backbone from three theoretical lenses that help us make sense of Nigeria's PPP procurement hurdles: **Institutional Theory**, **Principal-Agent Theory**, and **Transaction Cost Economics (TCE)**.

Institutional Theory reminds us that systems don't exist in a vacuum—they're shaped by rules, traditions, social norms, and power dynamics. In Nigeria, procurement agencies often operate under a blend of outdated legal frameworks and unspoken cultural pressures like nepotism and weak enforcement. This leads to what scholars call "institutional isomorphism"—where agencies mirror broken systems rather than reform them.

Principal-Agent Theory comes in to explain the mistrust that often exists between the government (the principal) and private contractors (the agents). Because the agent typically knows more about project costs and timelines, and the principal lacks oversight capacity, agents are incentivized to cut corners or prioritize profit over performance—especially when contracts are poorly structured or monitoring is lax.

Then there's **Transaction Cost Economics (TCE)**—which emphasizes the hidden costs in doing business, especially in managing PPP contracts. These include costs for negotiations, dispute resolution, and enforcement. Without clear roles and risk-sharing, Nigeria ends up with high transaction costs and low project efficiency. The lesson? We need flexible, adaptive contracts and better relational governance structures.

2.2. Conceptual Framework

Public Procurement Dynamics and Corruption

Corruption isn't just a side problem—it's at the very heart of Nigeria's procurement dysfunction. It distorts priorities, inflates costs, blocks competition, and breeds distrust across every layer of the system. Afolabi et al. (2022) and Transparency International's latest reports



link procurement corruption to opaque bidding processes and a deeply rooted culture of political patronage. Despite having a legal framework like the Public Procurement Act (2007), plus anti-graft bodies like EFCC and ICPC, enforcement remains patchy and selective. Digital solutions like e-tendering and procurement portals offer hope—but without full implementation and stakeholder buy-in, they fall flat. The bottom line? Technology alone won't stop corruption. It must go hand-in-hand with serious institutional reform, strong enforcement, and a culture of accountability.

Risk Allocation and Institutional Capacity

In any PPP deal, one thing is clear: if you don't manage risk properly, the whole project can unravel. Ideally, risks should go to whichever party is best equipped to handle them. But in Nigeria, public agencies often shoulder risks they're not ready for—financial, operational, or political—due to a lack of tools, training, or planning frameworks. Adedokun *et al.* (2019) pointed out how weak legal systems and poor risk assessment lead to stalled or failed projects. Government bodies often don't have strong project management units, legal departments, or even monitoring tools. The result? Incomplete negotiations, coupled with lopsided contracts, and endless implementation delays institutional capacity. Real institutional capacity means more than just offices and titles—it means people, systems, and policies that can deliver.

Technology Adoption in Procurement

Technology has the power to transform procurement—making it faster, fairer, and more transparent. E-procurement platforms enable real-time bidding, automate contract reviews, and open procurement data to public scrutiny. But in Nigeria, this digital transformation is crawling. Infrastructure is weak, many procurement officers lack ICT skills, and institutional inertia resists change. Ibem *et al.* (2016) and Addo (2019) both highlight these exact challenges—pointing to the absence of a national roadmap for digital procurement. Without political will, tech funding, and capacity development, Nigeria's e-procurement dream risks becoming just another paper policy.

2.3. Research Gap

While existing research has dealt with corruption, risk, and institutional capacity, few studies connect these dots in one comprehensive framework—especially using primary data from across Nigeria's key infrastructure sectors. This study fills that gap by integrating theory with empirical evidence, offering a grounded and holistic view of how procurement dynamics play out in PPPs on Nigerian soil. With input from 391 sector players, it provides real-world insights that can shape smarter policy and sharper reforms.

3.0. RESEARCH METHODOLOGY

This study used a **quantitative research approach**, anchored on a structured questionnaire shared with key stakeholders involved in PPP projects across Nigeria. These respondents came from major infrastructure sectors—transportation, energy, and healthcare—giving a wide view of procurement realities in the country. In total, 391 participants completed the



survey. The questionnaire employed a 5-point Likert scale to measure perceptions across five core areas, comprising institutional capacity, risk allocation, technology usage, corruption perception, and financial access.

Purposive sampling was applied to target those in the thick of PPP work—project managers, procurement officers, legal and financial analysts, and regulators. These are the voices shaping procurement outcomes, and their insights form the heart of this study. To analyze the data, we applied descriptive statistics and one-sample t-tests to test the significance of each factor affecting procurement effectiveness. Ethical clearance was obtained, and participant anonymity was maintained to ensure confidentiality and compliance with research standards.

4.0. PRESENTATION OF RESULTS AND DISCUSSIONS

4.1. Presentation of Results

From the 391 valid responses, a clear picture emerged: Nigeria's PPP procurement system is weighed down by major constraints—particularly corruption, weak institutional capacity, and low digital adoption. The perspectives are further break down into four dimensions in what follow:

- Corruption scored the highest in impact with a mean of 4.56, indicating overwhelming consensus on its damaging role in PPP projects.
- Institutional capacity averaged 3.21—showing moderate but concerning gaps in technical, legal, and project oversight skills.
- Only 34 percent of respondents said their agencies actively use digital platforms for procurement—a clear sign of technology underuse.
- Technology adoption scored a low 2.43, signaling weak implementation of e-tendering, dashboards, and data systems.

The one-sample t-test backed these observations. Notably:

- Corruption had a t-score of 57.217 ($p < 0.001$)—proving statistically that it significantly hampers procurement.
- Other variables like institutional gaps, risk misallocation, and lack of financing were also found significant ($p < 0.001$). Tables and Figures

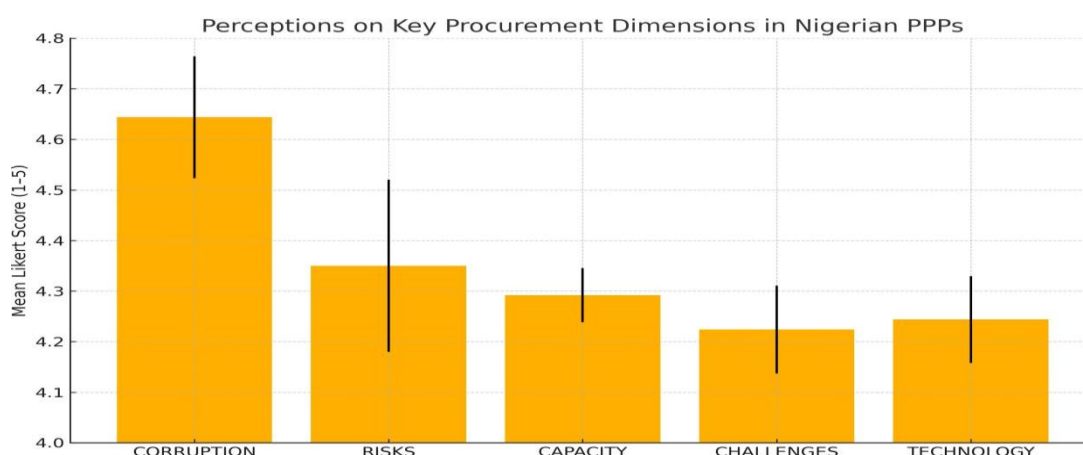
**Table 1: Summary of Perceptions on Key Procurement Issues (n=391)**

Variable	Mean score	Interpretation
Corruption Impact	4.56	Very High
Institutional Capacity	3.21	Moderate
Technology Adoption	2.43	Low
Risk Sharing Practices	3.78	Above Average
Finance Accessibility	3.05	Moderate

Source: Authors' Analysis (2025).

Interpretation:

- Corruption is the most urgent issue—its perception dominates procurement concerns.
- Institutions lack the muscle to drive procurement reform.
- Technology remains more of a buzzword than a tool in many MDAs.
- Financial access and risk-sharing frameworks are not yet reliable or standardized.

**Figure 1: Distribution of Mean Scores Across Key Procurement Variables**

The interrelated institutional and systemic hurdles limiting the effectiveness of PPP procurement in Nigeria are vividly illustrated in Figure 1. Corruption is the biggest worry, and it is closely followed by institutional capabilities, technological limitations, and financial bottlenecks. These issues all highlight the necessity of extensive structural and digital reforms.

Descriptive Statistics

The Likert scale responses were analyzed using descriptive statistics in five distinct categories about the dynamics of procurement in Nigeria's PPP-based infrastructure development. For every dimension—Corruption, Risks, Capacity, Challenges, and Technology—the lowest, maximum, mean, standard deviation, and variance are shown in Table 2.

**Table 2: Descriptive Statistical Analysis**

Dimension	N	Min	Max	Mean	Std. Dev.
Corruption	5	4.44	4.73	4.6440	.12054
Risks	5	4.06	4.51	4.3500	.17000
Capacity	5	4.24	4.37	4.2920	.05357
Challenges	5	4.12	4.30	4.2240	.08678
Technology	5	4.13	4.34	4.2440	.08591

Source: Authors' Analysis (2025).

With a high mean and low standard deviation, the results show that respondents strongly believe that corruption has a detrimental effect on procurement. High ratings for risk management, ability shortages, financial difficulties, and technology adoption further supported industry-wide worries.

Table 3: One-Sample T-Test Analysis

Dimension	t	df	Sig. 2 tailed	Mean Dff	95 %	
					Lower	Upper
Corruption	86.148	4	.000	4.64400	4.4943	- 4.7937
Risks	57.217	4	.000	4.35000	4.1389	4.5611
Capacity	179.145	4	.000	4.29200	4.2255	4.3585
Challenges	108.846	4	.000	4.22400	4.1163	4.3317
Technology	110.467	4	.000	4.24400	4.1373	4.3507

Source: Authors' Analysis (2025).

All five procurement dimensions were found to be statistically significant based on the findings of the one-sample t-test. The rejection of the null hypothesis is supported by all p-values being less than 0.001, which also confirms that PPP is severely affected by corruption, risk concerns, capacity gaps, budgetary constraints, and technical stagnation.

4.2. Discussion

This study leaves no room for guesswork: Nigeria's PPP procurement struggles are deeply rooted in corruption, institutional weakness, and a slow embrace of technology. These aren't abstract theories, they're everyday realities for procurement stakeholders across the country.

Let's reflect on what the data is saying—and how it fits with the theories we started with:

Institutional Theory in Action

Our findings echo institutional theory: without strong systems and enforcement culture, even the best laws fall flat. While the Public Procurement Act exists on paper, the absence of consistent implementation, accountability, and merit-based leadership weakens its impact.



In many MDAs, procurement processes are tangled in bureaucracy, political interference, and patronage.

Principal–Agent Theory Unpacked

According to Principal–Agent Theory, the lack of trust and information asymmetry between the public principal (government) and private agents (contractors) often creates room for underperformance. Our data confirms this—respondents consistently pointed to poorly managed contracts and weak monitoring. Private partners often get the upper hand in negotiations, especially where government institutions lack capacity or transparency.

Transaction Cost Economics Reality

This theory fits like a glove. The absence of clearly defined roles, risk-sharing frameworks, and adaptive contracts increases the cost of doing PPPs in Nigeria—legally, financially, and operationally. Procurement officers spend more time managing disputes and failed contracts than delivering projects.

Comparison with Regional Peers

When compared with other developing economies like Ghana and Malaysia, Nigeria lags behind in digital procurement maturity and institutional resilience. In those countries, procurement tech has been mainstreamed, and PPP units have been strengthened through reforms, not just policy papers.

What Do the Numbers Really Say?

- **Corruption (4.56 mean score)** is not just present—it’s overwhelming. It distorts project priorities, inflates costs, and scares away serious investors.
- **Institutional capacity gaps (3.21)** show that many procurement teams lack the tools and skills to plan, negotiate, or monitor complex PPPs.
- **Digital adoption (2.43)** is alarmingly low. Many agencies are still pushing paper in the age of AI and automation.
- **Financial access** remains a moderate concern, but it’s heavily influenced by how credible the institutional framework is.
- **Risk allocation** practices are inconsistent, leading to lopsided deals and delivery failures.

5.0. CONCLUSION AND RECOMMENDATION AND DIRECTION

5.1. Conclusion

This study provides compelling evidence that the effectiveness of PPP procurement in Nigeria is being held hostage by three major forces: institutional capacity gaps, pervasive corruption,



and lagging technology adoption. These aren't just theoretical concerns—they're backed by hard data, real voices, and lived experience in the field.

Across energy, transport, and health sectors, stakeholders agreed: Nigeria's PPP processes are not operating at full potential. Corruption continues to derail procurement integrity, institutions lack the tools to manage complex projects, and digital systems are either underutilized or poorly implemented.

The implications are clear: if Nigeria is serious about using PPPs to bridge its infrastructure deficit, it must go beyond paper reforms. Real change means investing in people, systems, and enforcement mechanisms. The success of any PPP isn't just about money or contracts—it's about governance and credibility.

5.3. Policy Recommendations

This study makes the following recommendations:

1. **Establish a Unified E-Procurement Platform Across MDAs**
Create a centralized and transparent procurement system that allows for real-time bidding, tracking, and auditing—accessible by the public and monitored by regulators.
2. **Institutionalize Risk Allocation Templates**
Develop clear, standard templates for risk-sharing in PPP contracts, ensuring that both public and private sectors understand their roles and responsibilities before signing any deal.
3. **Capacity Building for Procurement Agencies**
Implement regular training, certification programs, and performance audits for procurement officers and PPP units across all tiers of government.
4. **Incentivize Transparency and Ethical Compliance**
Introduce recognition systems and funding bonuses for institutions that demonstrate high levels of procurement transparency, compliance, and innovation.
5. **Strengthen Anti-Corruption Enforcement in Procurement**
Grant EFCC, ICPC, and ICRC enhanced authority to investigate procurement fraud. Deploy digital Forensic tools to detect irregularities and ensure speedy enforcement.

5.3. Future Research Direction

While this study delivers valuable insights, there are several areas where further research is needed:

1. **Long-Term Impact of Reforms:** Future studies should assess how reforms (especially digital procurement rollouts) are impacting project timelines, costs, and transparency over a 5–10 year period.
2. **Cross-National Comparisons:** Comparing Nigeria's PPP procurement dynamics



with other African countries like Kenya, Rwanda, or Ghana can uncover new strategies and contextual lessons.

3. **Political Economy Analysis:** Explore how political cycles, elite capture, and electoral priorities shape PPP project selection and procurement decisions in Nigeria.
4. **Community and Stakeholder Engagement:** Investigate how civil society, local communities, and the media influence procurement accountability and contract delivery.
5. **Big Data and AI in Procurement Monitoring:** With technological evolution, it's critical to study how predictive analytics and machine learning can be integrated into procurement to detect fraud and improve decision-making.

5.4. Contribution to Knowledge

This research offers several unique contributions:

1. **Empirical Integration of Technology and Institutional Gaps:** Unlike many studies that isolate one or the other, this study combines both elements in a comprehensive, data-driven analysis of PPP outcomes in Nigeria.
2. **Nigeria-Centric Sectoral Data:** By sourcing responses from 391 stakeholders across Nigeria's transport, energy, and health sectors, this study provides a rare, grounded insight into procurement dynamics from those on the front lines.
3. **Application of a Tri-Theoretical Framework:** The use of Institutional Theory, Principal-Agent Theory, and Transaction Cost Economics offers a multi-dimensional lens to interpret the complex interplay between governance, risk, and performance.
4. **Policy-Ready Recommendations for Reform Advocates:** This study doesn't just point out problems—it offers actionable, context-specific solutions that public officials, donor agencies, and civil society can implement.
5. **A Blueprint for Future Research in Africa:** The model and methodology used in this study can serve as a reference for scholars studying procurement reform in other parts of the continent.

Competing Interest

The author declare that no conflicting interest exist in this study



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