
Public-Private Partnerships Infrastructure Financing Model: How theoretical perspectives help explain cost-overrun in some select projects.

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Abstract

Despite the rising significance of Public-Private Partnerships as infrastructure financing model in developing countries', their efficiency is currently undermined by challenges linked to cost overrun. Although studies focusing on this issue have been discussed extensively, little effort has been made to theorise cost-overrun issues bedevilling PPP projects in Africa vis-à-vis Nigeria through the lens of economic theories of transaction cost and agency theories. Following the deployment of a flexible abductive research approach in order to use theory with an immense degree of provenance to explain the propositions surrounding this particular phenomenon and case study to enable the development of context-dependent knowledge, this study investigates the likely triggers of cost-overrun in the case studies of two failed projects in Nigeria and its link to select economic theories. Subsequently, the paper developed a three-phase conceptual framework to improve PPP implementation and provide insulation for cost overruns. The study findings are valuable to the literature as they will deepen the understanding of theoretical linkages to cost-overrun issues in transport infrastructure.

Keywords: Agency theory; transaction cost theory; cost overrun; Infrastructure Financing; Public Private Partnership; Transport Infrastructure

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1: Introduction

Public-Private Partnership (PPP) is currently considered the optimal solution to infrastructure procurement in many developing countries (Zwalf, 2020). The adoption motive, albeit diverse, often follows the transfer of financial risk to the private investor, with the intention that it will create strong incentives to deliver higher efficiency due to arguments on better utilisation of resources to deliver the project on time, within estimated cost and scope (Anago, 2022; Klijn, 2020). While PPP projects have been considered to be successful when it meets the traditional iron triangle measures of time (finished on time), quality (finished according to specifications) and met cost specifications (within budget) (Liyanage & Villalbro-Romero, 2015); citing (Atkinson, 1999; Khosravi & Afshari, 2011), the cost component of the triangle has consistently raised concern, which arguably makes PPP success to be mixed with over two decades of empirically-driven criticism (Albalade, Bel, & Gragera, 2019; Alborno, Soliño, Galera & Álvarez 2021; Biygautane, Neesham, & Al-Yahya 2019; Leighland, 2018; Flyvbjerg, Bruzelius, & Rothengatter, 2003; Pessoa, 2007; 2010; Post & Murillo, 2016; Sarmiento & Renneboog, 2021; Tariq & Zheng, 2020).

Among the numerous PPP cost criticism investigated in the literature, undermining expected efficiency gains, the cost overrun experiences, which according to Flyvbjerg and Gardner (2023) ranges between 16% (roads), bridges 26%, tunnels 37%, rail 39%, ports 32% and bus rapid transit 40% all in transport infrastructures; cost overrun remain one of the significant problems facing not only transport infrastructure but entire infrastructure projects globally with different jurisdictions and sectors experiencing lower or higher cost overruns (Flyvbjerg & Gardner, 2023; Anago, 2022; Mahmud, Ogunlana and Hong 2022; Preuss, 2022; Schomaker & Bauer, 2020; Flyvbjerg, Budzier and Lunn 2020; Flyvbjerg et al., 2018). Defined as “the amount by which actual cost exceeds the estimated cost, with cost measured in the local currency, constant price, and against a consistent baseline” (Flyvbjerg et al., 2018, p. 175), this issue potentially creates affordability problems for users and public administrations budget, should the government adopt shadow toll. Siemiatycki (2016), citing Flyvbjerg, Holm, and Buhl (2002b), has identified cost overrun as a primary policy concern burdening stakeholders with high unexpected additional costs, which put the financial viability of major projects at risk, and can be politically embarrassing for all involved with the project.

Factors thought to be influencing cost overrun have been explored in several studies (Anago, 2022; Mahmud, Ogunlana and Hong, 2022; 2021; Preuss, 2022; Flyvbjerg, Budzier, and Lunn, 2020; Flyvbjerg et al., 2018; Adam, Josephson and Lindahl, 2017; Eliasson, J. and Fosgerau, M. 2013; Flyvbjerg, Holm and Buhl 2005; 2002a, b). Flyvbjerg, Holm and Buhl (2002a, b; 2005) are recognised as the significant studies that empirically did justice to this issue and linked cost overrun to strategic misrepresentation and optimum bias, challenging the previous understanding that cost overruns are caused by a suit of technical challenges with project delivery; and unexpected occurrences on large complex projects that are caused by bad luck, despite the professional skill of the project delivery team involved. Siemiatycki (2018) contributed to this contentious topic by reviewing the work of Flyvbjerg, Holm and Buhl (2002b). Siemiatycki (2018) agreed with Flyvbjerg et al. (2002b). Instead, reinforcement was made that various forms of economic and politically motivated dishonesties and wilful misrepresentations remain the best fit to explain the data on the patterns of cost overruns.

Nevertheless, cost overrun has yet to escape criticism from governments, investors, and academics. Hence, this study draws insight from this concept pioneered by Flyvbjerg, Holm and Buhl (2002b) and advanced by Siemiatycki (2018) to investigate further activities triggering cost overruns through a paradigm shift by adopting a theoretical perspective in investigating and understanding cost overrun facilitating activities. In other words, this study is moving from empirical to theorising the triggers of cost overruns using the case study of two failed projects in Nigeria as context. This is because more effort needs to be made to theorise cost-overrun issues bedevilling PPP projects. Many existing costs overrun studies continue to empirically discuss this issue since PPPs are more of an empirical than theoretical phenomenon (Klijn, 2020). Subsequently, the study will propose a conceptual framework to address cost-overrun issues to enable Nigeria and, by extension, sub-Saharan Africa to circumvent them and improve their chances of delivering more successful PPP projects within budget. This study provided a significant opportunity to advance the understanding of cost-overrun because it has a benefit of more than a decade since both cases used reached the operation phase between 2007-2010. This longer horizon provides a complete project assessment frame (Stroka, 2021). While the selected cases focus on Africa's highest Gross Domestic Product (GDP), Nigeria, the theoretical applications and conceptual framework are universal and do not differ country-wise.

The rest of the paper is as follows: section two discusses the study design and methodology; section three establishes the two theories and their various themes. Section four presented the cases to establish the problems leading to cost-overrun. Section five looks at the conceptual framework to mitigate and control cost overrun. Section six concludes the study.

2. Methodology

The main study is premised on the quest to provide a theory to explain cost overrun in two failed PPP projects in Nigeria. This gives rise to the selection of a flexible abductive approach (Fisher and Aguinis, 2017, citing the work of Peirce, (1931) and Blaikie (2007)) or systematic combining (Dubois & Gadde, 2002), where theories provide an initial guess, which is then revised iteratively using data from secondary and primary data. This critical position arises since theory forms the bedrock of most social inquiry, if not all, and provides a rationale for the research being performed and a framework upon which social phenomena can be understudied and findings interpreted (Bryman, 2012). In other words, the study considers investing in theory because it presents a superior explanatory power of case studies and provides unique means of developing a theory using in-depth insights of empirical phenomena and their contexts. Studies such as this start with an incomplete set of observations from select economic theories and proceed to obtain the likeliest possible explanation for the group of observations from the case studies. This follows Timmermans and Tavory (2012) and Tavory and Timmermans (2014) observations of the abductive analysis approach. This creative inferential process intersects between empirical observations of a social world and a set of theoretical propositions. On this basis, this study adopted an abductive research approach to use theory with an immense degree of provenance to explain the propositions surrounding a particular phenomenon (Lipscombe, 2012).

Furthermore, the study adopted a case study to enable the development of context-dependent knowledge (Awuzie & McDermott, 2017). As Yin (2009) reinforced, the case studies research strategy helps in answering a "why" or "how" question about a contemporary set of events the investigator has limited control over. Achieving depth by including two or more similar cases helps realise the element of verification or testing of theory as it shifts from deductive to inductive or the need to apply replication logic (Eisenhardt, 1989a; Taylor,

Dossick and Garvin 2009). Considering the main research question of this paper, "investigating activities facilitating cost overrun in PPP transport infrastructure", it becomes imperative to use case studies (Yin, 2009). The case studies data came from PPP experts selected through purposive sampling to yield information-rich cases that exhibit the phenomenon under investigation (Patton, 2015). Criteria selection of the expert follows two basic approaches: first being in active service in the department of Bureau of Public Enterprises (BPE), Infrastructure Concession, Regulatory Commission (ICRC), Lagos Ministry of Works and Infrastructure, Federal Airport Authorities of Nigeria (FAAN), and played a major or minor but critical role in the procurement, construction or operational phases of any of the cases. Fortunately, the experts selected met the criteria; regrettably, they would not want to be quoted directly due to the nature of the evidence provided since they still work with public agencies. Hence direct quotes and positions of experts were anonymised. The data on these two case studies were obtained between 2014-2016 as part of the corresponding author's doctorate thesis. The data collection followed a multiple sources approach, as face-to-face interviews were audio-taped and transcribed. Other data were obtained from databases, company records and media reports. The interview data analysis followed identifying themes, patterns and relationships through primary and secondary data comparisons. Thus, the case study's findings were compared with the theory observations, and both were compared to see similarities or differences.

3. Theories and themes

3.1 Transaction Cost Theory (TCT)

Transaction cost theory is an economic theory that deals with the cost problem in a contract, whether emanating from the action of an individual (agency), which increases production cost or outsourcing/contracting out or transaction cost. Developed under the theory of the firm (Jensen & Meckling, 1976; Kantarelis, 2007; Spulber, 2009) and discovered by Ronald Coase as the 'cost of carrying out the transaction through an exchange in an open market' (Coase, 1961). Williamson (1979; 1981; 2002) stresses the importance of creating or selecting governance structures for individual transactions to reduce the contractual hazard and unnecessary costs (weak accountability) arising from the contract. The sub-themes vital in shaping projects' exposure to transaction cost in PPP are asset specificity, incomplete contract/uncertainty, bounded rationality, and opportunism/strategic behaviour (Bisenthal & Wilden, 2014, p. 1291; Caniëls & Gelderman, 2010; Hart, 1988; Williamson, 1981).

A high level of asset specificity often recorded in transport infrastructure projects has profound implications for forward vertical integration because it exposes the transaction to opportunistic behaviour (John & Weitz, 1988). According to Williamson (1979), Assets Specificity considers the degree to which the assets used to conduct an activity can be redeployed to alternative uses and by alternative users without losing productive value. Since deploying the specific assets is cumbersome, switching to a new relationship becomes costlier, making opportunistic behaviour susceptible. The other party that has no investment in the assets can take advantage of the value of the quasi-rents associated with these assets (Klein, 1996) and call for renegotiation. The chance of a project surviving the assets specificity scenario is minimal in other sectors but zero in transport infrastructure because of the practical impossibility of relocating roads, bridges, and airports to another section of the country. The party which has made an irreversible investment will become vulnerable to demands of the other party to renegotiate the contract and to get a more significant share of the profit, made under the threat of dissolving the relationship (EIB, 2007). In such a situation, Evenhuis and Vickerman (2010) submitted that the party that made the initial investment might be subject to a "hold-up" situation. "Hold-up" impose renegotiation on the

other party for pecuniary gains detrimental to the other party. Once the renegotiation is conducted, Parker and Hartley (2003) established that one party will not be able to recover the total cost of the investment (a sunk cost) except through renewal and continuation of the contract at an increased cost. It is essential, however, not to assume the applicability of hold-up emanates only from private sectors. The public sector can equally exploit hold-ups and act opportunistically by using unmovable investments the private sector has already made to force a renegotiation (Parker & Hartley, 2003).

Hart (1988) provides an in-depth analysis of the work of Coase (1937; 1988), Williamson (1975; 1979; 1985) and Klein, Crawford, and Alchian (1978) towards the development of an incomplete contract concept as a result of the gap observed in standard neoclassical theory, which ignored questions about the firms and its boundaries as well as cost and benefits of integration (partnership). It presumes that parties to a contract write down provisions for future events comprehensively, specifying precisely all future obligations of parties involved in every imaginable state of the world. There is no provision for contract modification or upgrade. If unplanned situations arise, the court can effortlessly and without recourse to cost penalise the guilty party. In practice, however, it is unlikely that parties in a relationship spanning 25-40 years can write about futuristic events in a contract without errors. Errors such as inaccurately predicting future events or actions of parties in the partnership, which is against the contractual agreement, due to gaps or missing provisions, create incompleteness in most contracts.

Just as in assets specificity, uncertainty and its vulnerability in PPP is more pronounced in transport infrastructure (Kim, Kim, Yook & Choo 2022) because of their longer duration nature, significant sunk investment (cost overrun), greater exposure to financial risk (due to high debt involved), high sensitivity to demand variations (especially in Greenfield projects) and political instability (Cruz & Marquez, 2013). Under this sector, uncertainty forms bounded rationality, where various parties to the contract cannot meet stringent assumptions of expected utility theory (Grant, Kline & Quiggin, 2012). Often cases of surging bounded rationality in a project have been reported and linked to opportunism which diminishes the integrity of the contract as much as bounded rationality.

According to Kornai (1979; 1986), soft budget constraints occur when firms under severe fiscal conditions expect a government bailout. The three main reasons that propel the government to offer a bailout in the cases Kornai cited are also applicable in infrastructure projects, including avoiding the economic spillover effect, which often occurs when government consider a project too essential to fail, and a costly project to liquidate, compelling the government to manage the non-performance of the private partner (Kornai, Maskin and Roland 2003), and finally, fiscal centralisation (Qian & Roland, 1998). However, if soft budget constraints apply in PPP, and the government offers a bailout to a private-sector project conscripted to finance solely under the contract agreement, the fundamental attributes of the PPP model (financial risk transfer) are defeated. Government should have financed the project without adopting the PPP procurement model. Also, it triggers cost overrun as private investors will employ less costly operations or make aggressive investments, risky investments at inception that will force the government to renegotiate (see Cruz & Sarmiento, 2021).

3.2 Agency Theory (principal-agent)

Agency theory is based on the conflicts that arise in a contractual relationship in which two or more people are involved, especially one that has a principal who engages the services of

an agent with the sole aim of the principal relinquishing his decision-making authority to the agent to take actions on behalf of the principals (Jensen, 2003; Jensen & Meckling, 1976). Logically, such a relationship is assumed to enmesh in goal conflict of various parties due to information asymmetry (Caers et al., 2006). Information asymmetry arises when a party, often the private sector, adjudged to be in an advantaged position, decides to use their information advantage position to exploit the PPP contract to their favour to maximise more profit to the detriment of other parties (public sector and citizens). This propensity to exploit one party in a PPP relationship for the benefit of the other due to information asymmetry is one of the principle-agency conflicts (Ho, Levitt, Tsui & Hsu 2015).

Since the party with information superiority (often the agent) is believed not to act in the best interest of the principal who is relinquishing his decision-making right (Eisenhardt, 1989b), there is a propensity for strategic behaviour occurrence in the form of adverse selection and moral hazards (Laffont and Tirole (1999), which inadvertently lead to cost overrun. Adverse selection happens because the private parties have more exogenous information on project cost and technical know-how than the public sector, which they use to extract more rent from the relationship even when their bargaining power is weak (Owusu-Manu, Ofori-Yeboah, Kukah and Edwards, 2022). For instance, if, during the tendering process, the public sector selects a contractor with less capacity for the project, there will likely be a cost overrun. On the other hand, moral hazard, an ex-post contractual behaviour, triggers cost overrun when the private partner takes discretionary actions during project implementation that can affect project quality (Owusu-Manu, Ofori-Yeboah, Kukah and Edwards, 2022).

3.3 Principal-Principal

This form of agency problem has no originally conceived theory and, therefore, would be based on the context framed by Banchit and Locke (2011), Su, Xu and Phan (2008) and Ho (2006). Principal –principal problem impact on PPP has grown to a recognisable level, especially in the countries where the market is characterised by severe information asymmetry, incomplete regulation, uneven legal and nascent enforcement capability (Chen, 2004; Peng, 2004; Xu & Wang, 1999; Young & McGuinness, 2001). Principal-principal conflict (PPC) occurs when the exploitation of the controlling Principal ensures the contract is outsourced at over-market-price to private holdings (Banchit & Locke, 2011; Ho, 2006; Su, Xu and Phan, 2008) or to invest aggressively in risky projects for the benefits of the controlling Principal (Ho et al., 2015). A good example is when PPP projects are awarded to contractors owned, associated with, or recommended by the controlling Principal at above-market prices. Corollary, Hart, Schleifer and Vishny (1997), and Holmstrom and Milgrom (1991; 1994) stated that the implication of such action carries a considerable cost. First, it distorts information and forces the government to make wrong awarding decisions that drive out honest bidders. Second, the ripple effect of awarding the contract to the wrong bidder is that they would act opportunistically in future which may lead to the project's early failures or needing the government's bailout, an additional unplanned cost. Third, suppose the PPP project is where equity is raised publicly before project completion; the passive Principal will be weaker due to massive information asymmetry in the unfinished project. Since PPP allows a low equity-to-debt ratio (20/80), the debt holders that provide most of the funding would be exposed to a large amount of limited/non-recourse capital to the risk of principal-principal problems.

4. Select Case Studies: The context

Case 1: Murtala Mohammed Airport 2 (MMA2)

MMA2 is a PPP-Build-Operate-Transfer (BOT) project awarded to BiCourtney Concession through direct negotiation (not tender bidding) to develop, finance, manage and operate the Lagos Airport Terminal 2 (and ancillary assets). Adjudged as the first significant BOT project in Nigeria's transport infrastructure, a 12- year-concession agreement for US\$10 million was signed initially. Afterwards, a renegotiation and amendment were forced in 2004 to accommodate a supplementary agreement, which increased the construction period from 18 months to 33 months. Also affected was the concession period, extended from 12 to 36 years with a redesigned cost increase of US\$150 million. The renegotiated project comprises an airport terminal building, a multi-storey car park and an apron. The financing was mixed: syndication from six local commercial banks for US\$138 million (N18 billion) and US\$25 million equity contribution. Part of the dispute emanated from failure to repay the loan as when due. The concessionaire attributed this failure to the Federal Government of Nigeria's (FGN) failure to keep to the contractual agreement as two main issues. There is also poor relationship management between the concessionaire and FGN due to issues with demand risk. It was allocated to the private sector because the non-compete clause implored the government to suspend the operation at the MMA1 terminal and will not operate any airport near MMA2. The government did not adhere to this, which led to several litigations and the refusal to obey court awards by the public sector. It is still being determined if the award has been enforced to date.

Case 2: Lekki-Epe Motorway

Lekki-Epe is a 49.5km 30-year BOT brownfield PPP project in Lagos State, Nigeria. The project was to rehabilitate and upgrade the existing two-lane dual carriageway to a three-lane highway that connects the major cities of Ikoyi and Lekki in the Lagos Island district and Epe, a suburban area of Lagos through the Lagos peninsular. The project's second phase includes the introduction of three toll plazas (with room for a maximum of 22 lanes/plaza) and the construction of a new 20km highway along the southern coast of the Epe peninsula total cost of \$340 million. Again, improved relationship management between the concessionaire and other stakeholders could have averted the failure of this project (see DFID, 2015). Besides the delays the project experienced linked to the state and federal Government's political disputes, issues of an inappropriate legal and regulatory framework, weak stakeholder management, and adverse selection during tendering were established. Lagos State government favoured Lekki Concession Company (LCC), resulting in the outright disqualification of other interested bidders. The risk allocation could have been more optimal as the private sector got the traffic risk. In contrast, the public sector controls levy and fare rate-fixing, including other risk triggers like court injunctions suspending toll collection.

As a result of revenue risk allocation to the private sector, LCC commenced toll collection upon the completion of only 4km of road, which was resisted by the stakeholders, stating a lack of involvement and engagement. The new toll rates enjoy government backing but not that of the stakeholders resulting in massive protests and resistance. This led to the suspension of toll collection indefinitely on the completed section of the road, withdrawing the demand risk from the private sector, retaining it and paying USD40 million shadow tolls to the concessionaire. Its sustenance became cumbersome for the state, leading to LSG reverting to the previous user-pay arrangement nine months after. Resistance ensued, creating uncertainty, as the yields from the toll could not offset investment exposure due to instability in toll collection. Its sustenance was unfeasible, leading to the intervention of LSG to buy

back the project. The State government assumed the total liabilities of the Lekki-Epe toll road and the asset — a 20km-completed section of the road — at a total project cost of US\$426million, which attracted a massive 25 per cent cost overrun with zero value for money.

5. Explaining cost-overrun through theoretical perspectives

5.1 Principal-agent conflict prism

The absence of appropriate legal and regulatory frameworks for PPP spearheaded this cost overrun. Most contracts followed the traditional procurement pattern where those in authority awarded contracts arbitrarily without due process. Lekki-Epe and MMA2 are clear examples where the principal awarded contracts directly to a concessionaire without following the competitive bidding process. The government imposed both projects concessionaire without necessarily adhering to tendering guidelines. While the case of MMA2 was a direct negotiation, not tender bidding, the case of Lekki-Epe was of particular concern as the project award went to a company, a known senior state official had significant holdings through a proxy contradicting the doctrine of the transparent bidding process.

Similarly, the Lekki-Epe toll road is a typical case where personal benefits triumph over project benefits. First, the agent (private partner) was selected but not through competitive bidding. This could be called automatic selection, with little or no effort to ascertain if the agent has the skills and expertise required for such a megaproject. The government's failure to allow other bidders in line with the tendering process allowed the private sector to act opportunistically. This aspect of opportunism was aptly captured under imperfect control, as proposed by Abdul-Aziz (2001), where the emphasis was made on selecting bidders under questionable criteria, which leads to cost overrun, and corresponds with Flyvbjerg, Holm and Buhl's (2002) position that cost overrun occurs when projects are not awarded on a competitive basis. Ensuring no other bidder participated by single-handedly picking LCC is a strategic behaviour—adverse selection, a cost-overrun trigger. This unwittingly encouraged the private sector to act opportunistically by inflating the prices to make an excessive profit to the detriment of the other partner, leading to an excessive cost-overrun.

5.2 Hold up prism and Soft Budget Constraint

As the study of Howell and Sadowski (2018) and Anago (2022) established, the private party may bid a low price to get the contract, then 'hold up' the public party by subsequently demanding renegotiation to raise the fee (Williamson, 1989). Cruz and Sarmiento (2021) advanced understanding of this undesirable behaviour in two ways: the first referred to as the winner's curse, which occurs when the contract is awarded to the concessionaire with the most optimistic forecasts for revenues and costs, which would not deliver real efficiency gain, even though project sustainability may be at risk. Second, strategic underbidding, also known as lowballing of the offer to secure the contract and lock-in by the grantor, with the undeclared intention to break even, and in extension profit, during renegotiations. Contextualising this to the study's cases, our field report confirmed that in MMA2, there was a clear case of underbidding, as the concessionaire not only agreed to transfer back the project after 12 years instead of the usual 25-35years PPP contract duration, the project cost was below what other concessionaires tendered. With the demand forecast for MMA2, 12 years is technically a short period to recoup revenue and recover concession investment. Upon completing the project, the concessionaire sought to renegotiate the concession duration from 12 years to 36 years, citing the inability to recover significant yield within 12 years contract duration. This is an act of offering lowball bidding, with the expectation of renegotiation not because of changes in the specification, but opportunistic gains, reinforcing

the contract incompleteness theory, which increases cost-overrun (Cruz & Sarmiento, 2021; Guasch, Laffont & Straub 2008; Guasch, Kartacheva, & Quesada 2000).

In establishing cost overrun triggering factors, Flyvbjerg, Holm, and Buhl (2002) argued that underestimation is not an error but a strategic misrepresentation, which is telling a lie for personal benefit. Moreover, they argued that these lies are not limited to the private sector alone as the public sector also deliberately induces renegotiation by under-paying concessionaires initially so that it can elude stringent spending limits in the present, knowing that the 'soft budget constraint' of government funding means that it cannot commit not to bail out the private firm in the future when the under-funding becomes apparent (Engel, Fischer and Galetovic, 2010). Such a strategy is even more attractive politically if the contracting governments' successors benefits from additional funding. This sufficiently explained what transpired in the Lekki-Epe project, which commenced in 2006, with construction only commencing fully in 2008 when the new government assumed power after the 2007 general election in Nigeria, with the contract renegotiated citing accommodation of inflation cost.

6. Conceptual framework to address cost-overrun and improve performance

For a PPP project to succeed, it requires implementing a PPP model that reflects critical cost minimisation, with value for money or efficiency gains set as the project target (Anago, 2022). Second, institutional capacity and political will are significant determinants in eliminating cost-overrun facilitated through opportunism. The conceptual framework (figure 1) is set out on this foundation to mitigate and control cost-overrun throughout the selected project life cycle. The successful completion of a phase gives the next phase a better chance of optimal progression. Therefore, the three phases proposed conceptual frameworks are shown below:

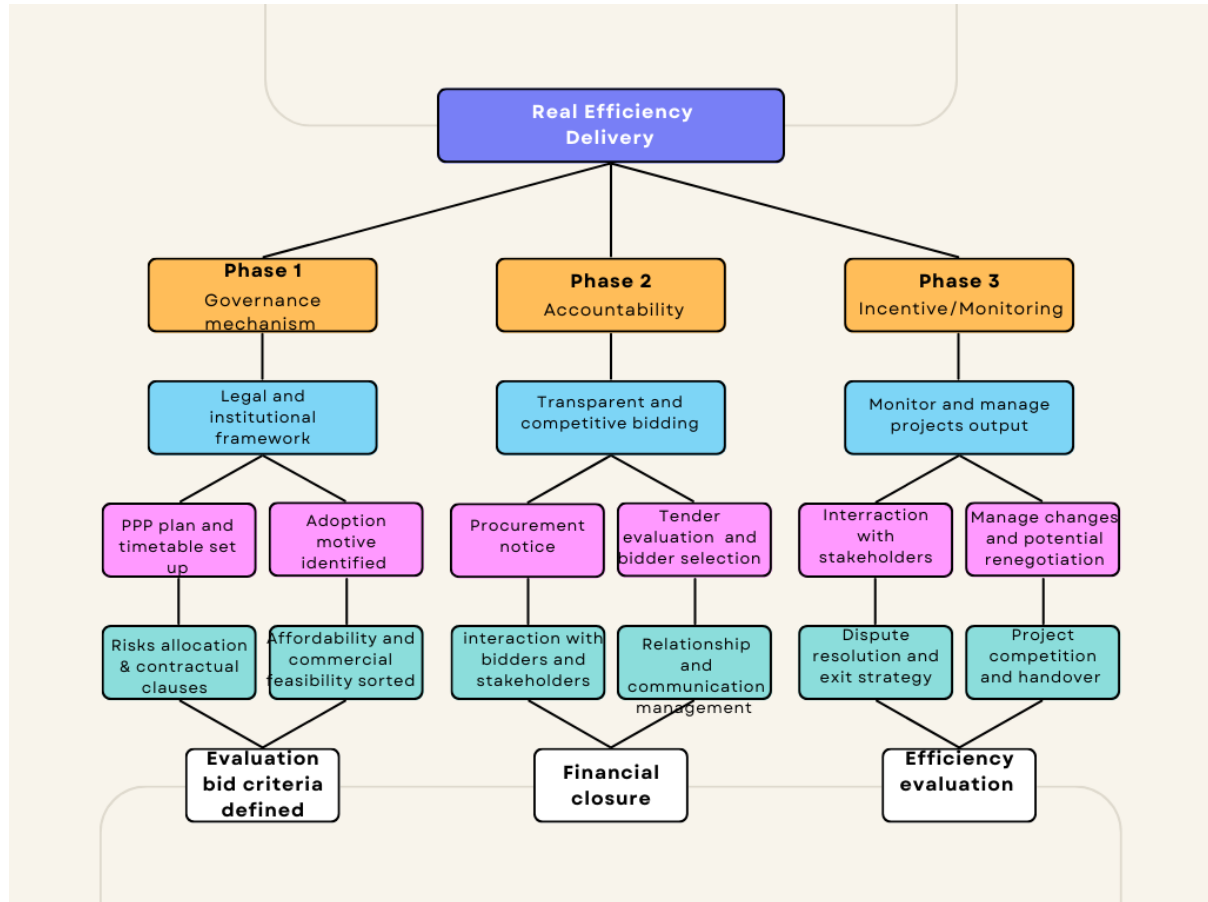


Figure 1. Conceptual Framework. Source: Authors

Phase 1: Governance mechanism

This phase examines the dynamics of the PPP environment and ascertains if unresolved complexities and uncertainties could make the project unviable and facilitate cost overrun. This is an ideal approach to controlling cost-overrun because, at the initial stages, every detail must be well processed, and all contingencies must be planned. Naturally, uncertainties are curtailed significantly in a robust environment like Canada, UK and Australia, limiting the degree of cost-overrun triggered by opportunism. However, weak governance incubates triggers of cost-overrun, which is applicable in many developing countries, including Nigeria (Mahmud, Ogunlana and Hong, 2020). Verhoest et al. (2012) mention political (institutional) complexities, which revolve around the extent PPP corresponds with the political interest pursued as a determinant of potential cost-overrun. Miller and Floricel (2000:137) indicated that the absence of robust "governability" contributes to escalating these complexities in no small measure. Under this circumstance, the project participants are not empowered to mitigate the uncertainties (cost-overrun) the project may encounter during the project lifecycle.

Developed markets such as Canada, Australia and the United Kingdom boost substantial institutional and governance factors because they are strengthened effectively. This set the appropriate foundation for PPP projects to progress from phase one quickly to other phases successfully. Miller and Lessard (2000) elaborated on this, arguing that robust and efficient institutional arrangement, including legal and regulatory frameworks enveloped under a robust governance mechanism, is, without a doubt, the most critical signal of projects'

potential performance that will tackle uncertainties (cost-overrun). In essence, Mahalingam and Kapur (2009) posited that political, governance, or institutional complexities which affect the environmental conditions that surround the project ex-ante—such as the state of the economy, PPP laws, regulations that influence aspects of the project, political instability among other things—are cardinal variables that can make the most successful structured projects to face complexities, uncertainty and cost-overrun.

Another concern under governance mechanisms is the need for a solid infrastructure financial market in sub-Saharan Africa that supports long-term infrastructure to reduce the overreliance on external financing with its inherent currency risk, which increases cost overrun (Anigbogu et al., 2019). This is one critical aspect of the cost implication of PPP projects in developing countries; hence many countries are looking for alternative financings, such as blended and catalytic finance with concessional features (Jackson, 2021).

Furthermore, the contractual clause is critical in stabilising cost-overrun triggered by strategic misrepresentation. In cases where there is a likelihood that a private partner may deploy strategic misrepresentation, clauses are deployed to mitigate the cost-overrun risk (Laffont & Tirole, 1993). A main clause in this instant is the limitation of cost (LOC) clause. According to Wolf (2010), the fundamental purpose of the LOC clause is to provide the government with an option for the action to be taken when notified by the concessionaire that additional funds will be required to complete the work. Furthermore, when there is a failure to notify, the government is not obligated to reimburse overrun cost above the contract estimated cost if a contractor fails to give timely notice of reasonably foreseeable overruns during contract performance.

Phase 2: Accountability

The advocacy in this phase is transparent bidding and selecting the most qualified concessionaire to shun lowballing, which triggers cost overrun ex-post. As observed in both cases, adverse selection has been the case, which gives rise to a lesser capacity concessionaire emergence. Sanderson (2012) argued that this less-optimal selection is often motivated by the public and private sectors' vested interest, which includes rent-seeking to under-estimate project cost, over-estimate project benefits and being over-optimistic with project scheduling, as was the case in MMA2, when the concessionaire proposed a lower bid, only to force the government to renegotiate at a later stage. Against this backdrop, Flyvberg, Holm and Buhl (2003:47) referred to lowballing as "deception and lying as tactics aimed at getting projects started" and not due to a genuine mistake, erroneous data input or weak technical skills.

Against this backdrop, the paper recommends effective enforcement of proper accountability to ameliorate any strategic rent-seeking. This commences when both parties to the contractual obligation to the partnership supersede personal interests throughout the concession duration (Forrer et al., 2010). Accountability as a mechanism in PPP is vital because it reflects a hierarchical structure where parties to the contract perceive themselves as responsible for providing vital contractual information to the stakeholders, starting with a notice of procurement publicly made available for all interested bidders. This will encourage more competitive bidding, provide the public sector with more bidders to select, especially those with the capacity to deliver to contract specification and reduce cost overrun (Van den Hurk & Verhoest, 2015), enhance the transparent tender process, which plays a significant role in guaranteeing accountability, and in making cost-overrun visible much earlier (Peeters, 2016).

Another factor influencing cost-overflow drop under accountability is relationship management among parties to the contract. Managing the relationship among the stakeholders involved in PPP with constant communication between the partners and citizens helps build trust and encourages transparency (Smyth, 2008; Smyth & Edkins, 2007; Yang et al., 2009; Zou et al., 2014). This diminishes potential stakeholder opposition and increases regular communication and relationship between all parties, promoting buy-in from those whose support is needed for success. Zou et al. (2014) described the relationship in PPP assets as comprehensive strategies and processes of partnering with selected counterparties and the project stakeholders to create superior value for the PPP project through developing sustainable relationships and constant communication. The importance of relationship management is broader than the contractual relationship between the principal and the agent that must be maintained throughout the project's lifecycle. Instead, it embraces social capital by focusing on project performance and stakeholder satisfaction, achieved by understanding the relationships among parties to the contract, including those concerning stakeholders and the private company (Pryke & Smyth, 2006).

Many studies (Smyth & Edkins, 2007; Zou et al., 2014) emphasised that relationship and communication management must be strong and effective enough to be sustainable due to the complexity of PPP, attributed to the calibre of stakeholders in the contract. Stakeholders involved in PPP projects, especially projects in transport infrastructure that entail bundling different phases for the long term, are complicated with divergent concerns. Some could question the need for the project, while others, affordability, efficiency, government responsibility, and sustainability may envelop their concerns (Rwelamila, Fewings, and Henjewe 2014). An earlier study by Rwelamila (2010) suggests that failure to manage relationships efficiently and respond to the stakeholders' concerns contributes to the most cost overrun as they could enforce project delays or lead to outright cancellation.

Phase 3. Incentive, Monitoring and Dispute resolution

This phase is usually broad, from the post-tendering to the operational phase. However, the study focus is limited to remedial activities that ensure the construction is completed within budget if interest divergence exists due to adverse selection. Thus, in a setting where apparent interest divergence exists, classical agency theory suggests principals must rely on incentives and monitoring to mitigate cost-overflow (Cuevas-Rodriguez, Gomez-Mejia and Wiseman, 2012; Eisenhardt, 1989b; Fama & Jensen, 1983).

Rangel, Liyanage and Vassallo (2011:87) and Meng and Gallagher (2012) are big on using incentives as rewards and motivation for cost-overflow mitigation, while disincentives are punitive measures extended to concessionaires that delivered projects with cost-overflow (Meng & Gallagher, 2012). Under the incentive, the principal can shift the agent's performance risk by designing a contract that rewards the agents when there is zero or limited cost overflow (Zsidisin & Ellram, 2006). Some authors (Forrer et al., 2010; Li et al., 2005) also linked bundling and risk allocation as incentives for mitigating risk overflow. Bundling allows the same Special Purpose Vehicle company to assume the risk of designing, constructing, operating and maintaining. It dissuades the agent from acting opportunistically because it self-regulates the contractor. For instance, constructing a project with a cost-overflow may lead to terminating the maintenance aspect of the bundled project.

Similarly, one of the growing cost-overflow mitigation, especially in an institutional environment with a weak legal system like Nigeria, where social actors might be tempted to

act opportunistically, national and sub-national-level monitoring teams is cardinal. Monitoring discloses cost overrun earlier for sanctioning, on the budget for reward and providing visibility and feedback about services delivered and information that the private investor was not engaging in opportunistic behaviour to harm the project's interest (Abdullah & Khadaroo, 2020). Monitoring can be done by a team of experts hired by the government or by self-monitoring because of trust among the parties to PPP. Regardless of approach, monitoring amplifies accountability and project goal attainment and ensures countries do not mortgage their futures for ill-conceived projects with excessive cost-overrun (Baxter & Casady, 2020).

Dispute resolution in this phase is equally cardinal in the efficiency delivery. It involves identifying partners' expectations, aligning goals, adjusting strategies, assessing implementation, communicating performance, and facilitating learning. This approach is broader, more complex, and problem laden and reflects how parties to the contract resolve multiple expectations and disputes generated within and outside the partnership, laced under conflicting objectives and managed in a non-hierarchical approach (Acar, Chao and Kaifeng, 2008). There is also a need to incorporate exit strategies in the contract document if the dispute remains unreconcilable (Anago, 2021). Responsible exit mitigates the cost overrun and has remained a rising option for infrastructure projects. Institutional investors find it attractive, hence the rising demand for including responsible and flexible exits for projects experiencing excessive cost overrun (Anago, 2021).

7. Conclusion

Previous and extant studies agree that cost overrun is triggered by opportunism, politically motivated dishonesties and wilful misrepresentations in PPP contracts. To explain this understanding from a theoretical perspective, this study deployed the economic theories of transaction and agency costs contextualised in MMA2 and Lekki-epe motorway PPP projects in Nigeria. The study finds that the thematic areas of hold-up and soft budget constraints provide room for such manipulation in PPP projects and is considered the likeliest possible trigger of cost overrun from a theoretical perspective. Therefore, if the intention is to control and mitigate cost overrun, the study proposed a three-phase conceptual framework (Governance mechanism, Accountability; Incentive, Monitoring, Dispute resolution) that will ameliorate the incidences of hold-up and soft budget constraints. It is the resolve of this study that actualising the critical points in each phase before moving to another phase, as applicable in a relay race where a baton is handed to the next team member to continue with the race, is critical in not only reducing and controlling cost-overrun, but its early identification in each phase before it is carried to the next phase.

There are several important areas where this study contributes to the literature: first, by examining and proffering solutions to control and mitigate cost overruns. Second, it provides a valuable stepping-stone for researchers and policymakers involved in designing and implementing infrastructure PPP projects on the importance of adopting a relay race approach in their PPP policy development since unattended ex-ante problems can trigger ex-post PPP cost-overrun. Third, developing a conceptual framework that controls cost-overrun can improve efficiency delivery and best practices in developing countries' PPP implementation. This is vital for policymakers and industry practitioners in Nigeria as such a framework would improve the PPP implementation process in Nigeria and beyond. Fourth, combining research design, abductive and case study to explain cost-overrun is a methodological contribution. Future studies will find it appealing and may deploy the same for advancing knowledge in developing countries.

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