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Critical Failure Drivers for Public Private Partnership in Transport Infrastructure: a Nigerian Perspective.

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Abstract: *Nigerian government adopted PPP as a tool to provide range of benefits, including the provision of scarce infrastructure finance, reduce the burden on fiscal budget, accelerate provision of public assets, deliver efficient project operation and enhance project maintenance. But, its application in the Lekki-Epe motorway and Murtala Mohammed Airport 2 showed continuous struggle and failure over the years. As Nigerian government continues to adopt PPP in the development of her transport infrastructures, it became imperative to investigate the failures in order to offer effective delivery recommendations for both government and prospective investors in PPP schemes. Using a desk-based research design, the paper examines the reasons for these failures and how this contributes to international understanding of PPP. The article shows that unfavourable enabling environment, government corruption, weak tendering, risks misallocation, unclear objectives, contingent liability and ineffective performance measurement have been the main causes of failure in the Nigerian context.*

Keywords: *Public Private Partnership, Nigeria, Transport Infrastructure, Neoliberal theory, Agency theory, Failure Factors*

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1. Introduction: Public Private Partnership

Globally, infrastructure is the powerhouse of economic growth and is crucial to the sustenance of a modern economy. Its sustainability requires huge capital from government, be it for greenfield or brownfield projects. Lately, this generational task by the public sector has become difficult to accomplish alone hence the need to collaborate with the private sector. This act of collaboration, intended to attract private sector technical knowhow and management skills to strengthen the provision and maintenance of infrastructure gave birth to Public-Private Partnership (PPP) model.

Defined as a long-term contractual agreement between the public and private sector for the delivery of infrastructure or service provision wherein the private sector bears significant amount of risks and project management responsibility (World Bank 2017, Yescombe 2007). The government of Canada, Australia and United Kingdom in need of infrastructure modernisation, and others from developing countries including Nigeria in dire need of infrastructure upgrade have all used PPP as infrastructure financing mechanism. The countries with fiscal constraint problems, PPP serves as a solution to unavailable infrastructure finance (Mcquaid and Scherrer 2010, Spackman 2002, Wojewnik-Filipkowska and Trojanoswki 2012, Yescombe 2007). Those with good fiscal standing are influenced by PPPs ability to meet productive efficiency and outstanding project management and maintenance (Alam, et al 2014, Siemiatycki 2015).

World Bank estimate of PPP projects that attained financial closure in developing countries in the last two decades is over 6000 (World Bank 2014), a clear indication that private sector participation in infrastructure development has become a viable and acceptable option, complementing traditional approach to infrastructure finance.

Although not all analysts are optimistic about the gains of PPP, literatures suggest that the governance of PPP and its unique relationship between public and private sector as well as its complex financing issues are obvious risks difficult to mitigate (Gaffney and Pollock 1999, Vinning and Boardman 2008). According to Soomro and Zhang (2013), the experience since 1990 till the last global financial crisis were quite turbulent for PPP projects as findings from completed PPP projects reveal a mixed picture of higher failure and little success (See table 1 as failures of PPP projects were captured).

Developing and developed countries promoting PPP as a solution towards resolving fiscal constraints problem were the most affected. EIB data, for Cyprus, Greece, Ireland, Portugal, Spain and the UK, six countries with significant use of PPP model for infrastructure procurement lately suffered serious difficulties; while four are subject to ‘Troika’ rescue packages; Spain and the UK – both face large fiscal problems (EIB 2010), a key reason the UK scrapped Private Finance Initiative (PFI: as PPP is called in the UK) and replaced with PF2 in 2012 (HMT 2012).

Table 1. Failed transport infrastructure PPP projects and failure types

No.	Projects name and hosting country	Type of failure
1	BelgradeBlegradeNovisad Motorway, Czech Republic	Concession cancelled
2	D47 Motorway	Concession cancelled
3	Horgos-Pozega Highway, Serbia	Concession cancelled
4	M9 Motorway, Pakistan	Concession cancelled
5	Mexico Toll Road Program, Mexico	Concession cancelled
6	Mumbasa container terminal, Kenya	Concession cancelled
7	Trakia Motorway Project, Bulgaria	Concession cancelled
8	Transgabonais, Gabon	Concession cancelled
9	Jakarta Outer Ring Road, Indonesia	Concession cancelled + Project nationalization
10	Bangkok Elevated Road and Track system, Thailand	Concession cancelled
11	D5 Motorway, Czech Republic	Concession tender cancelled
12	M3/M7/M30 Toll Road, Hungary	Concession tender cancelled
13	M9 Danube-	Concession tender cancelled
14	Pitesti–Bucharest-Lehliu (140km) First Phase, Romania	Concession tender cancelled
15	Argentina Toll road program (first generation), Argentina	Contract suspension
16	BeirasLitoral/Alta Shadow Toll Roads, Portugal	Project halted
17	91 Express Lanes California, USA	Project nationalization
18	Camino Colombia Toll Road, USA	Project nationalization
19	London Underground – Tube lines / Metronet, UK	Project nationalization
20	M1/M15 Toll Road, Hungary	Project nationalization
21	Railtrack, UK	Project nationalization
22	Siza Rail, Democratic Republic of Congo	Project nationalization
23	Skye bridge, UK	Project nationalization
24	ThaNgone bridge project, Lao PDR	Project nationalization
25	Zagreb-Gorcan Motorway, Croatia	Project nationalization
26	Channel Tunnel and Channel Tunnel Rail Line (CTRL) UK	VFM not achieved
27	Confederation bridge, Canada	VFM not achieved
28	Highway 407, Canada	VFM not achieved
29	Railfreight distribution, UK	VFM not achieved
30	Rolling Stock Leasing Companies (ROSCO), UK	VFM not achieved
31	Royal Dockyards (at Davenport and Rosyth), UK	VFM not achieved
32	Wijkerttunnel Randstad, Netherlands	VFM not achieved

Source: Soomro and Zhang (2013)

Nigeria is not left out of these international debates, since its PPP schemes have been shown to be fraught with structural challenges, a negative trend resulting in projects concluded continue to struggle and suffered failure over the years. Two projects in the Nigerian transport sector (Lekki–Epe Motorway and MMA 2) procured with PPP model have failed to achieve their expected real efficiency benefit (Amadi, et al. 2014, Babatunde et al. 2013, Nwangwu 2013). Giving the growing controversy surrounding PPP, where some analysts argue in favour of PPP's ability to deliver infrastructure better than traditional model procurement while others disagree, there is limited evidence to suggest that PPP model is right for Nigeria having recorded two failures. Therefore, this study objective is to review critical factors affecting Nigeria since Puentes (2015) argued that past mistakes and failures are the best learning tools in structuring efficient and effective PPP projects. This is the research gap this paper intends to fill, including, offering recommendations to support effective delivery of PPP in Nigeria for the consideration of government and potential investors in Nigerian and beyond.

2. Literature Review

To understand the failures of PPP, we need to examine the key determinant towards its adoption. Neo-liberal theory argues that the private sector management and services are more result oriented in a market driven competitive environment than the public sector, which as a result have thrown up the argument that with the private sector involvement in management and maintenance of public assets, infrastructure assets will be efficiently managed, maintained and offer better services than it would have offered under the management and maintenance of the public sector(Payne and Philips 2010). The Neo-liberal theory assumes that public sector management efficiency is sub-optimal compared to that of the private sector because in a real competitive environment, the private sector is more efficient(Pusok 2016).The above narrative on efficiency actualization is a reflection of the goals PPP proponents considered captivating, hence, the nexus of PPP model adoption. It was based on this understanding that Gomez-Ibanez (2015) maintained, private sector involvement in infrastructure from neoliberal context is framed around efficiency benefits, which is the most optimal approach to deliver a win-win rather than zero-sum games.

Three theoretical positions strengthen the model's ability to deliver higher efficiency: contracting-out, bundling and risk transfer. Contracting-out entails long-term innovative collaboration and social exchanges among parties, mutual trust, interpersonal attachment, and commitment to specific partners, altruism and problem solving (Darwin et al. 2000). It is a process where the government purchases private sector's services, bounded in a contractual agreement but retains service accountability (Hrab 2004). The central theme of contracting-out revolves around partnership and strategic alliances, encompassing the promotion of efficiency and discipline of the prudent private sector managerial ability into the bureaucratic public-sector administration, utilizing the skills, strengths and resources of different sectors in the realization of collective goals of all stakeholders (Public, Private and Citizens). Referred to as outsourcing in some literatures, it ensures leading parties supplement formal contractual clauses to more informal mechanism that will boost productive partnership devoid of bureaucratic propensities associated with public sector (Reeves 2008). Pessoa (2008) lucidly stated that contracting-out erase public sectors inefficiency and lack of incentives to build quality projects at lower costs. From field experience, outsourcing is revered because of its ability to radically changed the ineffective process of delivering projects under traditional method, by subcontracting infrastructures and services to private partner with the innovative capacity, management and technical-knowhow to develop such functions that will enable the government benefit from the combined efforts of specialization and competition; with its substantial cost reduction benefit, compared to when same function is performed in-house.

Bundling on the other hand is argued to have broader positive outcomes as it "induces internalization of any positive externalities", which the construction and operational phases may harvest and have the wherewithal to deliver real efficiency gain (Benneth and Iossa 2004:27, Blanc-Brude et al. 2007:9, Dalila 2005). This concept reduces incomplete contract, life cycle risk and allows the government to contract with a single Special Purpose Vehicle (SPV) in a particular contractual framework, the handling of different phases of project — design, finance, construction, operation and maintenance (Engel et al. 2010). Remarkably, bundling, does not only motivates the private partner to "choose the optimal level of the quality-improving" and "reduce quality shading", it also attracts "upfront investment that will contribute to cost reduction over asset's lifecycle" (Dalila 2005: 105). It has become a veritable concept in most procurements involving multi-stages of procurement; particularly, transport infrastructure since it reduces lifecycle costs (building, operations, and maintenance

costs), and public sector bears no project maintenance cost during operation phase, regardless of the cost incurred towards project maintenance (Dalila 2005). Bundled projects are easy to recognise with its "catchy" terminologies, such as: Design-Bid-Build (DBB), Build-Operate-Transfer (BOT), Design-Build-Finance-Operate (DBFO), and Design-Build-Finance-Manage-Operate (DBFMO).

Risk transfer or sharing depending on the acceptable process by the parties represents one of the main value drivers (Roumboutsos 2013) and efficiency driver (Ball et al. 2002) that promotes productive efficiency through the reduction of potential risk impact and cost, while ensuring the actualisation of real efficiency benefit (Dalila 2005). In rare occasion where both partners cannot manage or control a particular risk, incentives and clauses that can mitigate the risk will be applied for the attainment of productive efficiency (Laffont and Tirole 1993). The debate on incentive is particularly important because it reduces risk eventuation and goal conflict of the public and private sector, as well as persuades the private investor to perform better, since failure attracts penalty or withdrawal of incentive. Therefore, risk allocation and incentive to meet output specification strengthens public sector hold on private partners to provide quality project with solid maintenance timeframe to the benefit of the taxpayers.

Yet, the neoliberal model and other theories above supporting PPP have attracted as many pessimists as supporters, focusing on the areas of weaknesses of outsourcing public projects, hitherto, provided by the government. Stilglitz, the Nobel-Prize winning economist suggested that PPP model allows the public to shoulder all risk, and the private sector gets all the profits (Stilglitz 2008). Reeves (2013) and Rial (2015) posited that achieving real efficiency benefit as primary motive for PPP adoption is currently watered-down; allowing — circumventing budget constraints — a muddy morass option for investors, to become the dominant adopting factor; especially, for countries with limited access to capital that are in dire need to close infrastructure gaps. Part of the reason this shift from real efficiency to circumventing budget contracts is because meeting required standard to deliver real efficiency is somewhat cumbersome, and if strictly adhered to, will eliminate most developing countries from using this model to procure infrastructure; a position, most financial institutions and investors promoting PPP to developing countries, as solutions to rapid infrastructure growth, frown upon!

Additional obvious fascinatingly disrupting philosophy, often noticed in PPP project is the dwindling strength of public and private sector relationship in a contract, a corollary of agency theory or its offshoot — Principal-Agency-Theory (PAT). By description, agency theory or PAT is a supposition that explains principal-agency-relationship where the contract originating party (the Principal) assigns a task to another party (the agent) who then execute the task (Eisenhardt, 1989, Jensen and Meckling, 1976). However, in the process of managing this relationship, the theory addresses problems that may arise due to the actions of the agent, hidden to the principal referred to as information asymmetry. It is argued that the private sector may be in possession of information the public-sector lacks, which could lead to adverse selection or pre-contractual opportunism. This pre-contractual opportunism is exploited at the expense of the uninformed party and the outcome will be the delivery of low quality projects or services, and post-contractual opportunism or moral hazard where project objectives are switched in favour of self-interest, seeking goals of the agent (Flyvberg et al 2003).

Self-interest affects the overall interest of the project, especially, when the private partner chase for more profit encourages project quality and maintenance routine reduction or toll

rate and prices for services rendered discreetly increased. Arthurs and Busenitz (2003) claimed that public and private partners are rational and self-interested, but their rationality is bounded by the first assumption — information asymmetry between the parties. The presence of any self-interest will create an environment for potential problem between the principal and the agent since an atmosphere of distrust will pervade the relationship, resulting in each party doubting the genuineness of the contract (Baiman 1990, Eisenhardt 1989, Laffont and Tirole 1999, Nilakant and Rao 1994). Consequently, Halachmi (2003) believes that each party will fail to deliver their best in such an atmosphere, hence unable to reach Pareto-Optimum.

Moving from theory to practice, literature identifies many drivers hindering PPP effectiveness. For example, absence of political support and lengthy tendering process (Soomro and Zhang 2016), weak regulatory framework and transparent negotiation (Moises &Jaminet 2006) and huge cost of borrowing project finance by private sector, which is higher compared to public sector borrowing (Siemiatycki 2013), are among recalling failure drivers. This paper conducted a systematic analysis of PPP performances and extract 35 failure drivers (see table 2) to provide more insight on issues underlying PPP effectiveness.

Table 2
Critical Failure Drivers (CFDs)

Failure Drivers	References																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Lack of clear objectives by the public sector								*													
Lack of PPP experience																	*				
Weak domestic finance						*										*					
Weak long term financing option for investors	*																				
Weak evaluation criteria	*																				
Excessive restriction on participation								*													
Instability in the financial market	*																				
Political instability	*																				
Weak PPP objectives	*																				
Huge cost of borrowing project finance													*								
PPP adopted to circumvent budget constraints		*																			
Weak regulatory framework										*											
Premature contract termination				*							*										
Weak public sector skills	*																		*		
Fragmented PPP policy	*											*			*						
Stringent financial policy																		*			
Public sector limited preparedness									*												
End users pay huge cost	*																				
Lengthy tendering process	*																				
Adverse selection																		*			
Underbidding										*											
Weak relationship management																					*
Over estimation of demand forecast										*											
Expensive PPP contract					*																
Optimum bias										*											
Automatic selection of bidders			*																		
Lack of transparency			*																		
Weak competitive bidding			*																		
Protectionism								*													
High project/transaction cost								*													
Inappropriate risk allocation														*						*	
Cost overrun							*							*							
Poor project monitoring			*																		
Weak incentives	*																				
Government corruption	*																				

*Indication of specific failure driver reference
References: A= Soomro and Zhang (2016) B= Acerete, et al (2011) C= Cabrera et al (2015) D= Martniello (2006) E= EPEC (2012) F- Gunningan& Eaton (2006) G= Hwang et al (2013) H= KPMG (2014) I= Macario et al (2015) J= Moises &Jaminet (2006) K= Reeves (2013) L= Zhang (2005) M= Siemiatycki (2013) N= Silvestre & Araujo (2012) O= Van Den Hurk &Verhoest (2015) P= Visconti (2014) Q= Zou et al (2014)

Although table two provided needed insight on various failure drivers that would form the core framework for drafting this papers questionnaire, it failed to examine specific countries experiences, especially, why some are successful with PPP, while others struggle. Likewise, a failure triggering driver in one country may not necessarily cause serious impact in another. Even more concerned is the evidence from literatures that countries with the capacity to provide infrastructure finance through internal institutional investors, pension funds, bonds, without relying solely on external investors with its risks and escalating finance cost eroding any potential value for money, achieve higher productive efficiency,while countries without these superior advantages deliver sub-optimal efficiency. To understand this dichotomy, a

more specific multi-country analysis involving eight countries — with mixed PPP experiences — considered examples of PPP projects in transport sector that recorded failure was carried out: UK, Australia, Canada, Ireland, Belgium, Portugal, Spain and Italy (see table 3).

Table 3. Summary of failure drivers extracted from international lessons

Countries	Failure Drivers
Canada	No unified PPP objectives due to diverse provincial PPP outlook No Known VfM evaluation process
Ireland	No clear VfM assessment approach Adopted PPP for private finance purpose High cost of borrowing project finance Absence of domestic private finance Risk misallocation
Spain	Adopted PPP for private finance purpose Expensive projects delivered Poor monitoring of PPP projects Overestimation of demand forecast Opportunism
Portugal	Lack of domestic finance PPP adopted for private sector finance (EIB finance) Poor legal and institutional framework Unstable and expensive PPP contracts Cost overrun Public sector lack of experience Risk misallocation Optimum bias Project uncertainty
Italy	Insufficient public-sector skills Premature contracts termination
Australia	Overestimation of demand forecast Long tendering process Premature PPP contract termination High tendering cost Weak competitive bidding due to high cost Unclear objectives causing to governance challenge Low level innovations
Belgium	Fragmented PPP market PPP adopted for financial –budgetary consideration Stringent financial policy (bidders compelled to source for debt financing with zero guarantee from government) Public sector limited preparedness Contractual risk
United Kingdom	Cost overrun Project innovation debatable Lengthy negotiation (pre-2012) Lengthy tendering High tendering cost Cost advantage over traditional procurement decreased Weak justification for using PPP

Source: Author

Looking at table 3, amidst all country specific failure drivers, adoption for private finance purpose appeared repeatedly in 5 countries. The implication of this shows a clear shift from the original neoliberal free market ideals — delivery of real efficiency benefit — to embracing PPP as an alternative infrastructure financing mechanism, which results to escalated project cost as private investors key motivator has been profit than actualizing

greater project efficiency. And because most of these countries are in dire need of infrastructure development with weak access to capital, dubious investors willing to invest are nonchalantly or connived with the public-sector representative.

In clear support of an earlier statement by this paper, three countries in the table stood out: UK, Canada and Australia out of 8 countries investigated adopted PPP for efficiency purpose and equally recorded successful have projects that attained higher productive efficiency. Besides, it proves that PPP efficiency is possible, but requires countries to develop the capacity to provide infrastructure finance through internal institutional investors so the focus of the collaboration would be on transfer of technical know-how and management skills not the complicated project finance. Their inclusion on the table was as a result of earlier failures: confederation bridge (Canada), Metro net deal to upgrade and maintain London Tube's network (UK) and Sydney cross city tunnel (Australia) to mention a few. Even at that, these failures are not directly linked to adopting for finance purpose; rather, due to uncertainties, ambiguities, multiple actors' involvement risk, shifting political landscapes, difficult technical requirements (Flyvberg 2006, Salet et al. 2012).

Consequently, a theoretical framework for examining Nigeria's PPP in transport infrastructure failure is proposed in figure 1. This framework proposes that the failure of PPP in Nigeria's transport sector is firmly rooted to Carbonara, Constantino and Pellegrino (2013) three layers theoretical framework as modified by the author to reflect Nigerian perspective: Country, project and sector. In this study, country, the first component as modified will focus on the intervening factors and life-cycle that influence the operation of PPP in Nigeria (e.g., institutional, legal, economic and finance). The second component tagged sector would determine the outcome of PPP in transport infrastructure with focus on market structure and performance. The third component "structure" includes the financing type (e.g., user pay or availability payment method) and structures of PPP (e.g., the project and models/types).

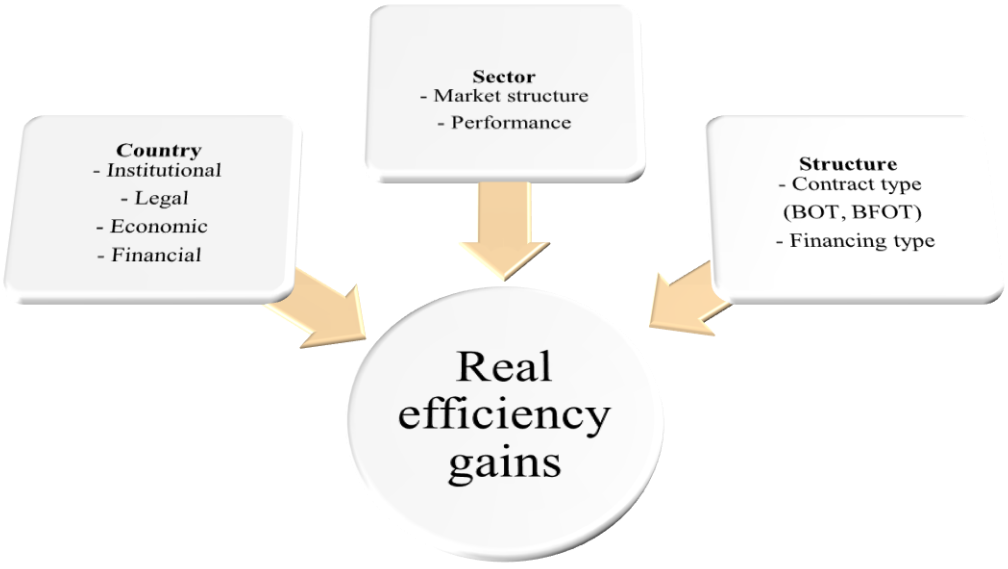

Figure 1. Proposed theoretical framework

3. Research Methodology

This study used secondary data (review of international lessons) to discuss Nigeria's two failed PPP projects. The commenced with the pulling of failure drivers from existing literatures compiled under CFDs in table 2. This formed the foundation upon which the failure factors were reviewed and applied in understanding failure factors in Nigeria's PPP. This desk research approach serves as form of methodological triangulation to assist the study in providing validity and enhanced understanding of the phenomenon with comprehensive data (Bekhet and Zauszniewski, 2012). Also, it provided the comprehensive theory used to clarify the challenges militating the slow pace at which the success of PPP in Nigeria are seen.

4. Discussion and recommendations

A number of issues that have negatively impacted the performance of the projects abound, but the study will focus on seven key issues (see table 3), which include, unfavourable environment, government corruption, weak tendering process, risk miscalculation, unclear objectives, non-provision of contingent liability and ineffective performance measurement.

Table 4. Final drivers and situations causing failures in Nigeria's transport infrastructure procured through PPP

CFDS in Nigeria	Situations	Theoretical framework
• Unfavourable enabling environment	• Weak macroeconomic stability, • Policy inconsistency and reversal, • Political and economic uncertainty, • Weak adherence to contractual agreements, • Shallow financial market capacity, • Weak legal and regulatory framework, • Inefficient supervisory and legislative system. • Foreign exchange fluctuation • Interest rate fluctuation • Delays in project approvals and permits	• Country
• Government corruption	• Opportunism, • Abuse of contractual terms, • Contract inflation, • Concession induced renegotiation.	
• Weak tendering process	• Zero transparency mandatory law, • Concessionaire selection shrouded in secrecy, • Unsuitable concessionaire selected, • Bid-rigging, overbidding/underbidding, • Adverse selection. • Weak concessionaire • Inadequate competition for tender • Longer duration	
• Risk misallocation	• Political, • Demand and • Shareholder risks.	Sector

• Unclear objective	• Adopted for private finance purpose as against real efficiency benefit. • Absence of output based specifications. • Inefficient monitoring. • Poor public decision-making process. • Conflicting or imperfect contract.	• Structure
• Weak provision for contingent liability	• Un-established contingent management framework.	
• Ineffective performance measurement	• Subjective project evaluation method. • Insufficient project finance supervision. • Financial incentive. • Operational incentive. • Legal incentive. • Intangible incentives.	

Source: Author

Unfavourable enabling-environment: eroding investors' confidence due to government's actions such as policy inconsistency, lack of adherence to concession agreement, weak legal and regulatory environment among other militating negative actions creating investors attraction difficulty is attributed to this driver. Similarly, it prompts macroeconomic instability, weakening local financial market ability to finance long-term infrastructure projects. Nigerian financial institution lacks the capacity to finance long-term projects, with no substitute to Bank finance due to insolvent capital market. Due to this inaccessibility of project finance locally, government seek financing externally, as an intervention, with its inherent currency risk. Borrowing in dollars and awarding concession in Naira (local currency) without adequate consideration of exchange rate fluctuation—a serious challenges bedevilling Nigeria with massive exchange rate fluctuation, was among the reason PPP failed in Nigeria.

Recommendation: this paper established that countries with strong enabling environment, solid internal financial capacity and unambiguous legal and regulatory framework attract more investors willing to ensure PPP perform better than those sourcing project financing from international investors. Therefore, deepening the domestic financial market by government is the key to achieving relative growth in PPP market. The process entails establishing strong guidelines that will support local financial institutions to engage in the provision of long-term infrastructure financing to local PPP team with the capacity to deliver infrastructure assets. With this, the focus will shift from adopting to circumvent budgetary constraints to adopting to achieve productive real efficiency benefits. Furthermore, the macro-environment must be positive to attract reasonable investors not the current "hawkish" opportunistic investors, ready to act corruptly to win investment, due to political and economic uncertainty bedeviling the country. Other required actions the government must put in place to strengthen the Nigerian PPP market to ensure that eroded investors' confidence gradually return, include the following: the government must be seen to be reliable and committed towards project success, willingness to provide capital contribution towards the project cost to cover the financial market uncertainty, creation of stronger PPP laws and stable macroeconomic environment in which the projects can thrive successfully. Also, establishing long-term strategic consistency and commitment towards project actualization will increase Nigeria's ease of doing business ratings.

Government Corruption: aside the gross bid rigging that occurred in Lekki-Epe project that led to inflated concession cost, induced renegotiation referred to as Hold-up in PPP was noticed in MMA2. According to Burke and Demirag (2015) Hold-up is winning the concession contract through attractive bidding, no other bidder can match, with the intent to force for a renegotiation after winning the contract. MMA2 concessionaire (BiCourtney) this study understood agreed 12 years concession duration before returning the project to government. Two years post financial closure, BiCourtney stopped work, asked for renegotiation of contract terms from 12 years to 36 years, citing as reason — unable to recoup all investment within 12 years. Although, renegotiation is permitted in PPP if the reason meets grounds permissible — such as change in the project specifications; in this case, the concessionaire presented low-ball bid with 12years' duration just to win the bid with the expectation of renegotiation afterwards. Furthermore, this paper observed that government corruption is endemic in PPP projects and the Nigerian public institutions set up to monitor and regulate the model were not absolved, as some bidders of high moral standing, were denied tendering participation, for refusal to induce public officials. This gave room to ineffectual PPP concession contract award, deliberately distorted, for the benefit of corrupt government and private sector officials.

Recommendation: the provision of overall process transparency including the establishment of transparency law that penalizes offenders, will reduce the degree of government corruption. Automatic selection during tender bidding—will not stop if credible punishment mechanism is not established to discourage bidders from engaging in bribery or for those in public sector decision-making bodies from engaging in nepotism and favoritism in awarding contracts. The government must develop a framework that would not be too strong to deter potential PPP contract partners or too weak, which then leaves loopholes for the continued exploitation and corruption to the detriment of other genuine investors, projects and stakeholders.

Weak tendering process: evidence from both case studies confirms biased and unprofessional tendering process. The selection of MMA2 concessionaire was through a direct negotiation between FAAN and Bi-Courtney; no other concessionaires were permitted to submit bid. A ground already established to trigger favouritism, which encouraged the secret selection of bidders with weak capacity to deliver (adverse selection). For example, Lekki-Epe motorway tendering was on ad hoc basis of which LCC was the only concessionaire permitted to submit bid, and emerged as the winner. This process has continued unabated as lack of transparency law remained a challenge in Nigeria's procurement process, prompting emergence of unqualified concessionaires to win PPP contract through bribing or other illicit ways. The process in Nigeria was not only flawed with irregularities emanating from bid rigging as earlier mentioned, the process was also prolonged, thereby increasing the aggregate cost of procurement.

Recommendation: competitive bidding is a key factor if the project entails a high degree of standardization and financial attractiveness, especially, in bundled project. The project should be open for all qualified contractors! Transparency must be adhered if success is to be recorded, as transparent and competitive tendering reduces cost through the selection of efficient or appropriate concessionaire. Also, every bidding must be open without barriers to entry unlike the prevailing practice where tendering rights are preserved to an exclusive shortlist of some top local and foreign companies. Decisively, the study suggests that the right to select bidders should be contracted to an independent partner for enhanced efficiency.

An independent body with no affiliation to the bidders or government would enable the selection of the right bidder with the capacity to execute the contract efficiently.

Risk misallocation: both method — Delphi and case study — identified this as failure activator. Two risks (stakeholder and demand risk) were adjudged, particularly, as conductor of failure. Stakeholder opposition risk was prominent in the case of Lekki-epe motorway. The paper established this risk was allocated to the private party but remained un-mitigated. Upon eventuation (opposition at the toll), the private investors tagged it political risk instead of stakeholder risk, forcing the government to assume responsibility. This dissonance on who should bear the risk subjected Lagos State government to pay shadow toll to the Lekki concession company (the concessionaire) when toll collection stopped at the order of court due to resistance from stakeholders. This is crucial as unmitigated stakeholder risk could result to political risk. Similarly, demand risk, regarded as extremely challenging for parties in transport infrastructure projects and considered to have triggered most failures equally (Siemiatycki 2015) contributed to the failure of both projects in Nigeria. Demand risk involves forecasting traffic volumes ex ante to get a picture of expected revenue the project would attract. To accurately predict demand risk, multiple factors such as expected economic growth user behaviour, price elasticity, and substitute or parallel facilities are involved and considered. Demand risk in both cases was allocated to private sector — a misallocation — since the risk determining factors are outside private sector control; as public sector is in control of the demand risk determinant factors in the cases in review. So, when users divert to alternative route to avoid Lekki-Epe toll as a clear dissatisfaction of the toll booth, it falls under user behaviour, of which the risk was to be retained by public sector but transferred to private investor. Likewise, the construction of MMA1 in a very close proximity of MMA2 is referred to as erecting a parallel project, with its known negative effect of revenue erosion. The determinant factors in both scenarios are outside the private sector control and should have declined the risk when transferred. Any risk transfer without determinant controlling capacity, amounts to risk misallocation.

Recommendation: risk misallocation has been reported widely, and not limited to Nigeria alone as many studies have identified demand risk as a difficult risk for the private sector to manage since the determinant factors are outside their control. MMA2 project and Lekki-Epe project witnessed private sector's inability to manage demand risk. The study recommends the public sector that controls the demand risk-determining factors should retain this risk and adopt availability options—through the payment of shadow tolls. Also, PPP nature makes risk allocation an important factor that must be addressed properly through optimal risk allocation — risk allocated to the party with the best ability to manage such risks. Stakeholder opposition risk transferred to the private sector could well be managed by both parties and not limiting the management to only one party. Ideally, both parties should jointly seek the opinion of the joint holders of public assets to accurately gauge their acceptance of the project and find ways of mitigating any apprehension before commencing construction. This has always been difficult to follow as most PPP projects have consistently failed in consulting various stakeholders to buy into the project-planning process, resulting to stronger oppositions post construction.

Unclear objective: primarily, the government provided infrastructure through PPP without weighing the value for money options, representing — real efficiency benefit. Clearly, PPP was adopted without deep understanding of the cost and benefit. For instance, the government signed non-compete clause in MMA2 project, but reneged afterwards to

construct MMA1 project. The implication led to the failure of MMA2 as both MMA2 and MMA1 shared the traffic demand of the airport, which was used to forecast the bankability of MMA2 during project feasibility study. Unclear objectives are not associated to Nigeria's PPP alone as Hwang et al. (2013) identified it as a significant barrier in Singapore PPP implementation with result being improper coordination of PPP agreements. Gomez-Ibanez (2015) posited that unclear or muddled objectives are possibly the reason PPPs were previously adopted to circumvent budget constraint in Canada without examining if the project is economically sensible and practically manageable.

Recommendation: for the Nigerian government to achieve success in PPP, projects must be structured innovatively to ensure it benefits all stakeholders. With the lack of experience and unclear objectives within the public and private sector in Nigeria, dependence on foreign experts that understands the new approach of delivering successful projects in order to amplify investors' confidence is ideal. However, government must set operational guideline to ensure that local contents are used unsparingly, as transfer of skills to the locals, is one fundamental benefits of PPP, but hardly adhered by most foreign investors.

Weak provision of contingent liability: this involves establishing approach for early contract termination, debt or revenue guarantees issues and which party assumes risks or liabilities if the project fails. Nigeria has no clear-cut contingent liability criteria. Theoretically, it seems the country adopt an integrated approach: relying on project preparation, competitive bidding, and review of PPP proposals by ICRC, including transferring risks to the party with the capacity to manage. In practice, however, using evidence from both cases, the government failed to retain demand risk its determinant factors they control and can manage properly, contrary to established contingent liability principle on risk transfer, which supports, risk to be transferred to the party able to manage such. It is open to debate if the public sector underestimated the effect of contingent liabilities in MMA2 since the dispute is still in court and the experts did not provide a clear-cut response. But, Lagos state government accepted liability in Lekki-Epe and bought back the project.

Recommendation: some countries in bid to solve contingent liabilities issue opt out from guaranteeing projects; while others restrict their risk bearing to risks they can control thus minimizing contingent liabilities. However, as the functions that should be performed by the public sectors in PPP, relying on careful preparation, competitive bidding, having own information (not trusting private sector information exclusively) on costs and risks; and providing incentives to avoid cost-overrun, meet timely and delivery of quality project, is recognised to reduce contingent liabilities.

Ineffective performance measurement: usually established to ensure project compliance with contract specifications, such as operational consistency or project performance success and most often tied to payment. Nevertheless, in Nigeria, no government agencies appear to monitor performance systematically and comprehensively over the life of projects to an extent where figures could be extracted to construct a national aggregate about the value and viability of the model as done in other developed countries. Currently, the government monitors the construction by setting up a specialised team from works ministry or transport ministry to supervise the work of the contractors during the initial phases only to support a procurement decision-making. In the case of Lekki-Epe, the paper recognized the existence of specialized supervisory team from Lagos State works ministry, but extremely ineffectual in the discharge of their duties; as evidence of project performance failures, including

erecting a toll booth that was not originally part of the contract, were established. Besides, this study obtained no evidence that the project performance was tied to payments, which is an anomaly; as government failed to put a performance measurement criterion in place to enforce the risk the private partner assumed and incentivized for. Consequently, the concessionaire wasn't penalized when Lekki-Epe toll project failed to meet expected real efficiency gains; rather, the government bought back a project that failed not only to deliver efficiency, but increased traffic congestion, which its reduction was the key reason for the upgrade and expansion.

Recommendation: in bid to drive for excellence, goals attainment is vital. However, to achieve a goal, key performance indicators and measures including incentive tied to the goal must be established. Instead of the current process where monitoring is performed during the initial phase, governance and performance monitoring system is required throughout the project lifecycle to ensure sustained defence of the long-term operational viability or success of PPP procurement. Integrated monitoring is ideal as it allows alliance in the monitoring process since some aspects of the projects may be complex for the public sector to monitor alone. Incentives are equally important because they form and remind concessionaires to achieve and exceed results set; and also serve as a reminder — there is a penalty for failure. Government should also ensure that performance measurement enforcers are not manipulative, where enforcers manipulate performance results in order to obtain monitory consideration from the private investors after doctoring performance measurement sheet.

5. Conclusions

This paper followed Puentes (2015) suggestion that past mistakes and failures are the best learning tools in structuring efficient and effective PPP projects. Using the failure of Lekki-Epe motorway and MMA2, the paper investigated the reasons for its limited success to date in order to offer effective recommendations for future projects. Through a systematic approach, a theoretical framework and desk research were conducted to review the critical failure drivers.The significance of these findings upholds the theoretical framework and helped to address the strengths and any limitations of the theoretical framework in relation to the empirical evidence. Based on the outcome, this paper concluded that PPP can be an effective model for infrastructure delivering if the recommendations are followed and parties to the contract demonstrate professionalism without inclination towards opportunistic behaviour.

Beyond this initial conclusion, understanding fully the effectiveness of PPP in infrastructure development requires a further study. To that end, the evaluation framework built on the current theoretical framework needs expansion to accommodate institutional theory. Issues with PPP stretch beyond post constructions, and must be considered as a socio-technical endeavours embedded in complex institutional frameworks. Considering that institutional scheme should herald technical scheme, and Nigerian institutions are weak as shown in this paper, it became indispensable to investigate institutional framework to fully understand the environment in which the projects are situated.

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