

**IMPROVING THE ACHIEVEMENT OF
VALUE FOR MONEY IN
CONSTRUCTION PROCUREMENT
UNDER THE NIGERIAN PUBLIC
PROCUREMENT ACT (2007)**

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Abstract

In 2007, the Nigerian legislative arm of government enacted an Act of Parliament known as the Public Procurement Act (PPA 2007) to govern the public-sector procurements. The PPA (2007) amongst other objectives, aims to achieve value for money on government procurements. However, opinions from the existing body of knowledge suggest that the implementation of PPA (2007) on public construction procurements over the years has achieved little in terms of value for money as envisioned. Also, literature further reveals, that the implementation of the PPA (2007) is faced with many challenges that mitigate its effective implementation. What is not evident, however, is whether these challenges are the causation factors limiting the achievement of value for money. Similarly, the extent of these challenges on a given project appears unknown. This is because the existing body of knowledge on the problem lack in-depth qualitative understanding of why this problem is occurring and how it may be improved.

Therefore, adopting a qualitative research method design, and following a case study strategy, this study investigated the barriers to the achievement of value for money on 3 recently completed public sector construction projects. Data were collected using a semi-structured in-depth interview of 18 project participants who were operationally responsible for procuring the projects, targeting their reflections, experiences, and opinions on the projects. Analysis of interview data was carried out through thematic content analysis, with the aid of Nvivo 11 for Mac software. The study found that the case projects were viewed to have achieved a limited scope of value for money by the sampled participants mainly due to six reasons. These are the projects' prolongation, cost escalation, variations in scope, facility management difficulties, inefficient project implementation process and poor-quality of construction. A total of 21 causal factors were identified to be responsible for these barriers to the achievement of a wider scope of value for money on the projects.

Preventive measures for addressing these causal factors were subsequently developed, drawing on lessons from the case projects and opinions of a panel of Experts via a Delphi survey. By mitigating these causal factors, the study posits that a wider scope of value for money could be achieved on future public construction procurements.

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Dedication

This thesis is dedicated to the memory of my late father, Papa Maxwell U. E. Obieje. He did not have the privilege of any formal education but vowed and worked hard for the story to be different for the generation after him. This thesis, is again, another testament to his legacy. Love you, Papa.

Declaration

This thesis is submitted under the University of Salford rules and regulations for the award of a PhD degree by research.

This researcher hereby declares that he is responsible for the work carried out in this thesis. Furthermore, he wishes to state that no portion of the work referred to in this thesis has been submitted elsewhere for another degree qualification of this, or any other university.

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Iheanyichukwu Davison Obieje

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List of Abbreviations

AfDB	African Development Bank
BIM	Building Information Modelling
BPP	Bureau of Public Procurement
DFID	Department for International Development
ICT	Information and Communication Technology
NBS	National Bureau of Statistics
NIA	Nigerian Institute of Architects
NIIPM	National Integrated Infrastructure Master Plan
NIQS	Nigerian Institute of Quantity Surveyors
NPC	Nigeria Population Commission
NSE	Nigerian Society of Engineers
OGC	Office of Government Commerce
PMBOK	Project Management Body of Knowledge
PPA (2007)	Public Procurement Act (2007)
PPP	Public Private Partnership
PRINCE 2	Projects In Controlled Environments
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Program
VFM	Value for Money
WBG	World Bank Group
WEF	World Economic Forum

Chapter 1

Introduction

1.1 Background to the problem

In 2007, the Nigerian legislative arm of government enacted an Act of Parliament known as the Public Procurement Act 2007 (PPA 2007) to govern the public-sector procurements. The Act was a culmination of public sector procurement reforms which started back in 1999 when Nigeria returned again to civil governance after many years of military dictatorship. In the early days of the procurement system reforms, what is known today as PPA (2007) existed mostly as a government policy document known as the “Due Process” Policy, introduced via a Treasury Circular by the Federal Ministry of Finance in June of 2001 (Fayomi, 2013). Even after its enactment as an Act of Parliament, many authors continue to refer to the Law and the procurement system it created as the “Due Process”. Examples include: Ayangade, et al, (2009), Aladeloba (2012), Ade-ojo & Babalola (2013), Atagboro (2015), Oyebamiji (2018), etc.

Prior to the reforms that commenced in 1999, Public Procurement were administered by series of Financial Regulations issued by the Minister of Finance. These Financial Regulations were internal documents that were not publicly available, and therefore, was thought to make the process non-transparent and vulnerable to abuse (William-Elegbe, 2012; Udeh & Ahmadu, 2013). The Minister of Finance and other public officials also enjoyed wide range of discretion on issues relating to public procurement and procurement regulations lacked permanent arrangement for control and surveillance (Basheka, 2009; William-Elegbe, 2012). Accordingly, this period, prior to public procurement reforms in Nigeria, was marked with allegation of abuse and irregularities, loss and diversion of public fund due to inflated contract sums, over invoicing, “white elephant” projects, award of contracts to friends and cronies, use of primordial considerations in procurement decisions, non-transparent and flawed processes that yielded incompetent contractors which were linked to project failures (Olatunji, 2008; Ezeh, 2011; Aladeloba, 2012; Shwarka and Anigbogu, 2012; Olatunji, et al, 2016). According to a former Director General of the Nigeria’s Bureau of Public Procurement, the deficiencies in the procurement process encouraged endemic corruption, poor service delivery, denial of social amenities to the people and collapse of local industries and infrastructure (Ezeh, 2011). There appears a

consensus of opinion in many literatures in support that the public procurement expenses did not deliver expected value for money to the public during the period prior to PPA (2007).

To this end, the Public Procurement Act (2007) was enacted to remedy the weaknesses of the previous procurement regime. This Law followed 1994 edition of UNCITRAL Model Law on Procurement of Goods, Construction, and Services and its main objectives according to Udeh & Ahmadu (2013, p.143), could be inferred from its section 16 – ‘Fundamental Principles for Procurement’, where it declared that:

“... all public procurement shall be conducted ... in a manner which is transparent, timely, equitable for ensuring accountability and conformity with this Act and regulations deriving therefrom; with the aim of achieving value for money and fitness for purpose; in a manner which promotes competition, economy and efficiency”.

This aim of achieving value for money (VfM) is far reaching, especially for construction procurement. One reason for this is that while the phrase ‘value for money’ has an intuitive appeal, attaching precise meaning to it for practical purposes has been described as problematic and inconsistent (Glendinning, 1988; Dewulf, et al, 2012; MacDonald, et al, 2012). Various definitions of value for money exist in literature, for example, Glendinning (1988), HM Treasury (2006), Barnett, et al (2010), DFID (2011), National Office Audit (2013), etc. A common feature from most definitions is the multi-dimension understanding of value from its broad perspective, encompassing not just the intuitive economic aspect of cost savings but also the criteria for efficiency and effectiveness. Also, attainment of various desired socio-economic benefits by the public sector can also be construed as achievement of value for money (Watermeyer, 2012). Glendinning (1988, p. 43) submits that the essentials of VfM can be considered under 3Es headings of Economy, Efficiency, and Effectiveness. These are explained as follows:

Economy: the provision of a requirement at minimum cost. The requirement being initially assessed in terms of quantity and quality and thereafter the resources needed to provide it are evaluated in money terms.

Efficiency: achieving maximum output from the resources provided for meeting the requirement.

Effectiveness: ensuring that the intended result is fully attained from the application of the resources.

The Nigerian PPA (2007) did not provide its own definition for value for money. Therefore, bearing in mind the various perspectives to value for money as found in extant literature, it is important that value for money perspective assumed for this study is clarified. The study adopted the multi-dimension view of value for money as defined by a former Director-General of the Nigerian Bureau of Public Procurement (BPP). Value for money was defined from the “Bureau’s perspective” as:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value” (Ezeh, 2012 p.77).

Also, an official publication of the BPP, Procurement Procedure Manual, appears to support a multidimensional view of value for money. The Manual described “proficient public procurement” as one whose hallmarks are Economy, Efficiency, Fairness, Reliability, Transparency, Accountability and Ethical Standards (BPP, 2011 p.4). The BPP is a government agency established by the PPA (2007) to, among other functions, formulate the general policies and guidelines relating to public sector procurement (PPA, 2007, part II section 5a). Therefore, it could be inferred that the PPA (2007) contemplates value for money from a multi-dimensional perspective of value beyond a simple economic measure. It can also be argued that the aim for achieving fitness for purpose in the Act fits into the ‘Effectiveness’ dimension of value for money definition suggested by Glendinning (1988). Ezeh (2012) further argued from the BPP’s perspective that for value for money to be achieved, a government entity must aim to be “as effective as it can be in its use of public funds”. Accordingly, the achievement of value for money as used in this study would generally refer to the judgement of whether the best advantage is obtained from money spent in the procurement of construction in relation to meeting the public stakeholders’ requirements and expectations according to the public-sector’s obligation to the public in a democratic system of government.

According to Arrowsmith, et al, (2011, p. 5) and Burke & King (2015), the achievement of value for money objective is central to most public sector procurement decisions globally. However, many years after the enactment of PPA (2007), there are evidence in literature which suggest that this aim is not being achieved as expected, especially so in public construction procurement. Achilike & Akuwudike (2016) reported the findings in 2011, of a Presidential Project Assessment Committee which confirmed evidence of “large scale, widespread institutional mediocrity, deficiency of vision and a lack of direction in project management, which result in poor conceptualization, poor design and faulty execution”. This appear to manifest in the existence of “inadequate budgetary allocation, high cost of financing projects and corruption in the handling of projects by many self-seeking, inept public officers and contractors which has led to massive inflation of costs and undermined the legitimacy of their monitoring and supervision responsibilities”. This Committee was constituted to take inventory of all on-going projects awarded by the Federal Government.

1.2 Nigeria’s Construction Needs and the Imperative for Value for money

Nigeria has one of the highest population growth rates in the world, and according to Soludo (2019), if current trends continue, current population projection of 200 million people in 2020 would reach 400 million by 2050. This will come with an attendant growth in the need for more infrastructural services. Currently, Nigeria faces an acute shortage of infrastructure of which is a matter of concern for the country (AfDB, 2018). Investment in physical infrastructure is important for Nigeria to fight poverty and also realise its national aspirations. Evidence abound in existing literature in support of the view that investment in infrastructure development has significant impact on the economic and social wellbeing of any society. African Development Bank report identified inadequate physical infrastructure in Nigeria as one of the major constraints to a sustained and broad-based strong economic growth (AfDB, 2013).

Nigeria is faced with huge deficit on the stock of its physical infrastructure (Awuzie & McDermott, 2012; Usman, 2013; Ahiakwo, et al, 2013; Olufemi, et al, 2013; AfDB, 2018). The World Economic Forum (WEF) Global Competitiveness Report 2018 ranked the Nigerian Infrastructure 124th position out of 140 countries of the world (Schwab, 2018). Investment in infrastructure development is critical to Nigeria’s development as the need is evident in many sectors of Nigeria. Usman (2013) shows the lag by comparison with other emerging economies in Figure 1.1 below.

Country	Roads per sq. km	Quality of port infrastructure WEF index (1 to 7)	Power Consumption kWh/capita	Access to water (%)	Access to sanitation (%)	Mobile subscriptions per 100 people
Japan	3.31	5.2	8,394	100	100	105
Brazil	0.21	2.7	2,384	98	79	124
Russia	0.06	3.7	6,452	97	70	179
Mexico	0.19	4.0	1,990	96	85	82
Indonesia	0.29	3.6	641	82	54	103
South Africa	0.30	4.7	4,803	91	79	127
Nigeria	0.21	3.3	136	59	31	56
Pakistan	0.34	4.1	457	92	48	62
Bangladesh	1.66	3.4	279	81	56	56

Figure 1.1- A cross country comparison of infrastructure by sector (Source: Usman, 2013)

The Nigerian government has however, responded to its infrastructure deficit in more ways than one. More recently in 2014, the government launched the National Integrated Infrastructure Master Plan (NIIMP), a key policy document for accelerated infrastructure development (NPC, 2015). NIIMP contains a 30-year plan which aims to expand Nigeria's stock of infrastructure to at least 70% of GDP by 2043 by investing USD 3.05 trillion in developing quality infrastructure across different asset classes (NPC, 2015). For the first 5 years (2014 – 2019), plan intends an investment of USD 166.1 billion in infrastructure procurement, averaging USD 33 billion annually, with the public sector providing 52% of the fund (NPC, 2015). With the proposed level of planned public sector involvement (up to 35% public money), Public Procurement Act (2007) will govern the procurement process of the construction of these infrastructures as required by Law (PPA, 2007).

This planned investment in infrastructure development is potentially an effective opportunity for socio-economic change in Nigeria. However, successful implementation of the projects will depend on the framework under which they are procured. According to BPP (2011), good procurement practices 'reduce costs and produce timely results; poor practices lead to waste and delays and are often the cause of allegations of corruption and government inefficiency'. There is consensus among researchers that selection of appropriate procurement method can shape the success of an individual project (Naoum & Egbu, 2015; Ogunsanmi, 2013; Muriro & Wood, 2010; Love, et al, 2008). How well the PPA (2007) can contribute towards achievement of Value for money objective is important for the realisation of the Nigeria's development objectives. Performance of the public

sector's construction procurement process, whether good or bad, will affect the nation's physical infrastructure development in similar manner.

1.3 Limited Impact of PPA (2007)

Opinions in literature as to the extent the PPA (2007) has realised its achievement of value for money objectives, and thereby made desired impact is mixed. Some authors agree that the PPA (2007) eliminated the previous secretive Financial Regulations, provided clear rules on the conduct of public procurement and created a system consistent with international best practices (Udeh & Ahmadu, 2013; William-Elegbe, 2014). William-Elegbe (2014) further opined that the procurement reform in Nigeria has made measurable success in the areas of cost savings to the public, increase in anti-corruption awareness and transparency in the conduct of public procurement. According to Fayomi (2013), It is now realized by procurement stakeholders that there are only two objective rationale for making a decision at the Bureau of Public Procurement (BPP); transparent, open and competitive process on the one hand and lowest competent cost on the other hand.

There have been more success claims reported in literature. For example, Ayangade, et al (2009) and Fayomi (2013) credited President Obasanjo's administration which pioneered the Procurement Act, to have saved the public more than the equivalent of 1 billion US Dollar in the form of reductions from inflated contract costs and other corrupt practices. The former Director-General of BPP also asserts that prior review intervention activities of BPP, reduced waste in Federal government expenditure by over NGN216 billion in 2010 and NGN78 billion in 2011 (Ezeh, 2012). Achilike and Akuwudike, (2016) survey of practitioners' opinion found that the procurement mechanism instituted by the PPA (2007) has to "a reasonable extent" succeeded in eliminating some contracting malpractices usual with public sector procurement in Nigeria such as nepotism, sycophancy and sale of contract papers by touts. This survey however, involved only practitioners in the South-East region of Nigeria, and its result could be contested not to be representative of the entire country.

These reported successes albeit desirable, does not provide evidence of achievement of value for money objective that is based on a multi-dimensional perspective of value for money as defined by BPP, especially on construction. Assertions on cost savings have mainly relied on the initial contract award sums and did not consider eventual project outcome in terms of final cost on completion, quality, timeliness, etc. nor assessed project

cost on a whole-life-cost basis as ‘lowest initial price may not equate to lowest cost over the operating life of the item procured’ BPP (2011). Elsewhere in the world, for example in the UK, the mentality that the lowest cost at tender stage produce cheapest outturn cost has largely been proven untrue and is thought to block the way to achieving best value (Wood, 2005). Also, Bello, et al (2013) argued that ensuring value for money by means of whole life costing practice has remained a presumption of the Nigerian Public Procurement Law. Similarly, Familoye, et al (2015) insists that the Nigerian Public Procurement Act has not been able to fully achieve the primary objectives of transparency, accountability and value for money. This view is further echoed by Manu, et al, (2019), whose survey of 288 practitioner’s opinion found that only one out of fourteen public procurement objectives was perceived as being attained to at least a high extent.

Opinions in literature on the impact of PPA (2007) can therefore be said to generally suggest limited scope of achievement of value for money by the PPA (2007) especially in construction procurement making it an important area to study. The PPA (2007) is a descent of 1994 UNCITRAL Model Law on Procurement of Goods, Construction and Services which according to Udeh & Ahmadu (2013) is representative of international standard and best practices. Fayomi (2013) also affirms that this model law has been proven effective in a number of countries including Lithuania, Estonia and Tanzania. The limited impact of the law may very well lie within its implementation or lack of it. From a next-door Ghanaian point of view, Amemba, et al, (2015), suggests that poor performance of public sector procurement results from non-adherence to laid-down processes and procedures. On the contrary, Oyebamiji (2018) established that public entities in Nigeria comply with PPA (2007) but suggests that they lack ‘structures and facilities’ to ease procurement process.

1.4 Research problem

1.4.1 Overview of Research Problem

There is limited evidence in existing literature that suggest the PPA (2007) is achieving its objective of achieving value for money for the Nigerian taxpayer, especially for construction procurement. While Achilike & Akuwudike (2016) claim that the procurement process instituted by the PPA (2007) has to “a reasonable extent” succeeded in eliminating some contracting malpractices plaguing public sector procurement in Nigeria, Bima, et al, (2015) concluded that the enactment of PPA (2007) have not improved the level of construction industry performance from what it was before the enactment of

the Act. Mansfield, et al, (1994) investigated the causes of delay and cost overruns in Nigerian construction projects and procurement related issues were concluded as top causes, namely (p. 259); financing and payment for completed works and poor contract management amongst others. Post PPA (2007), evidence from literature suggest little or none has changed.

Ibrahim & Musa-Haddary (2010) identified some of the problems plaguing the construction, industry as; “rush nature” of project implementation, inadequate planning and budgetary provisions, projects executed at higher sums, inefficient and poor service delivery, abandoned or non-functional facilities and cases of building collapse. These are again, mainly procurement related. Also, Shwarka & Anigbogu (2012) investigated the performance of twenty construction project executed before the procurement reforms and another twenty executed after. They compared both group on two of the factors identified to be responsible for frequent public construction project failures in Nigeria namely project cost and time over-runs and concluded that there was no statistically significant difference from the situation that existed before the procurement reforms.

The reality for public construction projects would suggest that the aim for the achievement of Value for Money is not being achieved as envisaged. Summary of symptoms indicating that there are procurement related problems with public construction procurements in-terms of achievement of value for money evident in literature includes: high cost of construction works, construction cost over-runs, construction time over-runs, poor quality of works, increasing cases of re-work, use of in-efficient procurement strategies, and abandonment of projects (Bima, et al, 2015; Ajayi & Oyeyipo, 2015; Adegboye, 2014; Ekung, et al, 2013; Ade-ojo & Babalola, 2013; Shittu, et al 2013; Shwarka & Anigbogu, 2012; Onyema, 2011; Ibrahim & Musa-Haddary, 2010; Ayangade, et al, 2009; Olatunji, 2008).

Further literature search reveal that the implementation of the PPA (2007) is faced with many challenges. What is not evident in the literature is whether these implementation challenges are the causation factors limiting the achievement of value for money by the PPA (2007) regulation procurement. The implementation challenges faced by the PPA (2007) as can be collated from these literatures are numerous. Analysis of literature evidence showed that they can be broadly categorised into two groups; based on whether the driving force of these implementation challenges were matters exogenous to the

provision of the procurement Act or whether the driving force is endogenous to its provisions.

Relatedly, Familoye, et al, (2015) identified sixteen (16) of these challenges and assessed them to determine the most significant by survey of public procurement practitioners' opinion. It concluded that procurement practitioners ranked 'Size and Complexity of procurement', 'Political interference' and 'Shortage of public procurement practitioners' as the top three (3) significant challenges facing the implementation of PPA (2007). It did not however, provide evidence towards what can be concluded in terms of the ability of the PPA (2007) towards achieving its stated aims on account of these implementation challenges.

Furthermore, evidence from current literature on implementation challenges mainly relied on secondary literature sources or practitioners' collective reflections and experiences across a number of projects over some period of time based on a quantitative survey. Generally, there is lack of in-depth evidence based on a real-life project context of the implementation challenges faced by the PPA (2007) and how these challenges limit the achievement of stated objectives, the risk factors that make public procurement vulnerable to these challenges and how these challenges could be managed. This gives an opportunity for a more in-depth study to get richer qualitative assessment and interpretation of experiences on a real-life project context. An in-depth qualitative study with specific focus on the achievement of value for money objective of the PPA (2007) will provide an opportunity for a richer and more profound understanding of experiences on a project by project basis, and this could lead to suggestions on how future improvements could be made.

1.4.2 Research Question

The research question is one of several factors that determine which choice of research methodology to follow in a research project (Saunders, et al, 2009; Creswell, 2009; Naoum, 2013; Yin, 2014). To provide clarity, this research seeks to answer the questions:

Why is the implementation of PPA (2007) on public construction procurement achieving limited success, in terms of the achievement of value for money and how can the achievement of value for money be improved under the regulatory framework of the PPA (2007)?

1.5 Aim and Objectives

The aim of this research is to develop measures for improving the achievement of value for money on public construction procurement under the regulatory framework of the Nigerian Public Procurement Act (2007).

Objectives to achieve the above stated aim includes:

1. to review existing literature on public procurement and its regulation, the value for money concept and construction procurement to develop deeper understanding of the subjects and their inter-relationships,
2. to review and understand the Nigerian Public Procurement Act (2007) in order to develop a conceptual understanding of its provisions and workability,
3. to conduct an in-depth investigation of the implementation of PPA (2007) rules on a real-life project context to identify how it supports the achievement of value for money
4. to identify the contemporary issues, barriers and challenges affecting the implementation of PPA (2007) and identify how they limit achievement of value for money, and
5. to propose measures for improving the achievement of value for money on public construction procurement by consulting with a panel of Experts in the public procurement field.

1.6 Significance

Achievement of value for money is important for Nigeria in its development efforts. This is evidenced in the enactment of Public Procurement Act (2007). According to BPP (2011), achievement of “best possible value for money on behalf of the Federal Government of Nigeria” is the principal objective of the Public Procurement Law. However, there is little evidence to suggest that this is being achieved as envisioned. It becomes important, therefore, to investigate the current procurement practices under the Act in order to identify what is causing the problems and hopefully offer some suggestions that might lead to the improvement of value for money achieved on construction procurement.

Nigeria is faced with large volume of construction procurement needs. Globally, it ranks low in the stock and quality of its physical infrastructure which is undermining her socio-economic development (Awuzie & McDermott, 2012b; Usman, 2013, Ahiakwo, et al,

2013; Olufemi, et al, 2013; Osundina, et al, 2014; WEF, 2014). Nigeria, like in many developing countries, rely more on the public sector's investment on physical infrastructure, as private sector participation is still in its infancy (Usman, 2013). It is through the Public procurement process that governments buy inputs for vital public-sector investments in physical infrastructure, amongst others, to lay the foundations for national development (BPP, 2011). How well the PPA (2007) can contribute towards achievement of economy, efficiency and effectiveness on public construction procurement will aid the realization of Nigeria's development objectives. Therefore, it is important to investigate the factors limiting its success in that regard.

1.7 Scope and Limitation

The study presumes that the Law is fit for its purpose, and therefore, investigation was limited to its implementation to construction procurement. It did not extend to investigating the appropriateness of the Law in the socio-cultural context of Nigeria. PPA (2007) is a direct descent of UNCITRAL model law on procurement of goods, construction and services (Udeh & Ahmadu, 2013). However, Williams-Elegbe (2013) contends that the public procurement reform in Nigeria did not recognise the socio-political context of Nigeria. Therefore, a study of the appropriateness of PPA (2007) to the Nigerian context seem sensible, but for practical reasons, this study narrowed down to its implementation only.

Similarly, to gain depth, investigations concentrated on the procurement practices at the early project stages prior to site construction and compared it with the project outcome upon completion. It is well documented in existing literature that decisions made at the pre-construction stages of the project lifecycle, has greater opportunity to impact on value generation, unlike the decisions made during the construction stage (Kelly & Male, 2002; Connaughton & Green, 1996).

Also, to make the study more manageable, the investigation focused on mainly building construction and associated external infrastructure, and therefore recommend cautious generalisation of finding to other forms of public-sector construction such as roads and transportation, power, water and sanitation, telecommunication, defence, etc.

1.8 Research Problem Similarities in Previous Studies

Previous works studying public procurement and value for money abound. Examples includes Ibrahim, et al, (2006), Ibrahim (2007), Ibrahim & Musa-Haddary (2010), Babatunde, et al, (2012), and Gbadegesin & Aluko, (2014). A common feature of these works is the singular focus on the economy aspect of the concept of value for money, and promotion of the UK type Public-Private Partnership procurement strategies. The achievement of other aspects of value for money are largely presumed because of the involvement of the private sector partner who takes over the project delivery risks and is expected to better manage those risks than the public-sector partner. These works have also not considered the realities of a tightly regulated public procurement environment.

Awuzie (2014), investigated a viable infrastructure delivery system model for achieving socio-economic benefits in the Nigerian oil and gas industry. Based on the provisions of Nigerian Oil and Gas Industry Content Development Act (NOGICDA), it developed a Viable Infrastructure Delivery Model (VIDM) as an evaluation and analyses tool for the implementation of infrastructure delivery system that can lead to attainment of socio-economic benefits to the local industry. The NOGICDA is an Act of the Nigerian Parliament which aim to provide for the development of Nigerian indigenous participation in the Nigerian Oil and Gas industry, its provisions do not apply to the wider Construction Industry. Awuzie (2014) centred on delivery of secondary goals of public procurement: the delivery of socio-economic benefit, particularly, Local content development. It also did not consider the contribution of regulatory framework of public sector procurement in achieving or inhibiting the attainment of socio-economic benefits.

There are several other international related studies. For example, MacDonald (2011) investigated what optimum configuration of a model that will assist all participants in a project alliance to both ensure and demonstrate the achievement of value for money, or as it called it, 'Best Value'. It sought to provide a means that could demonstrate the achievement of value for money through a procurement approach that has a non-price-based competition in the selection process. There are similarities between this research and the proposed study in terms of the broad understanding of value for money rather than the conventional price based narrow perspective. However, MacDonald (2011) differs from the proposed study because it focused only on project alliance procurement strategy and

the context is set in Australia; a much more industrialised economy unlike the third world economy setting of this study.

The opportunity remains, therefore, for a study, to investigate the achievement of value for money problems of the public construction procurement, which is based on the broader definition of value for money, and with adequate consideration of the public sector regulatory framework in the context of a third world economy.

1.9 Theoretical Context of the Study

The research is built mainly on two theoretical traditions, one for each of the two key concepts of the research topic: Value for Money and Construction Procurement. Value for money was framed mainly from the Public Value paradigm, while Construction Procurement was approached mainly by assuming the transaction efficiency viewpoints of the Transaction Cost Theory. The choice of these theoretical lenses was influenced mainly by the aim of the research, which is to develop measures for improving the achievement of value for money on public construction procurement under the regulatory framework of the Nigerian Public Procurement Act (2007).

Public Value is a paradigm in the field of Public administration which describes the value that an organization contributes to society. The term was originally coined by Harvard professor Mark H. Moore who saw it as the equivalent of shareholder value in public management. The ‘theory of public value’ states that the reason the public sector exist is to create value and that the successful practice of public management should increase the public value produced by public sector organisation in both the short and long term (Moore, 1995 – cited in Staples, 2010). The idea of creating public value were developed at a time when private sector management concepts were being applied to the public sector, a philosophy in which public managers are expected to act strategically to create public value and success is drawn from initiating and reshaping public sector enterprise in ways to increase their value to the people (Moore, 2013). The meaning of value for money adopted for this study is generally consistent with the public value paradigm (see paragraph 1.1).

On the other hand, the Transaction Cost is a theory within the New Institutional Economics (Ceric, 2014), mostly credited to the Nobel Prize winning works of Oliver E. Williamson. Transaction cost theory aims to answer the question of when activities would occur within the market and when they would occur within the firm. Transaction costs, distinct from

production costs, arise from economic exchange. Williamson therefore argued that when transaction costs were high, internalizing the transaction within a hierarchy was the appropriate decision, and conversely, when transaction costs were low, buying the good or service on the market was the preferred option (Greve, 2015). The theory postulates that the optimum organizational structure is one that achieves economic efficiency by minimizing the costs of exchange. Sources of Transaction costs, as summarised by Lingard, et al, (1998) arise from the interplay of Williamson's assumption that (p.2):

- human beings are subject to bounded rationality or an inability to predict events in a complex and uncertain future;
- people are given to opportunism in that they will behave in a self-interested way; and
- asset specificity, or specialization of assets with respect to use or users.

The co-existence of these factors could generally lead to business failure and may eventually bring about market failure (Ascher, 1987 – cited in Lingard, et al, 1998).

Reviews by Ceric (2014) and Li, et al, (2014) indicate that the transaction paradigm has been playing increasing role in construction related topics. These include project organization and governance; construction market and subcontracting; project delivery systems, the measurement of transaction costs, etc. According to Lingard, et al, (1998), despite the existence of uncertainty and opportunism in the construction industry, which theoretically should imply increase in cost of market transactions, construction work is almost invariably outsourced. Therefore, the transaction cost approach provides a useful framework in construction procurement research, for investigating uncertainties in the transaction environment as it focuses on economic actors' behavioural assumptions (opportunistically and bounded rationality) and transaction characteristics; i.e. asset specificity, uncertainty, frequency, complexity, and contestability (Ismail, et al, 2018). For example, Li, et al, (2014) found that transaction cost efficiency, from the construction owners point of view, may be improved in construction procurement if the owner and the contractor follows some basic guidelines (e.g. experience in similar projects, prompt payment, good relationship with project participants, no irregularities in bidding, and only few material substitutions and claims); if the project is well-run (e.g. technical competency, strong leadership, prompt decision-making, effective communication, and fair/speedy

conflict management); and if the transaction environment is favourable (e.g. fair risk allocation, early contractor involvement, and complete design documents).

Therefore, in seeking answers to the research questions of why the implementation of PPA (2007) on public construction procurement is achieving limited success, in terms of its aim for the achievement of value for money and how can the achievement of value for money be improved, the study investigated the transactional activities of the public sector construction procurement within the environment created by the PPA (2007). Also, from the Public Value point of view, the study sought insight on how the achievement of value for money was perceived by the actors operationally responsible for the procurement transactions, and how their perceptions may have influenced their actions. Suggestions for improvement were based on mitigating discovered transactional inefficiencies impacting the achievement of value for money.

1.10 Overview of Research Methodology

The research strategy adopted was mainly informed by the knowledge gap discovered from existing literature as summarised in paragraph 1.4 above. Review of existing literature related to the research problem revealed that what is currently known mainly relied on secondary literature sources and on quantitative analyses of practitioners' collective reflections and experiences across a number of projects over some period of time generated through surveys. Generally, there is lack of evidence based on a qualitative rich picture understanding of the implementation of PPA (2007) on a real-life construction project. To contribute towards filling this gap, the study adopted a Qualitative Case Study methodology. Baxter & Jack (2008) described Qualitative Case Study methodology as an approach to research that facilitates in-depth exploration of a phenomenon within its context using a variety of data sources which allows for multiple facets of the phenomenon to be revealed and understood.

Following a mainly relativist, social constructionist and value-laden philosophical viewpoints, mostly qualitative data was collected through face to face semi-structured interviews of diverse participants on recently completed public sector project where PPA (2007) had been implemented. The interview targeted the lived experiences, reflections and opinions of individual project participants of diverse professional background and different project role to gain profound understanding of what goes on in the project procurement process under the heading of the achievement of value for money. Overall, three (3) case

projects were studied and a total of eighteen (18) face to face interviews was conducted with project participants, who were operationally responsible for delivering the projects.

Thematic content analyses of interview transcripts were carried out inductively, identifying, analysing and reporting themes within data, in accordance with the research objectives. A cross-case comparison of evidence from all three case projects was also carried out to gain broader and richer in-depth understanding of real-life public procurement process in terms of challenges and barriers that limit achievement of which was then used to synthesis for future improvement. Measures for improving the achievement of value for money on future projects based on the findings from the case projects was subsequently developed in consultation with a panel of six industry experts, using the Delphi technique.

1.10.1 Research Process Adopted

Following and adapting examples from literature, the research objectives were operationalised very closely to the simplified flowchart shown in Figure 1.2 below. While research processes or stages are often depicted as moving from one logical stage to another, the reality, however, is that the stages are interrelated, and sometimes revisited in an iterative manner (Walliman, 2006; Saunders, et al, 2009). The process steps undertaken for this research was not an exception. However, the research process shown in Figure 1.2 is simplified to highlight only the main process steps. Also, the mandatory Ph.D. progression ‘stage gates’ assessments at the University of Salford, although undertaken, was not been shown.

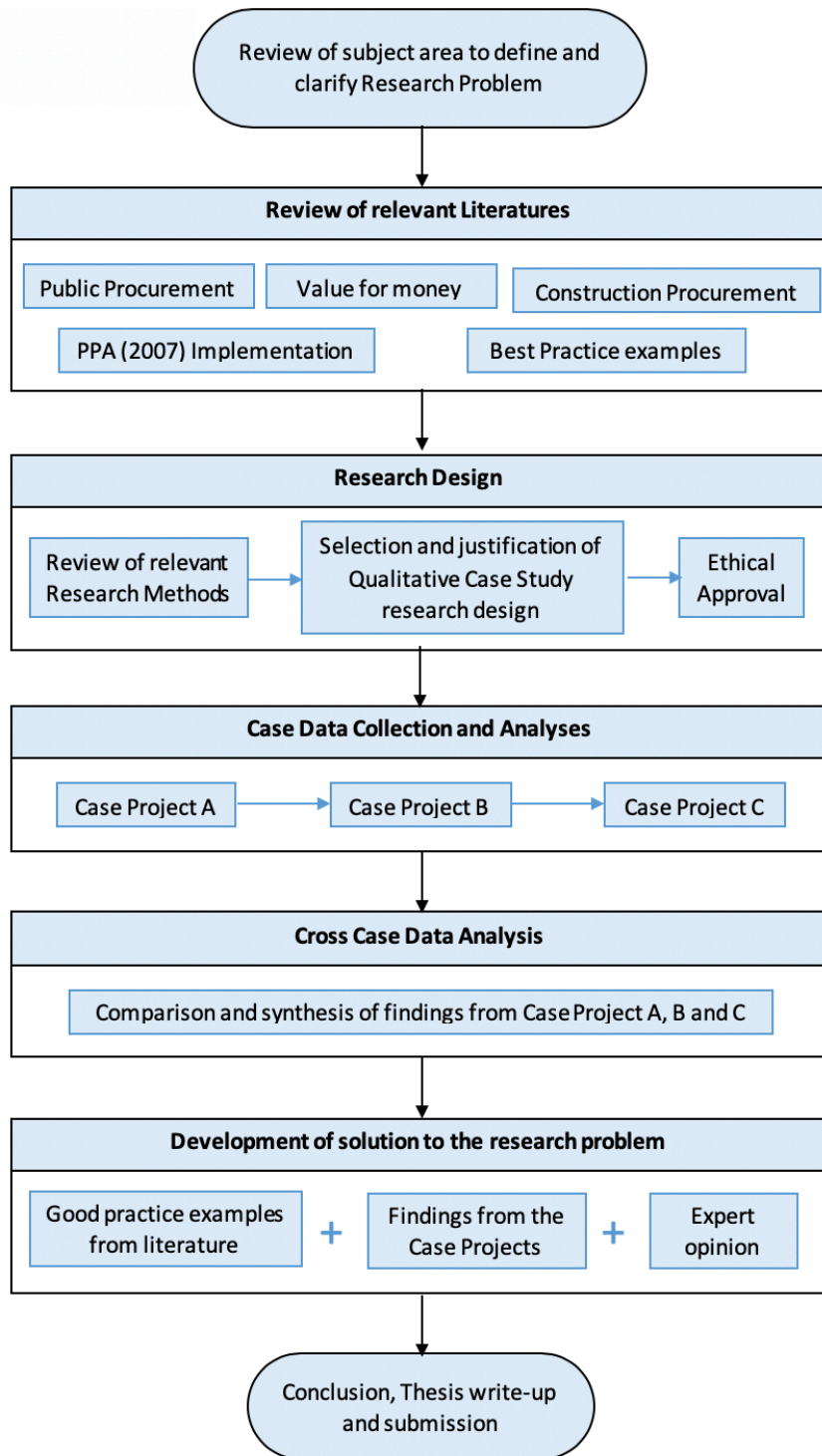


Figure 1.2 - Research process adopted for the study

1.11 Guide to the Report

This report followed a linear-analytic structure. Opening with an introductory chapter, progressing to chapters presenting review of relevant literatures, research methodology, finding from primary data collection and then closed with a conclusion chapter. Brief content of the chapters is as follows:

- Chapter 1: introduced the context of the research, explaining the research problem and its background, the aim and objective of the research, its significance, theoretical context and an overview of the research methodology employed for the research.
- Chapter 2: presented the review of literature on public procurement; basic principles from the international perspective, then narrowed down to the Nigerian context. A brief overview of the PPA (2007) was also presented.
- Chapter 3: presented the review of basic concepts of value for money; its various meanings, how value for money is assessed and drivers for achievement of value for money in a construction project. It concluded by presenting some conceptual clarification for the context of value for money used in the research.
- Chapter 4: presented review literature review on public construction procurement and explored two international public construction procurement practice examples and what could be learnt for the Nigerian experience.
- Chapter 5: presented the review of literature on the public procurement procedures in Nigeria and explored literature opinions on the challenges faced while implementing the PPA (2007) to construction projects.
- Chapter 6: presented review of literature on basic concepts and principles related to research methodology and explained the methodological choices and procedure adopted for the study.
- Chapter 7: The analyses of primary data and findings from the Case Project A was presented and discussed in this chapter

- Chapter 8: The analyses of primary data and findings from the Case Project B was presented and discussed in this chapter
- Chapter 9: The analyses of primary data and findings from the Case Project C was presented and discussed in this chapter
- Chapter 10: presented the cross- case comparison of findings from Case Project A, Case Project B and Case Project C
- Chapter 11: The development of measures for improving the achievement of value for money was presented in Chapter 11.
- Chapter 12: presented the summary of key finding of the research, conclusions and recommendations.

1.12 Chapter summary

This chapter introduces the background to this research highlighting the gaps in knowledge and practice that motivated the study, the research question being addressed, the study aim and objectives and brief overview of the research methodology proposed for the study.

The chapter established that there is limited evidence in support that the PPA (2007) is achieving its aim of achieving value for money on behalf of the Nigerian taxpayers on construction projects. Also, it established that there are challenges mitigating the effective implementation of the PPA (2007), however, there is a gap in literature evidence in support of these challenges. There is a lack of evidence based on a qualitative rich picture of public procurement practices on a real-life project context. Accordingly, the opportunity for in-depth qualitative study of the implementation of PPA (2007) based on a real-life project context was justified.

Chapter 2

Public Procurement

2.1 Introduction

In the previous chapter, it was introduced that public procurement in Nigeria has a limited scope of achievement, in terms of the achievement of value for money, under the regulatory framework of the PPA (2007). But what does procurement mean for the public sector and what does it entail? What are the background factors upon which the PPA (2007) is being implemented?

This chapter is a review of existing literature on public-sector procurement, the reform of Nigeria public procurement which culminated in the enactment of the Public Procurement Act (2007). It will examine opinions as to the impact of the new law against challenges that existed before it. But first, it will take a general look at the subject of public procurement from an international perspective and then narrow down to the reforms in Africa and then the Nigerian context. The purpose is to provide background and clarifications for the study. Procurement is commonly divided into three categories of Goods, Construction, and Services (Arrowsmith et al, 2011, p.2); this study has a Construction procurement bias.

2.2 What is Public Procurement?

Procurement has been defined as the process which creates, manages and fulfils contracts relating to provision of goods, services and construction works or disposal, or any combination thereof (ISO 10845-1, 2010). Put in the construction context, Cartlidge (2009) defined procurement as the means of obtaining the whole spectrum of goods, materials, plants and services in order to design, build and commission a building that delivers the best possible value for the Client. As a process, procurement consists of definite sets of actionable steps perform in a logical order that would achieve the desired objective. This process, is however, different depending on whether it is being carried out by the public or the private sector. In the private sector, procurement is rather a routine commercial transaction, where the end result is often more important than the process, unlike in the public sector where procurement is regulated and governed by specific detailed rules which govern the entire process (Quinot & Arrowsmith, 2013; Cartlidge, 2009).

According to Quinot & Arrowsmith (2013) Public procurement refers to the process through which the state acquires goods, works and services needed to fulfil its social and economic functions. However, a broader definition of public procurement is given by the United Nations as an “overall process of acquiring goods, civil services which includes all functions from the identification of needs, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration through the end of a services’ contract or useful life of asset” (United Nations Development Program, UNDP, 2007 – cited in Thai, 2009).

The performance of this process whether good or bad impacts the ability of the state to fulfil its objectives and puts the spotlight on the government whose goal is to deliver better life for all. Public procurement, therefore, is not an end in itself, but rather a means to an end (Quinot & Arrowsmith, 2013). For example, proper procurement of public infrastructure such as roads, hospitals, etc. has significant impact on the economic and social wellbeing of the society. Poor public procurement management has serious impact on the functioning of the public sector (Basheka, 2009). This is especially important for developing countries in dire need of good governance, such as Nigeria; currently faced with a huge infrastructure deficit (Ahiakwo, et al, 2013). Foster (2008) identified deficient infrastructure as a major constraint on doing business in Africa and is considered to lower productivity by 40%. African Development Bank report also agrees that the inadequate physical infrastructure in Nigeria is one of the major constraints to sustained and broad-based strong economic growth (AfDB, 2013). In addition to the role public procurement plays in the development process, Ekwewuo (2017) noted also that public procurement is important because of the amount of resources it consumes, and its susceptibility to undue influences. Public procurement is said to amount to about 15-30% of GDP or more in many countries, and that in some cases, 40% to 50% of contract value is lost to corruption (Ekwewuo, 2017 – citing Transparency International study of 2006).

Effective governance of the public sector is not only pressing for developing nations. According to Basheka (2009), it is at the centre of many pressing challenges confronting both the developed and the developing countries. Thai (2009) and Arrowsmith (2009) identified increasing taxpayer’s pressure for governments to do more with less, and their demand for increased transparency, concerns about efficiency, fairness, equity, the increasing use of procurement to promote socio-economic goals and the need to open-up

procurement for trade reasons as some of the drivers transforming public procurement across many countries of the world.

Literatures dealing with public procurement appear to follow two broad patterns; those dealing with public procurement as an administrative practice on the one hand, and those dealing with distinct body of regulatory rules and laws that govern the procurement process. Since the 1990s, public procurement practice has continued to evolve both conceptually and organizationally (Thai, 2009), and the distinct field of law called public procurement law and its academics has gained significant momentum (Quinot & Arrowsmith, 2013). Many countries, in recent years, have engaged in the reformation of the rules and regulations that govern their public procurement in response to diverse national needs and scholarly reviews reveal varied range of successes against stated objectives.

Also, literature relating to construction project procurement practices and processes is in abundance with debates on the effect that procurement may have on project outcome. However, Noor et al (2013) noted that most of these literatures are usually contextualized on the developed countries and not on that of the developing countries. Nigeria, like many developing countries, in the last decade, embarked on reform of its public procurement system, adopting the UNCITRAL model law on procurement of Goods, Construction and Services. Empirical review of how the adoption of this new law impact public sector construction procurement is scant.

2.3 Components of Public Procurement?

Public procurement or as also referred to by other terminologies such as “government procurement”, “government contracts” or “public contract” are phrases used internationally to refer to the government’s activity of purchasing goods and services which it need to carry out its functions (Arrowsmith et al, 2011).

This government activity or process has increasingly grown complex, invariably due to increased expectations imposed by public interest. According to Thai (2009), public procurement officials must deal with broad range of issues, such as achieving a balance between competing socioeconomic objective, national interest and commitment of trade agreements, satisfaction of the requirement of fairness, equity and transparency, focus on maximizing competition and improving procurement efficiency by use of new technology,

including electronic procurement. It stated further, the issues of balancing trade-offs between conflicting objectives of cost and those of quality, timeliness, risks, socioeconomic needs and competition.

Arrowsmith, et al (2011, p.1), identified three phases of public procurement process as follows:

- i. Deciding which goods or services are to be bought and when
- ii. The process of placing a contract to acquire those goods or services which involves in particular, choosing who is to be the contracting partner and the terms on which the goods or service are to be provided; and
- iii. The process of administering the contract to ensure effective performance.

It further noted that regulatory rules on public procurement generally focus on the second stage serving as important tools of policy, though, in terms of procurement practice; all three stages need to be closely integrated and regarded as separate phase of a single cohesive process. There is however, a connection between the regulatory measures that apply at the second stage and the first and third stages such that a weakness in one part undermines the performance in the others (Arrowsmith et al, 2011).

Public procurement system is determined by the government (Thai, 2009). A system can be defined a set of interacting or interdependent components forming an integrated whole. The World Bank under its “Country Procurement Assessment Review” process, developed a benchmark framework consisting four elements under which a well-functioning procurement system is built on, namely (Thai, 2009; Basheka, 2009):

- i. legal and regulatory framework,
- ii. institutional framework and management capacity,
- iii. procurement operation and market practices, and
- iv. integrity of the procurement practice

Thai (2009) further postulated a model, closely related to the above framework, which suggests that procurement system can be operated effectively or ineffectively depending on its four “pillars”: procurement organization, procurement laws and regulations, procurement workforce, and procurement process and procedure.

Basheka (2009) summarized the components of effective public procurement system put forth by the African Development Bank (AfDB) as reproduced in Table 2.1 below.

Table 2.1 - Components of an Effective Public Procurement System (Basheka, 2009, p.134)

Component	Description or Function
Legal framework	Based on a procurement law that defines responsibility of procuring agencies and suppliers
Policy	Consistent, national policies and standards to be followed by all procuring agencies, including arbitration procedures
Institutional setup	Defined structures for conducting procurement that minimize subjective decisions and politicization (including approval mechanisms, authorities, and composition of bid and evaluation committees).
Professional civil service	Procuring agencies staffed with procurement professionals, trained and recognized as such under civil service regulations
Resources	Procurement agencies supported with adequate budget, standard documents, and operational manuals.
Fraud prevention	Clear laws applicable to procurement officials and suppliers that increase transparency and encourage inclusion of civil society

Source: Basheka (2009, p. 134)

From the foregoing, it could be inferred that public procurement is not just a process, but also as Harink (1999 – cited in Thai, 2009, p.3) puts it, includes strategic issues of policy, organization and legal regulations. Reforms of public procurement are often focused on improving upon these areas.

It should also be noted that public procurement operates in a context shaped by unique cultural, administrative, economic, legal and social environment, different countries presents different Public Procurement environment. Each country has its unique cultural, administrative, economic, legal and social traditions and these are bound to present diverse environmental contexts from country to country. Thai (2009, p.5) suggests that “adopting any preconceived procurement system without due consideration of the environmental context is not effective and appropriate”.

2.4 Objectives of Public Procurement Systems

Many authors have identified similar interrelated and interdependent, and sometimes conflicting goals a sound public procurement system seeks to achieve. Table 2.2 is a summary of public procurement objectives from different authors.

Being a process influenced by its environment, there are different objectives within different public procurement systems and the importance attached to the various objectives also differ from country to country (Arrowsmith, et al, 2011). For example, a system that is keen on avoiding official corruption may be willing to trade-off efficiency in the procurement process to achieve its anti-corruption objectives.

The conflicting nature of some of these objectives, on the one hand, means that procurement officials must constantly weigh trade-offs between competing objectives (Thai, 2009). For instance, obtaining best value may require more resources devoted to market research and negotiation with providers, which reduces economy and efficiency of the procurement process (Williams-Elegbe, 2012).

On the other hand, these objectives are sometimes interrelated and interdependent and it is often not possible to achieve one objective without the achievement of the others (Williams-Elegbe, 2012). Worthy of note, in most literature, is the complementary role most of the other objectives play in supporting achievement of value for money objective. Value for money objective may therefore be inferred to be primary objective of public procurement. Arrowsmith, et al (2011) opined that some of basic rules for transparency and competitive bidding contained in most regulatory rules have realisation of value for money as one of their aims. The achievement of some public procurement objectives may of themselves constitute good value for money (e.g. success in promoting economic objectives, say job creation, etc.). Having the best possible outcome from the procurement process is the interest of the public (Quinot & Arrowsmith, 2013); provision of goods, works and services of appropriate quality at the best price in the most efficient, transparent and fair manner, avoiding waste of public fund to corruption and other unethical practices.

Table 2.2 - Objectives of Public Procurement

Objective	Description	References
Value for money	Ensuring that goods, works or services acquired are suitable for their requirement and obtained at the best possible terms. Best return for money spent or maximum benefit derived from money spent. Best quality at best cost delivered at the best time with minimum risk.	UNCITRAL (1994) ISO 10845 – 1 (2010) Schapper, et al, (2006) Telgen, et al (2007) Raymond (2008) Thai (2009) Arrowsmith et al (2011, p.4) Williams-Elegbe (2012) Quinot & Arrowsmith (2013)
Integrity	Avoiding corruption and conflicts of interest. Moral exemplar; ensuring highest ethical standard and public confidence.	UNCITRAL (1994) Telgen, et al (2007) Raymond (2008) Arrowsmith et al (2011, p.4); Williams-Elegbe (2012)
Transparency	Openness and impartiality; ensuring contract opportunity is accessibly by all. Interested parties are able to establish whether government is meeting its objectives. Predictability of the process?	UNCITRAL (1994) Schapper, et al, (2006) Raymond (2008) Williams-Elegbe (2012)
Accountability	Holding practitioners responsible for enforcing and obeying the established rules. Discovering and punishing misconducts.	Schapper, et al, (2006) Telgen, et al (2007) Raymond (2008) Arrowsmith et al (2011, p.4);
Fairness	Fair and equitable treatment of all providers	UNCITRAL (1994) Schapper, et al, (2006) Arrowsmith et al (2011, p.4);
Competition	Encouraging maximum participation of the widest possible pool of providers. Promoting equal opportunities and equal treatment for providers.	UNCITRAL (1994) Raymond (2008) Thai (2009) Arrowsmith et al (2011, p.4, 11) Williams-Elegbe (2012)
Economy and efficiency in the procurement process	Cost effectiveness, efficient use of public resources. Timeliness.	UNCITRAL (1994) Schapper, et al, (2006) Thai (2009) Telgen, et al (2007) Arrowsmith et al (2011, p.4) Williams-Elegbe (2012)
Promotion of secondary objectives (such as economic objectives, social objectives, etc.)	Including compliance and consistency in relation to other policy objectives and expectations of the public sector	Schapper, et al, (2006) Telgen, et al (2007) Thai (2009) ISO 10845 – 1 (2010) Arrowsmith et al (2011, p.4) Williams-Elegbe (2012)
Opening-up public markets to international trade	Compliance with International and regional Trade agreements, treaties, etc	UNCITRAL (1994) Arrowsmith et al (2011, p.4)

Realisation of value for money objective appear to be complemented by other objectives in several ways.

2.4.1 Integrity and Value for money

Procurement contract awarded on the basis of corrupt considerations such as bribe or personal relationship will hinder the realisation of value for money, since the contract will not be awarded to the best firm (Arrowsmith et al, 2011). Due to commercial interest of contractors, monies paid as bribes would always be recovered by them from the transaction, implying that the public eventually pays higher than necessary or receives lower quality goods, services or works for the money spent. Therefore, corruption raises cost or lowers quality of procured goods or works which leads to bad investment (Anago, 2011). Maintaining integrity in procurement supports the realisation of value for money objective.

2.4.2 Transparency and Value for money

Transparency suggests that the procurement procedure is conducted in open manner, with opportunity for the procurement contract to be accessible to all interested party. It also requires the criteria for award of contract to be made known ahead of the selection process. The publication of contract opportunity will prevent discriminatory practices such as award of unpublicized contract opportunity to cronies of the awardee (William-Elegbe, 2012).

According to Construction Sector Transparency Initiative (CoST), transparency appears to be a major driver for the achievement of value for money. This is based on their core belief that when the processes involved in the construction of public infrastructure is made more transparent, the public will be better armed with the information they need to hold decision makers to account and thereby to ensure better value for money in the construction sector (CoST, 2013).

Similarly, Ezeh (2013) opines that transparency in the public procurement process provides the chance to uncover malpractices such as corruption, mismanagement, etc. It also reduces corruption by making it harder for corrupt officials to act in impunity. By publishing the rules for contract award, Transparency will provide assurance to all parties that the contract will be awarded in a fair and equitable manner, and this will ensure that the right goods and services are supplied at the most economic price (Raymond, 2008).

2.4.3 Accountability and Value for money

Ensuring the rules of procurement can be monitored and enforced is important as a means to achieve many of the objectives of procurement system, including value for money and integrity (Arrowsmith et al, 2011). In a democratic government, Arrowsmith et al (2011) opines that accountability can be regarded as value in itself which can be realised through money spent on public procurement.

2.4.4 Fairness and Value for money

Fair treatment of suppliers in a procurement system encourages wider participation of suppliers who are confident they would not be unduly discriminated against in the decision process. Wider participation increases the chance that the best deal could be reached in the process. Arrowsmith et al (2011) also noted that fair treatment of suppliers is sometimes regarded as a separate value.

2.4.5 Competition and Value for money

Competition in public procurement system suggests that procurement rules are designed to encourage maximum participation from the widest pool of suppliers (Williams-Elegbe, 2012). Selecting from a widest pool of suppliers imply higher degree of confidence of obtaining the right competitive price rather than a monopolistic one.

2.5 Public Procurement Reforms in Africa

Reforms of public procurement are focused on restructuring and improving public procurement systems to better achieve its objectives. Legal and regulatory rules on conducting public procurement is just one of the means of implementing public procurement objectives (Arrowsmith, et al, 2011), but appears to be the focus of many public procurement reforms around the world. Quinot & Arrowsmith (2013) opined that this focus is evident in the comprehensive review in the last two decades of the two major international regulatory regimes on public procurement, namely: World Trade Organization's Agreement on Government Procurement and the UNCITRAL Model Law on Procurement of Goods, Construction and Services. Basheka (2009, p.136) defined public procurement reform, as policy attempts at changing organisational, institutional, and legal structures that manage public procurement process.

Africa operates in a global environment and is being shaped by the demands and expectations of the global economy, however, only since the 1990s did the African

continent become responsive to internal and external pressures to reconsider the institutions and system through which public services were delivered (Basheka, 2009). Since then, many African systems have undergone major development in public procurement regulation especially in the form of enacting specific legislation to provide for clear unambiguous laws on public procurement (Quinot & Arrowsmith, 2013). According to Dza et al (2013), there are various reasons why African countries undertake reforms; either to support essential administrative improvements, or to help qualify for international financing, or for multilateral trade reasons, or as an important feature of anti-corruption effort. Olatunji, et al (2016) suggests that the realisation by many African countries that poor procurement policy and practices lead to wastages, delays and allegations of corruption and government inefficiency was also a key trigger of reforms around the continent.

Many authors agree the recent wave of public procurement reform in Africa was triggered by the 1998 International Conference on Public Procurement Reform in Africa which was held in Abidjan, involving thirty representatives of African governments at the instance of the African Development Bank Group (AfDB), the Common Market for Eastern and Southern African (COMESA), the West African Economic and Monetary Union (WAEMU), the African Capacity Building Foundation (ACBF), the Organization for Economic Co-operation and Development (OECD) and the World Bank (Basheka, 2009; Quinot & Arrowsmith, 2013; Dza et al, 2013). The conference concluded that public procurement in Africa had weaknesses including, amongst others, legal framework that lacked clarity, not comprehensive, comprising several scattered laws and often includes laws which have been overtaken by events (Basheka, 2009). According to Quinot & Arrowsmith (2013), the parties at the conference agreed to:

- a) the need for modernization of public procurement in Africa to meet international standards and best practice
- b) the need to forge a consensus among all stakeholders on the urgency of engaging in public procurement reforms; and
- c) the need to promote national reform programs with a common strategic framework focusing on accountability, transparency and efficiency.

The most remarkable feature of the string of the public procurement reforms that followed across Africa after the 1998 Abidjan conference is that their adopted regulatory frameworks

closely follow the 1994 UNCITRAL Model Law (Caborn & Arrowsmith, 2013). This may also be related to the fact that the reforms in most African country were preceded by country assessment, either by consultants or donor agencies particularly the World Bank through its Country Procurement Assessment Report (CPAR) process which recommends the model Law (Basheka, 2009). Eleven out of twenty-nine countries recorded by UNCITRAL Secretariat as at 10 March 2012 is said to have legislative texts inspired by the 1994 Model Law are from the Africa continent (Caborn & Arrowsmith, 2013). These countries are Gambia, Ghana, Kenya, Madagascar, Malawi, Mauritius, Nigeria, Rwanda, Uganda, Tanzania, and Zambia. The advantage the model law gives to reforming countries is that they will be drawing from a collective global experience of public procurement regulations and avoid designing all-over from the scratch (Caborn & Arrowsmith, 2013).

In all African countries, according to Dza, et al (2013) and Basheka (2009), the components of reform usually an attempt to institute new procurement legislation and the establishment of a central procurement unit to coordinate the conduct of public procurement reforms. Beyond legal reforms, Williams-Elegbe (2014) opined that for certain elements, which are often lacking, are required for public procurement reforms to succeed in Africa. These include capacity building of procurement personnel, supporting infrastructure (especially Information and Communication Technology (ICT)), a high-profile Change champion, academic interest, functional enforcement system and effective supervisory organisation.

2.6 The Context for Nigerian public procurement

Nigeria is a country in West Africa and with 2019 estimated population of over 200 million is Africa's most populous nation. It is a federal republic with a thirty-six politically and fiscal autonomous federating states. It gained independence from the British on October 1, 1960 and since then has passed through several political changes. After 16 years of military rule, a new constitution was adopted in 1999, and a peaceful transition to civilian government was completed on May 29, 1999. With a Gross Domestic Product (GDP) of USD 398 billion in 2018, Nigeria is the biggest economy in Africa, and 31st largest in the world according to the World Bank. Crude oil is the main export earner and the dominant source of revenue for the federal government. Implication of this is that fluctuating oil prices at the international market spells booms and bursts for the local public sector procurement market. Nigeria is ethnically diverse with over 250 ethnic groups present.

Nigeria has three independent arms of government comprising the Executive, Legislative and Judiciary arms at both the federal and federating state government levels. The Executive and Legislative arms are democratically elected; the elected President is Head of the Federal Government and each state has an elected Governor. The Nigerian Constitution vest power and control to the federal and states government respectively over funds accruing to them (Udeh & Ahmadu, 2013). Consequently, this gives both the federal government and the states separate competence over procurement matters (Williams-Elegbe, 2012).

The federal and state governments have separate legislatures composed of elected members from various constituencies from the states. The legislatures have additional oversight power to investigate the affairs of government ministries, departments and agencies (MDAs) within their legislative's competence, which is meant to expose corruption, inefficiency or waste in the administration of laws (Udeh & Ahmadu, 2013). The Nigerian Judiciary is largely based on the English common law system. The states and the federal governments have separate courts and the final level of appeal is the Supreme Court of Nigeria (Udeh & Ahmadu, 2013).

Nigeria's population is estimated by the African Development Bank (AfDB), to exceed 200 million people by 2020 with a strong urbanization leading to 56.8% of the population living in cities by 2020. Urban population is projected to increase at 4 percent per annum over the period, with growing needs for more infrastructure services (AfDB, 2013). With the current growth rate, population is projected to double to 400 million by 2050 (Soludo, 2019). Many authors agree that Nigeria currently face huge deficit of basic amenities and essential public infrastructure, for example, Ibrahim & Musa-Haddary (2012), Awuzie & McDermott, 2012b; Usman, 2013, Ahiakwo, et al, 2013; Olufemi, et al, 2013; Osundina, et al, 2014. Current levels of public sector investment in this regard have not helped matters. The Nigerian national budget allocation to Infrastructure is reported to be below the United Nations Development Program (UNDP) recommendation of 70% of annual national budget. Analyses of past budget information showed that the Nigerian budget allocation for Capital Expenditure (comprising Infrastructure, Educational services and Healthcare) for ten years between 2004 and 2013 averaged 29.62% of total budget. This is further exacerbated by needs in other competing sectors. Of recent is the increase in Defense budget arising from the need to fight rising terrorism in some parts of the Country. The

2014 budget allocation to Capital expenditure is 23.7% - less than last ten years average. This notwithstanding, Udeh & Ahmadu (2013) opined that in the context of Africa, the Nigerian government procurement market is comparatively large, with both local and foreign contractors participating actively.

The Nigerian construction industry has also been criticized as unresponsive to the infrastructure plight of Nigeria. Kolo & Ibrahim (2010 – cited in Ibrahim & Musa-Haddary, 2010) described the industry as a “sleeping giant” in terms of service delivery and its capacity to satisfy the needs of its clients. Ibrahim & Musa-Haddary (2010) identified some of the problems plaguing the industries as; rush nature of project implementation, inadequate planning and budgetary provisions, projects executed at higher sums, inefficient and poor service delivery, abandoned or non-functional facilities and cases of building collapse. Despite these problems facing the industry and the fact that it employs 25% of the Nigerian workforce (CIOB, 2012 – cited in Ibrahim & Musa-Haddary, 2010, p.1), there is no known state sponsored country-wide review of the performance the Nigerian construction industry as has been done in some developed economies like the United Kingdom.

2.7 Nigerian Public Procurement Reform

As in most African countries, the reform of public sector procurement was triggered by the World Bank. Country Procurement Assessment Report (CPAR). The CPAR was conducted in Nigeria in 1999 to review the public sector procurement structure including existing legal framework, organizational responsibilities and capabilities, present procedure and practices, including how these may differ from the formal rules and procedures and to develop action plan for reform (Nigeria CPAR, 2000, p.4). The CPAR discovered, amongst others, that there was no specific law or act of parliament regarding public expenditure or procurement in Nigeria.

Prior to 1999, public procurement was governed by financial regulations which were limited and are mostly administrative regulations issued by the Minister of Finance as empowered by the Nigerian constitution and Finance (Control and Management) Act of 1958. William-Elegbe (2012b), argues that these Financial Regulations were internal documents which were not publicly available, and as such suppliers did not know what rules governed the process beyond what was in the contract advertisement, making the process non-transparent and open to abuse. Ezech (2011) suggests that CPAR conducted in

1999 – 2000 revealed sixty kobo was lost to “underhand practices” out of every one Naira spent by the Government.

Basheka (2009, p.142) summarised six major weaknesses identified by the CPAR as follows:

- 1) Lack of a modern law on public procurement and a permanent overseeing body to provide guidance and monitor purchasing entities.
- 2) Gaps and deficiencies in the Finance (Control and Management) Act of 1958, and of financial regulations that set basic rules for managing public expenditure leading to faulty implementation of existing regulations on procurement (e.g., lack of permanent arrangements for control and surveillance), which creates opportunities for bribery and corruption.
- 3) Inflation and lack of regular adjustments on thresholds of approving limits of tender boards, and constant erosion of their authority resulting in abuses, prominent among which is splitting of contracts
- 4) Proliferation of tender boards perceived by the private sector as sources of delays and non-transparency. In addition, these tender boards appeared to have limited mandates with powers to decide contracts resting de facto with the permanent secretary and the minister/commissioner.
- 5) Cumbersome customs systems and procedures causing major delay in clearing goods, and hence a source of corruption.
- 6) Execution of procurement by staff who substantially lack relevant training

According to Williams-Elegbe (2012b), the procurement regime prior to 1999 lacked clear rules, had no supervisory mechanism for implementation of rules that exist and for ensuring compliance, rules were unpredictable, the Finance Minister and procurement officials possessed wide measure of discretion, and suppliers did not have access to administrative remedies against procuring entities. These made the system vulnerable to corruption and abuse. Consequently, this period prior to public procurement reforms in Nigeria was marked with allegation of abuse and irregularities, loss of public fund due to inflated contract sums, non-transparent and flawed process that yielded incompetent contractor which were linked to project failures, (Olatunji, 2008; Aladeloba, 2012; Shwarka and Anigbogu, 2012).

The Director-General, Bureau of Public Procurement listed some of the challenges facing Nigerian public procurement system prior to Public Procurement Act 2007 as follows (Ezeh, 2011):

- Open abuse of rules and standard in the award and execution of public contracts e.g. over invoicing, inflation of contract costs, white elephant projects and diversion of public funds through all manner of manipulation of contract awards process
- Influence peddling and sycophancy
- Award of contract to friends, relations and use of primordial consideration in exercising of procurement decisions
- Abandonment of government projects after huge sums of money had been paid out to unqualified and ill-equipped contractors
- Deficiencies in the procurement process encouraged endemic corruption, poor service delivery, denial of social amenities to the people, collapse of local industries and infrastructure.

To remedy the weaknesses in the procurement system, the World Bank CPAR recommended, amongst other, that Nigeria enact a public procurement law based on the UNCITRAL Model Law on procurement of Goods, Construction and Services and suggested that the Nigerian Government establish an independent body to provide policy direction on public procurement (Williams-Elegbe, 2012b). It took seven years following the publication of the CPAR before an act of parliament was enacted; although in-between, several short term measures were taken, including the establishment of an office in the presidency known as the Budget Monitoring and Price Intelligence Unit (BMPIU) in 2003 to enforce “due process” in public procurement business. This office defined due process as “a mechanism for ensuring strict compliance with openness, competition and cost accuracy rules and procedures that should guide contract award” (BMPIU, 2005).

Williams-Elegbe (2013) argues that the public procurement reform in Nigeria did not recognise the socio-political context of Nigeria and did not take account of deep-rooted nature of corruption in the public procurement structure, and capacity challenges in the civil service resulting from constitutional policy which gives preference to equitable representation of tribal and religious divides in Nigeria over competence.

2.7.1 Nigerian Public Procurement Act 2007

Recommendations of the World Bank CPAR laid the groundwork for the enactment of an act of parliament known as Nigerian Public Procurement Act 2007 (Udeh & Ahmadu, 2013). The act followed the 1994 UNCITRAL Model Law on Procurement of Goods, Construction, and Services. Williams-Elegbe (2012b, p.346) described the Act as a comprehensive statute, which created new institutions, new obligations for procuring authorities and strengthened existing ones, instituted the use of competitive procurement procedures; created a system of supplier remedies; a debarment mechanism and also created several procurement related offenses.

Section 16 - 'Fundamental Principles for Procurement' of the Public Procurement Act 2007 (PPA), according to Udeh & Ahmadu (2013, p.143) contains what could be assumed as the policy objectives of the Act. It states that:

'all public procurement shall be conducted ... in a manner which is transparent, timely, equitable for ensuring accountability and conformity with this Act and regulations deriving therefrom; with the aim of achieving value for money and fitness for purpose; in a manner which promotes competition, economy and efficiency'.

The PPA established two oversight institutions namely the National Council on Public Procurement (NCPP) and the Bureau of Public Procurement (BPP). The NCPP is made up of Minister of Finance as chairman and other high-level politicians including the head of the BPP who acts as the secretary. NCPP was established to function as the apex supervisory body. The Nigerian federal government has been criticized for its inability to inaugurate this council till date and effectively, the Federal Executive Council currently perform the roles assigned to NCPP (Udeh & Ahmadu, 2013; Williams-Elegbe, 2012b). The BPP on the other hand was created with objectives as stated in Section 4 of the Act as follows:

1. the harmonization of existing government policies and practices on public procurement and ensuring probity, accountability and transparency in the procurement process;
2. the establishment of pricing standards and benchmarks;

3. ensuring the application of fair, competitive, transparent. value-for money standards and practices for the procurement and disposal of public assets and services; and
4. the attainment of transparency, competitiveness, cost effectiveness and professionalism in the public sector procurement system

The BPP after the enactment of the PPA took over the office, staff, and function of the BMPIU (Williams-Elegbe, 2012b) and has produced Procurement manual which set out the rule for the award contract for the government procurement pursuant to its objectives.

The PPA is made up of sixty-one sections divided into thirteen parts and is supplemented by the Regulations issued from time to time by the BPP. It covers provisions for the steps in procurement process from procurement planning to contract award, but do not cover budgeting and performance of contracts (Udeh & Ahmadu, 2013).

2.7.2 Impact of Public Procurement Act 2007

Objectives of PPA can be gleaned from section 16 of the Act where it declared its fundamental principles of instituting a procurement regime that is transparent, timely, and equitable for ensuring accountability, with the aim of achieving value for money and fitness for purpose; in a manner which promotes competition, economy and efficiency. Opinions in literature as to the extent the PPA has realised these objectives and thereby made desired impact is mixed. Also, literature with particular interest on its impact on Construction is scant.

The Act eliminated the previous secretive Financial Regulations and provided clear rules on the conduct of public procurement. It created new institution and organisational structure to implement and supervise compliance. William-Elegbe (2014) opined that the procurement reform in Nigeria has made measurable success in the areas of cost savings to the public, increase in anti-corruption awareness and transparency in the conduct of public procurement process. According to Adewole (2014), the PPA (2007) institutionalised procurement practices and certain degree of openness, accountability and responsibility have been appropriately entrenched in the public procurement practices, particularly at the Federal government level. This arguably provide a good foundation for continuous improvement, and for the PPA (2007) to go on and achieve its other objectives, including the achievement of value for money.

Ayangade, et al (2009) and Fayomi (2013) credited President Obasanjo's administration which pioneered the Procurement Act, to have saved the public more than the equivalent of 1 billion US Dollar in the form of reductions from inflated contract costs and other corrupt practices. According to Fayomi (2013), it is now realized by bidding stakeholders that there are only two objective rationale for making a decision at the BPP; transparent, open and competitive process on the one hand and lowest competent cost. The Director-General of BPP asserts that prior review intervention activities of BPP, has reduced waste in Federal government expenditure by over NGN216 billion in 2010 and NGN78 billion in 2011 (Ezeh ,2012).

The PPA created a system where international best practice can thrive, however, some challenges remain. Anago (2011) suggested skill shortages and deliberate act of sabotage on the part of Government Ministries, Departments and Agencies (MDA) on implementing the provision of the law. For instance, late advertisement of projects which had received capital vote in the annual national budget, perhaps to avoid genuine competition and resort to special restricted methods as contained in the Act. Capital budget implementation from 2007 to 2011 had on average achieved less than 45% of deliverables was blamed on bottlenecks created by the PPA inspired documentation (Anago, 2011).

There are also some challenges in practice, in relation to the outcome of the procurement process even where the procurement process followed the requirement of the PPA (William-Elegbe, 2012). According to William-Elegbe (2014), the focus on fighting corruption 'divorced' the reform from the context of procurement outcome, arguing that the absence of corruption will not necessarily lead to procurement outcome where goods, services or works are not of right quality, and not delivered at the time required.

In relation to construction, there are doubts to whether the PPA has improved the outcome of the resultant construction project. Olatunji (2008) found that the largest single factor compelling contractors to deliver low quality projects is the "lowest-bid syndrome"- the legal requirement to award contract to the lowest bidder. The Public Procurement Manual issued by BPP indicated that: value may imply more than just price, quality issues also need to be addressed and lowest initial price may not equate to lowest cost over the operating life of the item procured (BPP, 2011) However, no operational procedures/guidelines, tools or methodologies seem to have been provided; and lowest evaluated cost remains the dominant criterion for award of public procurement in Nigeria.

Shwarka & Anigbogu (2012) investigated the performance of twenty construction projects executed before the procurement reform and another twenty executed after. They compared both group on two of the factors identified to be responsible for frequent public building failures in Nigeria namely project cost and time over-run and concluded that there is no statistically significant difference from the situation that existed before the procurement reform. Furthermore, Bello et al (2013) concluded that ensuring value for money by means of whole life costing practice has remained a presumption of the Nigerian Public Procurement Law. The dominant construction procurement method in the public sector has remained the traditional design-bid-build method despite its obvious weaknesses when compared with other integrated procurement methods (Ayangade, et al, 2009; Babatunde, et al, 2010; Dada, 2012).

Despite the commitment to sound procurement principle at the highest level of government, continued involvement of politicians with deep vested interest and lack of professional capacity on the part of procurement officials have also been suggested to stall and undermine the impact of the PPA (Willian-Elegbe, 2014). Udeh & Ahmadu (2013), concluded that it is reasonable to hold that the PPA is consistent with accepted international standard, and that the regulatory framework could be said to be adequate, however, the existence of public procurement regulation in Nigeria is yet to translate into a fully efficient transparent public procurement system. Familoye, et al (2015) insists that the Nigerian Public Procurement Act has not been able to fully achieve the primary objectives of transparency, accountability and value for money. Manu, et al, (2019) survey of 288 practitioner's opinion found that only one out of fourteen public procurement objectives operationalised in their survey was perceived as being attained in Nigeria to "at least a high extent".

2.8 Chapter summary

The enactment of the Nigerian PPA in 2007 had the objective of instituting a public procurement regime that is in conformity with international best practices in response to many weaknesses and abuses that afflicted the public sector procurement system. The Act established supervisory institutions and provided a regulatory framework for public procurement that is fair, transparent and accountable, through a process that promotes competition, economy, and efficiency. Its aim is to achieve value for money and fitness of purpose for goods, works, and services procured by the public sector. As discussed above,

these conform to international best practices for an effective public procurement system. However, while the PPA has made progress in reforming the public-sector procurement compared to the system before it, there still appear challenges stalling the PPA from fully achieving its objectives especially that of achieving value for money.

Views from existing literature is indicative of challenges that require further investigation. It would appear that there are issues with effective implementation of the PPA (2007). For example, Anago (2011) referred to bottlenecks created by the PPA inspired documentation. Also, the dominant reliance on price-based selection criterion whereby a construction contract is awarded to the cheapest evaluated tender was opined to limit the scope of value for money achievable. In addition, there are concerns with the almost default traditional design-bid-build procurement method for construction projects in Nigeria despite the greater chance of achieving better value for money with other integrated methods of procurement. There is a need to investigate what may be promoting the use of the traditional method or limiting the choice of procurement method available to procurement officials. Again, the scope of the Act appears to end at the procurement phase of the award of a contract. The final phase involving the project implementation; the process of administering the transactions to ensure effective performance appears to be left out to the system that existed before the reform.

The need to get the most out of public expenditure through a public procurement system that, as a matter of legal requirement, is economic, efficient and effective cannot be overemphasised. Infrastructure development in Nigeria will benefit from project procurement methods and strategies that are focused on achieving value for money bearing in mind limitations imposed by fiscal and monetary constraints prevalent in a third world economy.

The next chapter will review more closely, the concept of value for money, what it means for the public sector and how its achievement can be recognised and assessed.

Chapter 3

Value for Money

3.1 Introduction

It is generally understood that Public construction project delivers benefits and generates value through the economic and social activities it supports. As discussed in the previous chapter, making the most of the money spent to derive maximum benefit has become an important objective of public sector procurements. According to Dimitri (2013), selection criteria for public procurement in recent years has shifted from price only criterion for measuring success to a multi-criteria approach where dimensions of quality, as well as price, are considered.

This chapter reviews the concept of value for money with the aim of understanding what it means for the public-sector and how it could be recognized and assessed.

3.2 What is Value for Money?

Value for money (VfM) is a phrase in common use, but for practical reasons, attaching a precise meaning to it has been problematic (Glendinning, 1988). According to MacDonald, et al, (2012) there is lack of consistency in the definition of VfM resulting from aspects of VfM which can be interpreted differently; the dimensions of value and timeframe of evaluation. An in-depth understanding of Value would require drawing knowledge from the fields of social psychology and philosophy, the in-depth of which is beyond the scope of this review. However, Value is generally recognized as a subjective term which means different things to different people at different times. Erikshammar, et al, (2010) described value as ambiguous and vague.

Value in relation to expenditure of money (or VfM) has an instinctive appeal but could have multiple practical connotations in different settings (Dewulf, et al, 2012). Guthrie and Parker (1999 – cited in Dewulf, et al 2012, p.122) submits that VfM is not a unitary concept but a social construct. Dewulf, et al, (2012) agrees and further suggests that the meaning of VfM has become institutionalized in terms of what public auditors do in its name. MacDonald, et al (2012) suggests that the more considered meaning of VfM recognize that value has many dimensions beyond the conventional economic perspective and includes

social and environmental objectives and other intangible deliverables such as relationships, leadership, learning, reputation and trust.

Various definitions of VfM exists in literature, for example:

HM Treasury (2006) defines VfM as *“as the optimum combination of whole-of-life costs and quality (or fitness for purpose) of the good or service to meet the user’s requirement. VfM is not the choice of goods and services based on the lowest cost bid”*.

Furthermore, with the introduction of Public Services (Social Value) Act 2012, the UK Government has redefined value for money to include the practice of the principles of sustainable procurement; whereby economic, environmental and social considerations form the selection criteria on tenders for public sector contracts (Burke & King, 2015). Public sector organisations in the UK are now required to consider economic, social and environmental wellbeing in connection with public sector contracts to achieve maximum value for money.

Barnett, et al, (2010) defined ‘VfM as *“a term generally used to describe an explicit commitment to ensuring the best results possible are obtained from the money spent”*.

DFID (2011) clarifies that VfM doesn’t only mean doing the cheapest things. But also developing better understanding of cost and ensuring the realization of desired quality at the lowest price and maximizing the impact of money spent on a desired set objective.

For the Nigerian context, the PPA (2007) did not provide its own definition of VfM. However, a former Director-General of the Nigerian Bureau of Public Procurement (BPP), a bureau established by the PPA (2007), defined VfM from the “Bureau’s perspective” as:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value” (Ezeh, 2012).

Dewulf, et al (2012) distinguished the use of the VfM term in *ex-ante* and *ex-post* discourses. VfM is frequently used within the *ex-ante* discourse for setting policy objectives and performance standards whereas in *ex-post* discourses, the term is generally viewed as meaning an investigation to determine how well resources have been utilized in the pursuit of stated objectives. Both could be seen to relate to the time-frame of evaluation dimension of VfM as suggested by MacDonald, et al, (2012).

VfM can be further be understood from the multi-dimensional meaning of the “value” aspect the term. Glendinning (1988, p. 43) submits that the essentials of VfM can be considered under three headings of Economy, Efficiency, and Effectiveness. A fourth dimension: Equity was added in the VfM assessment framework developed by the UK’s Independent Commission for Aid Impact (ICAI, 2011), in relation to humanitarian aid.

Economy: the provision of a requirement at minimum cost. The requirement being initially assessed in terms of quantity and quality and thereafter the resources needed to provide it are evaluated in money terms.

Efficiency: achieving maximum output from the resources provided for meeting the requirement.

Effectiveness: ensuring that the intended result is fully attained from the application of the resources.

Equity: ensuring that benefits are distributed fairly.

In assessing achievement of VfM with the above criteria, economy appear relatively easy being the only quantifiable one in money terms. It is possible to set standard for expenditure by means of budget and relatively easy to see if these are met. Efficiency and effectiveness criteria on the other hand, are hard to quantify and therefore not so straight forward to assess. The relative ease of quantifying the economy criteria in money units is understood to skew the assessment of VfM to mean achieving an objective at the lowest cost. MacDonald, et al, (2012) also linked the association between VfM and lowest cost to the specific reference of the word “money” within the terms and suggests the use of the term “Best Value” instead. It is possible to attain economy but not efficiency, and vice versa (Glendinning, 1988). Most definitions in literature agree that obtaining VfM does not purely mean obtaining at the lowest cost.

The Audit Commission defined VfM, encompassing all three components stated above as follows:

“VFM is about obtaining the maximum benefit over time with the resources available. It is about achieving the right local balance between economy, efficiency and effectiveness, or, spending less, spending well and spending wisely to achieve local priorities...VFM is high when there is an optimum balance between all three elements, when costs are relatively low, productivity is high and successful outcomes have been achieved.” (Audit Commission, 2010; cited in Barnett, et al, 2010))

According to MacDonald, et al, (2013), achieving VfM has become a more urgent consideration for public sector agencies and other organizations that hold physical infrastructure assets, when considering how best to deliver infrastructure.

Value is said to be personal or in the eye of the beholder. This could be complicated for the public sector. According to Glendinning (1988), defining or identifying value for a single individual is difficult, and much more difficult to identify the values of collectives of individuals, communities or whole nation that make-up the public-sector client. Nonetheless, some authors suggest that achieving VfM remain the main goal of the entire Public Procurement process (Kashim, 2016; Burke & King (2015), Familoye, et al, 2015; Ezeh, 2012). What constitute value to the public, how to recognise and assess it appears to remain a debate both in practice and academia.

3.3 The Concept of Public Value

3.3.1 What is Public Value?

Public value is a paradigm in the field of Public administration which describes the value that an organization contributes to society. The term was originally coined by Harvard professor Mark H. Moore who saw it as the equivalent of shareholder value in public management. The ‘theory of public value’ states that the reason the public sector exist is to create value and that the successful practice of public management should increase the public value produced by public sector organisation in both the short and long term (Moore, 1995 – cited in Staples, 2010)

According to Moore (2013), the idea of creating public value were developed at a time when private sector management concepts were being applied to the public sector, a philosophy in which public managers are expected to act strategically to create public value and success is drawn from initiating and reshaping public sector enterprise in ways to increase their value to the people. The Public Value Account (PVA), which Moore developed, outlines the values that citizens want to see produced by, and reflected in, agency operations. These include the achievement of collectively defined missions, the fairness with which agencies operate, and the satisfaction of clients and other stake-holders

Recognising and measuring public value is not straight forward as its understanding of the concept is. According to Moore (2013, p.9), the question of how public value can be defined elicits even further questions:

1. What social actors were the proper arbiters of public value: the clients of government services or the citizens and tax payers in whose name the government acted
2. Which particular effect or dimension of government performance those who are proper arbiters of public value would embrace: reducing cost? Increasing quantity and quality of organizations output? Satisfying clients? Or achieving the desired social outcomes. Would their concern focus only on substantive ends of government actions or would they also be concerned about the means used? Issues about not just creating a prosperous society but also of fairness and justice.

3.3.2 Public Value in Construction

How does a public-sector organisation create public value in construction? Public projects like private counterparts fulfil strategic needs. But there are public projects, with no comparable type in the private sector (Staples, 2010). The end product of public construction project is the creation of physical infrastructures, which has significant impact on the economic development and social wellbeing of a society. According to Watermeyer (2013), infrastructure creates value through the economic and social activities it supports, especially the ones that provide improvements or efficiencies in services, production or export capabilities, delivered and maintained in a manner that which minimises waste, time and effort. It could also be argued that there is more Public Value achievable in public sector construction beyond creating physical facility at the lowest price. Staples (2010) suggests that the public sector might decide to spend more to achieve better whole-of-

government outcome such as development of Small and Medium Scale enterprises (SMEs), training of Apprentices or providing employment for at risk unemployed youths. It could then be inferred that public-sector construction delivers value as an end product as well as a means to an end.

Likewise, acting on-behalf of the public, stakeholders' expectations for a public construction project could represent public value. Dada (2013) and Dada (2013b) surveyed the views of clients, contracting and consulting organisations on the expected success factors for public sector projects in Nigeria. This arguable could give indication of some collectively defined value for public sector construction. The papers suggest that the surveyed stakeholders agree in their ranking of the following as top success factors for public sector projects in Nigeria:

- Projects completion at expected time,
- Project completion at expected cost,
- Project completion meeting or exceeding expected or agreed quality expectations,
- Project completion meeting transparency or accountability considerations,
- Project completion for prestige or status symbol, and
- Project completion providing technology transfer to Nigerians

3.4 Value for Money in the Public Procurement of Construction

Public procurement of construction refers to the process through which the state acquires construction works and services needed to fulfil its social and economic functions. Value for money in this process, going by the forgoing definitions of VfM, would imply the optimal use of resources to achieve intended construction outcome. Or the explicit commitment to ensuring best results possible are obtained from money spent in acquiring construction works, of course not necessarily at the cheapest cost. Arrowsmith, et al, (2011, p. 5) opines that the objective of achieving value for money is a central to most public sector procurement; in the aspects of ensuring that goods, services or works acquired meet the intended requirement for the need in question and not over-specified, concluding arrangement to secure what is needed in the best possible terms and ensuring they are delivered on the agreed terms. Glendenning (1988) suggests that the term VfM as used in ordinary parlance to mean not paying for an article more than is justified by its quality and

availability, it would be natural that some attempt should be made to apply this same principle to government activity because this also represents a feature of practical living for most individuals.

VfM on construction procurement may also mean, from the “ex-post” perspective, the assessment of how well resources have been utilized in the pursuit of an intended outcome. Intended or planned outcome of construction work is at the heart of every construction project management. This has traditionally revolved around the so-called Quality, Cost, and Time triangle; the project management objective of delivering a construction product in the specified quality, within the agreed time criteria and without unauthorized cost escalation. Achieving these objectives has remained problematic and is generally agreed to be rarely the case in the construction industry globally both in the developed and developing economies. Evidence of construction client’s dissatisfaction in the United Kingdom can be seen in the spat of construction industry reports over the years. In the developing economies such as Nigeria, Ibrahim & Musa-Haddary (2010) cites “perennial nature” of unsatisfactory traits in construction procurement in the Nigerian construction industry, including rush nature of project implementation, inadequate planning and budgetary provision, project cost escalations, inefficient service delivery, abandoned or non-functional facilities and even outright collapse of buildings.

MacDonald, et al, (2013) argues that broader concept of value particularly the intangible value, remain poorly articulated in existing literature and suggest that broader concept of project value would encompass both tangible and intangible project values. Therefore, another way construction outcome may be understood could be how well intangible value objectives which the construction stakeholders seek to create or achieve. MacDonald (2011), citing Blockley & Godfrey (2000), compiled Values relevant to construction procurement which is reproduced in the Table 3.1 below:

Table 3.1- Values relevant to construction procurement (MacDonald, 2011)

Values	Explanation
Customer satisfaction	Exceeding expectations providing what is needed, fulfilling a desire
Shareholder value(non-financial)	Reputation, good will, customer loyalty, desire to own
Money	Profit, share price, financial measures (such as return on capital, dividend cover etc.), initial costs, life cycle costs, opportunities, expectations about future value
Utility	Usefulness, utility as in utility theory
Health and safety	Harm, human life, injury, quality of life
Performance	Functionality, reliability, damage, simplicity/complexity
Buildability	Constructability, level of standardization, waste
Operations	Availability, efficiency, ease convenience/difficulty
Environmental Impact	Aesthetic, biological, loss of diversity, elegance, pollution, waste, efficiency
Sustainability	Natural resources, energy consumption
Ethics	Individuals, groups, professional standards, future generations

Similarly, Walker, et al, (2008) opines that value in construction procurement is a combination of both tangible and intangible deliverables; not simply the traditional project management objectives of fitness for purpose (or quality) at agreed priced in a timely manner but also delivering intangible expectations and anticipated “softer” needs which are often unstated. Walker, et al, (2008) further affirms that a sustainable procurement process provides a way that value is generated for all stakeholders involved, including organisations involved in the project management process, because envisioned value generation is a strong motivator of the required level of commitment necessary to generate win-win rather than win-lose outcomes.

However, Value is said to be personal or in the eye of the beholder. This could be complicated for the public sector stakeholder. According to Glendinning (1988), defining or identifying value for a single individual is difficult, and much more difficult to identify the values of collectives of individuals, communities or whole nation that make-up the public sector client. Asare & Prempeh (2016) concluded that due to the abstract and subjective nature of the term value for money, there is a lack of understanding of what it

means and not every public procurement official can be presumed to be implementing it. Nonetheless, achieving VfM remains the main goal of the entire Public Procurement process (Quinot & Arrowsmith, 2013; Ezech, 2012).

The UK's National Audit Office states that improvements in value for money fall into the following categories (National Audit Office, 2013):

- i. those aimed at reducing the cost of purchasing and the time it takes for example, the administrative effort in processing an order, seeking and evaluating tenders, and taking delivery of the goods ordered.;
- ii. those aimed at getting more value from money by negotiating improved deals with suppliers (reduced cost and/or better quality), or aggregating demand to get greater leverage on suppliers; and
- iii. those aimed at improving project, contract and asset management.

3.5 Drivers for Achieving VfM in Public Procurement of Construction

Value drivers are those things which contribute to the value of the building or construction project and should be readily understood (Dallas, 2007). Watermeyer (2013) opines that a key driver for VfM in construction procurement is to frame VfM proposition through clearly defined project objectives and expected outcome as well as parameters such as timelines, cost, and level of uncertainty.

Dallas (2007) collated a list and explanation of generic values drivers to ease the understanding of sometimes abstract nature of some functions of a building:

Table 3.2 - Generic value drivers for buildings (Dallas, 2007, p.288)

Value driver	Key prompt question
Enhance/achieve desired financial performance (of the structure)	Is the structure affordable?
Manage the delivery process effectively (maximise project delivery efficiency, minimise waste)	Are the project management processes efficient? Are the right people engaged at the right time? Is the delivery chain effectively managed? Are the resources used effectively?
Maximise operational efficiency, minimise operational cost	Does the structure work well for the end users?
Attract and retain employees/ occupants/ users	Is it a nice place to live/work/be?
Protect the appropriate image	Does the structure convey the appropriate image?
Minimise maintenance costs	Is the structure easy to maintain?
Enhance the environment	Is the structure environment friendly? Is the structure built using the ethos of environmental Sustainability?
Comply with third-party constraints	Does the structure conform to legal and other external stakeholder's requirements?
Ensure health and safety during implementation, operation and occupation	Is the structure safe to construct and operate?

These value for money drivers could be observed to be generic for both the public and private sector construction procurement. However, while procurement is rather a routine commercial transaction for the private sector, the public sector procurement is regulated and governed by specific detailed rules which in many cases is a matter of the Law, as in Nigeria with the PPA (2007). For the public sector context of construction procurement, examples of factors that drive the achievement value for money could be gathered from a list provided by HM Treasury in the United Kingdom. Given the UK's colonial legacy in Nigeria, this list could have easy relevance to the Nigerian public sector. HM Treasury (2006) listed generic factors driving VfM during procurement as follows:

- The optimum allocation of risks between the various parties –requires that risks are allocated to the party, or parties, which are best placed to manage and minimize these risks over the relevant period;
- Focusing on the whole life costs of the asset rather than only the upfront costs involved;

- Integrated planning and design of the facilities-related services through an early assessment of whether the possible integration of asset and non-asset services (e.g. soft services) should deliver VfM benefits;
- The use of an outputs specification approach to describe the requirements which, amongst other things, allows potential bidders to develop innovative approaches to satisfying the service needs of the procuring authorities;
- A rigorously executed transfer of risks to the parties which are responsible for them, ensuring that the allocation of risks can be enforced and that the costs associated with these risks are actually borne by the parties in the manner originally allocated and agreed;
- Sufficient flexibility to ensure that any changes to the original specification or requirements of the procuring authority and the effects of changing technology or delivery methods, can be accommodated during the life of the project at reasonable cost to ensure overall VfM;
- Ensuring sufficient incentives within the procurement structure and the project contracts to ensure that assets and services are developed and delivered in a timely, efficient and effective manner, including both rewards and deductions as may be appropriate;
- The term of the contract should be determined with reference to the period over which the procuring authority can reasonably predict the requirement of the services being procured. This will require careful considerations of factors including: potential changes in end-use requirements; policy changes; design life of the asset; the number of major asset upgrades or refurbishments during the period of the contract; potential changes in the way services could be delivered (e.g. technical advancements); and the arrangements for the asset at expiry of the contract;
- There are sufficient skills and expertise in both the public and private sectors, and these are utilized effectively during the procurement process and subsequent delivery of the project; and
- Managing the scale and complexity of the procurement to ensure that procurement costs are not disproportionate to the underlying project(s).

3.6 Assessment of VfM in Public Procurement of Construction

The challenge with assessing VfM can be attributed to the separate problems which arise when assessing the 3 “E”s components of value, namely economy, efficiency and effectiveness. According to Dewulf, et al, (2012), economy aspects of VfM are easy to quantify and therefore assessed, however assessing policy efficiencies and effectiveness is difficult because of the difficulty in measuring output (to assess efficiency) and outcome (to assess effectiveness). Visconti (2014) opines that assessing these qualitative aspects demands careful judgement derived from experience, best practice and proper benchmarking.

Methodologies which attempt to measure and evaluate VfM includes Cost-Benefit Analysis, Cost effectiveness analyses, Cost utility analyses, Key Performance Indicators and Ex-ante VfM Assessment using a Private Sector Comparator (PSC). MacDonald, et al, (2013) argues that VfM identification, measurement and justification in most literature, does not assess through the project life cycle and thus inhibits transparency and demonstrated accountability of effective project resource expenditure.

3.6.1 Cost-Benefit Analyses

Cost Benefit Analysis (CBA) is a common framework for evaluating the benefits and drawbacks associated with any particular project and may be regarded as a special form of attempting to evaluate VfM (Glendinning, 1988). CBA estimates and totals up the equivalent money value of the benefits and costs to the community of projects to establish whether they are worthwhile. CBA can also apply to measure non-economic aspects of values where financial terms could not apply to certain benefits.

3.6.2 Cost Effectiveness Analyses

This assessment methodology is used to compare relative advantage or otherwise of alternative or competing project options by considering project outputs against inputs. Cost effectiveness analyses (CEA) involves the comparison of the consequences or benefits of a project outputs, measured using same natural or physical units (e.g. number of accidents prevented for transport infrastructure) for the same project inputs measured in monetary units (Howes & Robinson, 2005). For example, the number of students dwelling units per one million USD of alternative student hostel project options.

3.6.3 Cost Utility Analyses

Cost Utility Analyses (CUA) is used when a significant component of the project output cannot be measured, quantified or expressed in monetary units. Howes & Robinson (2005) described CUA as involving the comparison of projects (inputs) which is measured in monetary units with the consequences or benefits (outputs) measured using (dimensionless) utility units or a preference scale.

3.6.4 Key Performance Indicators (KPI)

KPI is simple method of measuring and benchmarking performance. It is a way of assessing whether set project performance objectives or outcomes are being achieved by identifying indicators of success and using them to compare with the result of an alternative or competing procurement method to assess comparative advantage.

Sample KPI's comprise values expressed in financial terms and those which are not purely financial, including: Client Satisfaction, Defects, Construction Time & Cost, Productivity, Profitability, H&S, Employee Satisfaction, Staff Turnover, Sickness Absence, Working Hours ,Qualifications & Skills, Impact on Environment, Whole Life Performance, Waste, Commercial Vehicle Movements (Centre for Construction Innovation (CCI), 2015)

3.6.5 Ex-ante VfM Assessment using a Private Sector Comparator (PSC)

This VfM assessment method is mostly used to justify the use of Public Finance Initiative (PFI) procurement method as against the traditional public procurement methods. It is generally believed that project procured via PFI offers better value for money to the public whereby the private sector partners take over project delivery risks and provide certainty in cost, quality, time and service availability (Henjewe, et al, 2012; Siemiatycki & Farooqi, 2012). To assess this advantage, the net present value of the life cycle cost of proposed PFI project is compared with net present value of the life cycle cost of a PSC. PSC is a hypothetical reference project, based on the most efficient and likely public sector alternative, which describes in detail all cost to the public sector if the project is developed in the traditional way (Akintoye, et al, 2003 – citec in Dewulf, et al, 2012).

3.7 Conceptual clarification on value for money

Bearing in mind the various perspectives to VfM as discussed in the foregoing sections, it is important that VfM as used in this study is clearly defined. For this study the multi-

dimension meaning of value for money will be assumed, as defined by the Director General of Nigeria's Bureau of Public Procurement:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value” (Ezeh, 2012).

In general, VfM would refer to the judgement of whether the best advantage is obtained from money spent in the procurement of construction in relation to meeting stakeholders' requirements and expectations. Value for money from Ezeh (2012) point of view is understood from the perspective of the public sector entity responsible for the procurement of the project on behalf of the public. Staples (2010) however criticized this view as posing the risk for pursuit of optimised outcome for a government's department core mandate as against outcome for government as a whole. This study, therefore, assumed the value point of view, not necessarily of the procuring entity, but that of the government as a whole in relation to its obligation to the public in a democratic system of government, as in Nigeria.

Also, the time frame for evaluation of value for money considered by the study is the immediate end or near to the end of the construction of the project being procured. The study relied on the opinion, reflections and judgement of individual project participants who were operationally responsible for the job of realising the project and who had a direct involvement in the procurement process. These includes representatives of the public sector procurer, representatives of the contracting organisation and independent professional practitioners involved in the procurement process.

The Nigerian Public Procurement Act (2007) as the regulatory framework for public sector procurement in Nigeria aims is to achieve value for money and fitness of purpose for goods, works and services procured by the public sector. Public procurement of construction aims to provide physical infrastructures to satisfy certain public needs. Where the procured facility fails to effectively, efficiently and economically satisfy those needs, value for money spent would become questionable.

3.8 Chapter summary

Value for money is a phrase with an intuitive appeal, but its meaning for practical purposes is not consistent. It is generally agreed though to mean deriving the best result possible from money spent with regards to a previously set objective. The achievement of VfM in construction procurement implies the optimal use of resources to achieve the intended construction outcome; both tangible and intangible outcomes. For public-sector construction, recognising what public value means is important, however, this is not so straight forward. This relate to the views in literature about the keyword: value. This includes views that:

- value is a subjective concept;
- the judgement about value could vary with time; and
- the judgement about the achievement of value for money is socially constructed.

Drivers for achieving VfM in a construction project from the foregoing would include the setting of clear project objectives, effective allocation of risks, contract terms, etc., can be said to lie deep with the procurement strategy which will be employed. As such, the choice of procurement method could have a significant impact on the realization of the VfM objective. Also, it could be concluded that the assessment of VfM is not so clear cut due to the qualitative features of the term value. Understandably, popular methodologies for assessing VfM lean more towards the easy to understand quantifiable economic aspect of values in terms of cost or price to pay. This notwithstanding, this study following its objective for a rich and in-depth qualitative understanding, will approach the subject in an open-minded manner, relying on the interpretations of project stakeholders to understand what value for money means to them and how it can better be achieved.

Chapter 4

Public-sector Construction Procurement

4.1 Introduction

As discussed in the previous chapter, public-sector projects like its private counterpart fulfil strategic needs. The public sector engages in construction projects to create physical infrastructures to satisfy perceived public requirements or needs and thereby creates value to meet the strategic needs of the society they govern. Aside delivering value as an end product, the public procurement of construction also delivers value as a means to an end. Hence the arrangement or organisation of the procurement process is an important area to explore, especially for a procurement regime that is under-performing on its aim for the achievement of value for money.

Construction work is almost customarily outsourced despite the existence of uncertainty and opportunism in the construction industry, which theoretically should imply increase in cost of market transactions (Lingard, et al, 1998). The trend, according to Winch (1989), is towards greater market governance. Enactment of the PPA (2007) in Nigeria and indeed, the emergence of regulatory frameworks for public sector procurement around the world may very well be an attestation to this trend. It would appear however, that the PPA (2007) is failing to fully realise its aim for the achievement of value for money for Nigerian taxpayers in its governance of construction procurement. The cause of this under-achievement, as discussed in the previous Chapters, is not evident from existing literature.

This chapter presents the review of construction procurement generally to explore the various organisational and contractual arrangements, contemporary trends in construction procurement field and example international best practice system of public sector procurement. A comparison of these with the realities of construction procurement in Nigeria as contained in extant literature is hoped would help develop key areas of inquiry for the study in pursuit of answers to the research question.

4.2 Public-sector construction projects

The end product of public-sector construction projects generally involves the creation of various physical infrastructure for the benefit of the public such as hospitals, schools, roads and transportation, power, water and sanitation, telecommunications, defence, etc.

Infrastructure creates value in a society through the support of economic growth by increasing private and public sector productivity, reducing business cost, diversifying means of production and creating jobs (OECD, 2009 – cited in Awuzie & McDermott (2012)). Also, improved transportation infrastructure and efficient buildings, for example, plays important part in lifting the productivity in various economic sectors. There is agreement in existing literature on the link between economic growth in a country and its infrastructure stock (Awuzie & McDermott, 2012b; Akinyosoye, 2010). In addition to the value that public sector construction procurement delivers as an end product, it also delivers value as a means to an end as discussed in the previous chapters. This is also evidenced in attempts to stimulate economic growth by increase in investment in the construction of physical infrastructure by governments globally (Howes & Robinson, 2005).

The procurement of public infrastructure has traditionally remained the responsibility of the public sector, especially for less developed countries. The modern-day economic realities for the public sector in these countries often imply increased budgetary constraint for maintenance of existing infrastructure and provision of new ones. As discussed in Chapter 2, making the most of the money spent to derive maximum benefit is an important objective of public sector procurements. In contrast with the private sector counterpart where procurement is relatively a routine commercial transaction, the end result being often more important than the process, the public sector procurement is regulated and governed by specific detailed rules which govern the entire process (Quinot & Arrowsmith, 2013; Cartlidge, 2009). These rules are in most cases, a matter of the law, as is the case in Nigeria with the PPA (2007).

Furthermore, the process for procuring public projects has increasingly grown complex invariably due to increased expectations imposed by public interest. Increasing taxpayer's pressure for governments to do more with less, the increasing use of procurement to promote socio-economic goals and the need to open-up procurement for trade reasons has been identified as some of the drivers transforming public procurement across many countries of the world (Thai, 2009; Arrowsmith, 2009). According to Thai (2009), public procurement officials must deal with broad range of issues, such as achieving a balance between competing socioeconomic objective, national interest and commitment of trade agreements, satisfaction of the requirement of fairness, equity and transparency, focus on maximizing competition and improving procurement efficiency. Diverse construction

procurement arrangements exist for the public sector to actualise its procurement objectives. There is a consensus among researchers that success of a construction project, in terms of achieving prior set objectives, is contingent upon the procurement arrangement for the project.

4.3 Construction Procurement

Ruparathna & Hewage (2015) opined that there is no unified view in the construction industry on procurement as a project process. Construction procurement has been described variously in literature as follows:

'The framework within which construction is brought about, acquired or obtained' (McDermott, 1999)

'Procurement is about the acquisition of project resources for the realisation of a constructed facility' (Rowlinson, 1999).

'Procurement is an organisational system that assigns specific responsibility and authority to people and organisations, and defines the relationships between different elements of construction in a project' (Love et al, 2002-cited in Oyegoke, et al, 2009)

'The means of obtaining the whole spectrum of goods, materials, plants and services in order to design, build and commission a building that delivers the best possible value for the Client' (Cartlidge, 2009)

Naoum & Egbu (2015) opined that the success of construction project has increasingly been associated with the problem of procurement method and identified seven broad challenges facing the construction process which together with other macro-economic variables has led to the evolution of diverse alternative methods of procurement of construction projects. These are (Naoum & Egbu, 2015, p. 6):

1. Separation of design from construction
2. Lack of integration
3. Lack of effective communication
4. Uncertainty
5. Changing environment
6. Changing clients' priorities and expectations, and

7. Increasing project complexity

The construction industry response to these challenges has largely been the theme of research interest in construction procurement in the last three decades or so, including also, the CIB's creation of Working Commission 92 in 1990, as a research group to investigate construction procurement. According to Ruparathna & Hewage (2015), the strategic importance of procurement is generally acknowledged by academic researchers and industry professional. Impliedly, a viable procurement method would be one that is able to effectively manage the challenges listed above.

There are a number of different procurement methods available for procuring construction projects, with each method offering relative advantage over the other in response to particular project characteristic (size, complexity, finance, location, client type, etc.). According to Naoum & Egbu (2015) and Love, et al (2008), there appear a consensus among researchers that selection of appropriate procurement method can shape the success of an individual project but that no one procurement method is likely to be better than others for any project. Tookey, et al (2001), however, opined that definitions imposed to classify procurement methods by academics and professionals is too prescriptive to be meaningful to construction client arguing that procurement is more complex and variable, and that procurement systems used in practice are sometimes a 'hybrid' that the industry would normally perceive not to belong to any particular procurement method.

According to Oyegoke, et al (2009), increasing complexity of construction projects and demands for value for money has made selection process for an appropriate procurement method complex arguing that the classic criteria of time, cost and quality alone are now too simplistic in the context of the modern day's project environment. The proliferation of different procurement arrangement has resulted in an increasing demand for systemic method for selecting the most appropriate arrangement to suit the particular need of the client and their project (Ashworth & Hogg, 2007). Love, et al (2008) affirms that the decision to which procurement system to adopt is an intricate and challenging task for clients of construction projects.

4.4 Construction Procurement Strategies/Methods

Merriam-Webster English dictionary defines the words 'Strategy' and 'Method' as follows:

Strategy: “*a careful plan or method for achieving a particular goal usually over a long period of time: the skill of making or carrying out plans to achieve a goal*”.

Method: “*a way of doing something: a careful or organized plan that controls the way something is done*”.

There is no consistency in literatures dealing with construction procurement for the English language term used to refer to the way procurement is organised in construction. According to Ibrahim (2007), the terms 'procurement system', 'procurement route', 'contractual arrangement', 'procurement strategy' and 'project delivery system' are often used synonymously. McDermott (1999) opposes the use of the term 'procurement system', because it implies a degree of scientific rigour which he argued does not exist.

For the purpose of this study, the following OGC (2003)'s definitions for procurement cited in Ibrahim (2007) will be adopted for clarity purposes:

- Procurement strategy is *"the best means of achieving project objectives and value for money by taking into account the risks and constraints, leading to decisions about the funding mechanism and asset ownership for the project"*.
- Procurement route [or method] *"delivers the procurement strategy and includes the contract strategy that will best meet the client's needs"*.
- Contract strategy *"determines the level of integration of design, construction and on-going maintenance for a given project, and should support the main project objectives in terms of risk allocation, delivery, incentivisation and control mechanisms "*.

4.4.1 Construction Procurement Routes

Many construction procurement routes are available for meeting different Project specifics (size, complexity, finance, location, etc.) and particular need and type of Procurer (public, private, experienced, etc.).

4.4.1.1 Traditional Lump Sum (Design-Bid-Build) Method

Key feature of this method is the separation of the design and construction responsibilities. The client engages a team who fully designs the requirement and assists the conduct of a bidding process to select a suitable constructor who builds the design. Contracting arrangement under this method includes Contracts based on: firm bills of quantities; bills

of approximate quantities; drawing and specifications; schedule of rates; cost reimbursement; and Labour only (Ramus, et al, 2006).

4.4.1.2 Design and Build

The design and build (or design and construct) is an integrated procurement route which places a single point responsibility for the design and construction of a facility. This approach is in response to a number of problems associated with the traditional design-bid-build method (Ashworth & Hogg, 2007). According to Oyegoke, et al (2009) Design and build is a contractor centred approach which was developed to improve costs, schedules and adversarial relationships that is prevalent in the Design-Bid-Build route. Contractual arrangement under this method includes: Develop and Construct where the Client prepares and initial scheme design as part of the brief and Packaged Deals where the contractor constructs a facility purely from briefs.

4.4.1.3 Management Based Methods

The main characteristic of this procurement method is the appointment of a party (a management contractor) to advise and manage the construction works, and in some cases including the design. Actual works are constructed under a series of work packages let out to subcontractors. Contractual arrangement available for this method includes Management contracting and Construction management. Both are similar in nature but differ on contractual relationship with works sub-contractor.

4.4.1.4 Public Private Partnerships (PPPs)

PPP as a procurement route is a partnership between the private and public sector whereby public sector project are procured and/or operated using private sectors resources. This method is described in literature to be best suited for large infrastructure projects requiring large funding and the public sector benefits by taking advantage of the private sector management skills and additional incentive of having private finance at risk (Ramus, et al, 2006; Ashworth & Hogg, 2007 and Babatunde, 2010). Integration and private finance are the main driving factor for PPPs (Howes & Robinson, 2005). There are diverse arrangements that exists under the PPP procurement route usually defined by the extent of the public sector's traditional role devolved to the private sector. Another distinguishing feature of PPPs is the integration of the design and construction process with the operation and maintenance of completed facility. Common arrangements include:

- **PFI** – Private Finance Initiative; where the government moves away from its traditional finance, ownership and operation role to purchase of services from the private sector (Oyegoke, et al, 2009). In the UK, this form of PPP which is used most frequently, became notorious for its waste, inflexibility and lack of transparency, and in November 2018, the government announced that it will no longer PFI arrangements (UK Government, 2018)
- **DBO** – Design Build Operate
- **BOO** – Build Own and Operate
- **BOOR** - Build Own Operate and Remove
- **DBOM** - Design Build Operate and Manage
- **BOT** – Build Operate and Transfer
- **BOOT** - Build Own Operate and Transfer
- **DBFO** – Design Build Finance and Operate
- **DBFOM** - Design Build Finance Operate and Manage

4.4.1.5 Partnering

This is a relational procurement route involving a long-term commitment between two or more organizations for the purpose of achieving specific business objective by maximizing the effectiveness of each participant’s resources (Ogunbiyi, et al, 2012). Partnering relies on the principle that co-operation is a more efficient method of working and introduces trust and teamwork into the construction process, commitment to common objectives, and a shared focus on the project and on how it may best be delivered, seeking solutions to problems and removing adversarial attitudes that results where parties are driven by their independent objectives (Ramus, et al, 2006; Ashworth & Hogg, 2007).

4.4.2 Categorisation of Construction Procurement Routes

Oyegoke, et al (2009) reviewed twenty years of building projects procurement routes in the UK based on organisational, contractual, financial and technical issues and categorised procurement methods in the following four ways:

1. Categorisation based on the ways projects are organised
2. Categorisation based on financial issues
3. Categorisation based on conditions of contracts

4. Categorisation based on management process, relational contracting and integrated working arrangements

The segregation of procurement routes into the above categorisation in the context of public sector construction procurement was depicted graphically by Howes & Robinson (2005) drawing from Miller (2002). It developed public sector construction procurement framework that recognise varying degrees of public sector control and range of solution involving private participations, and also the level of integration between various actors in the process.

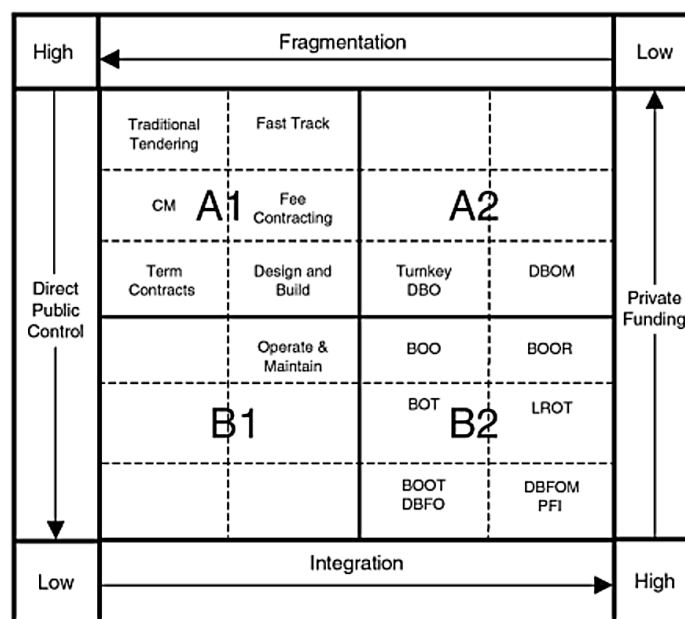


Figure 4.1 – Public Sector Construction Procurement Framework (Howes & Robinson, 2005, pp. 120)

Sector A1

The procurement routes in this category rely more on government funding and various degree of fragmentation between the actors in the process: design, construction, operation and maintenance. It is argued that fragmentation provides the government greater procurement decision making flexibility but imposes greater demand on project management.

Sector A2

Procurement routes in this sector retain the principle of high government control but with greater integration by way extending the design and construct role of the contractor to include operation of the completed facility.

Sector B1

The only procurement route in this sector the pure Operate and maintain which represent high fragmentation and low public control.

Sector B2

This sector contains the procurement routes where integration and private finance are the driving factors with the existence of less public control

4.4.3 Modern issues in Construction Procurement

A number of modern concepts and techniques has evolved over the years in response to perennial short comings of traditional method of construction practices. These include Lean Construction, Building Information Modelling (BIM), Sustainability, etc. Naoum & Egbu (2015) asserts that sustained implementation of these principles can go a long way towards combating traditional construction problems.

Naoum & Egbu (2015) reviewed selected papers from a wide range of well known major academic journals in construction and explored the link some modern issues in constuction such as Buildability, Supply Chain Management, Innovation, Lean Construction, Sustainability, Value Engineering, E-Procurement and BIM may have with construction procurement methods. Table 4.1 provides a summary of the relationship these modern issues.

Table 4.1- Modern Construction Issues and Procurement (Source: Naoum & Egbu (2015, pp.8-11))

Modern Construction Issue	Description/Key Attributes	Attributes of Supporting Procurement Strategy	Best Equipped Procurement Route
Buildability /Constructability	Buildable design leads to savings in time, cost and cost of change; better project performance.	Integrated design and construction; non-confrontational relationship; support of innovation.	Integrated routes: e.g. Design & Build, Project Management.
Supply Chain Management	Minimisation of transaction cost and the enhancement and transfer of expertise between parties.	Organisational framework that deal with cultural issues and fragmentation of building process.	Management oriented procurement routes.
Innovation	Application of new sciences and solutions to construction that lead to improved quality, reduce cost and speed up construction process.	Integration of design and construction.	Integrated routes: D & B, Management contracting, Project Management, Partnering, PPP, PFI.
Lean Construction	Aims to meet Client's requirements through innovative techniques that focus on Waste reduction, Process optimisation, End user focus, Continuous improvements, Co-operative relationships and System perspective.	Co-operation; Integration of design and construction; Long term relationship.	Relational type route: e.g. Partnering
Sustainability	The meeting of a Client's need that achieves value for money and real term benefits while minimising damage to the environment.t	Close collaboration; Integrated design and construction; Long term perspective; Innovation; non-cost-based management.	Partnering
Value Engineering	Team based systematic approach to deliver a project with the required functions at optimum whole life cost without being detrimental to quality, performance and reliability.	Integrated design and construction; Team work; Innovation; collaboration; Early contractor involvement.	Management Contracting; Partnering
E-Procurement	The use of information systems to facilitate the integration of supply chain, simplify and speed up procurement practices.		Most procurement route except Partnering
BIM	The use of information technology to improve productivity, manage and maintain information generated throughout the lifecycle of buildings more efficiently.	Collaboration; Team work; Knowledge sharing.	Management Contracting; D&B; Partnering

It could be inferred generally, that these modern concepts are better supported by construction procurement routes with integrated design and construction, that are longer term in nature and supports co-operation, teamwork and collaboration among actors involved. There is a clear general shift away from the traditional procurement route for construction project, but this cannot be said of the Nigerian Construction industry where the traditional method continue to dominate, especially for the public sector (Ayangade, et al, 2009; Babatunde, et al, 2010; Dada, 2012). Ekung, et al, (2013) expressed concern over an increasing recourse to the use of one or two procurement strategy for all project circumstances based on familiarisation, which it opined is related to poor performance witnessed in the Nigerian Construction industry. In support of this view, Bima, et al (2015) concluded that Nigerian construction industry still have a “long way to go” in terms of embracing modern procurement strategies. Ekung, et al (2013, p. 662) also accused the PPA (2007) rules of “typecasting single procurement strategy for every project circumstance”. This seeming inability of the PPA (2007) in supporting the use of a wider range of procurement routes could underlie its underperformance on its aim for the achievement of value for money.

4.5 Example International Procurement Best Practice Systems

The Nigerian PPA (2007) according to Udeh & Ahmadu (2013) is representative of international standard and best practices. Fayomi (2013) also affirms that this model law which the PPA (2007) conforms with has been proven to be effective in a number of countries including Lithuania, Estonia and Tanzania. However, evidence from literature supports the view that the PPA (2007) is making limited impact in terms of its aim of achieving value for money, especially so in construction procurement. The limited impact of the law may very well lie within its implementation. Oyebamiji (2018) established that public entities in Nigeria comply with PPA (2007) but suggests that they lack ‘structures and facilities’ to ease procurement process. If the PPA (2007) is to better realise its objective of achievement of value for money, there may be the need for an implementation procedural framework for effective implementation toward the achievement of value for money objective of the Law. The sections that follow, reviews two international perspective on public procurement best practices to study what can be learnt from other well-established systems.

4.5.1 Performance Information Procurement System (PIPS)

PIPS is a procurement method whose development and introduction are credited to Dean Kashiwagi of the Performance Based Studies Research Group of Arizona State University, USA (Duren & Doree, 2008). The method aims to select the most suitable contractor for the job, to spur this contractor on to highest performance, as well to reduce the client's management and control tasks (Kashiwagi, 2001, 2003, 2006 – cited in Duren & Doree, 2008). PIPS method is based on a “best value” criteria, comprising a process where both price and performance are considered instead of just price alone. Kashiwagi, et al (2009) described the best value environment as where procurement risk is reduced by selecting top performing contractor whose expertise is properly align to the procurement need, predominantly through an information-based system which makes predictions about expected result based on performance. The system assumes that high performing contractor has minimal technical risks.

Duren & Doree (2008, p.928 -929) Summarized the essential steps of the PIPS method as follows:

- Defining the project in terms of functional scope and challenge contractors to deliver clever and “fit for purpose” solutions;
- Giving the contractors insight in the maximum budget for the required functionalities, and challenging them to offer maximum value for money;
- Collecting and using information about contractors' past performance;
- Creating a process to rank contractors and select the top performer based on past performance, current capability, price, risk management and quality of key personnel;
- Transferring responsibility for minimizing and managing project risks to the contractor;
- Allowing the contractor to manage his own performance, based upon the minimized risks;
- Monitoring the contractor's performance from a certain distance, using the supplied weekly risk number reports; and
- Awarding the contractor, a post-construction rating that influences future chances within tender processes.

PIPS implementation follows in 3 major phases (Kashiwagi, et al (2009));

1. Phase I: Selection of the best value vendor.
2. Phase II: Pre-award/pre-planning and creation of risk management plan (RMP) and the weekly risk report (WRR)
3. Phase III: Project delivery by risk management of deviation of time and cost.

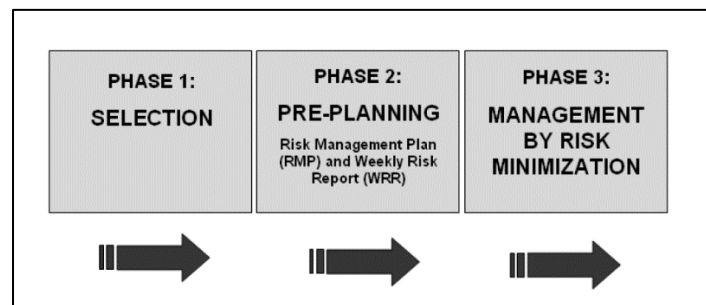


Figure 4.2- PIPS phases (Kashiwagi, et al 2009)

Additionally, PIPS method consists of six steps, each built around a specific “filter”, which focuses on a different element to separate high from low performing vendors. Four filters are employed to select the best contender, while two are related to project control (Duren & Doree, 2008)

Kashiwagi, et al (2009) explained the six major filter ensure performance as follows (Figure 4.3 & Figure 4.4 below):

1. Requires the vendors to prove the capability of the company through documented past performance including the performance of critical personnel (project manager/lead designer), and critical sub-vendors (engineering and professional consultants).
2. Requires the vendors to understand the general scope of the project in terms of requirements and technical risk in a concise, short, overview (a two-page submittal).
3. Risk Assessment/Value Added (RAVA) submittal that forces the vendor to identify the risk that the vendor does not control, and how they will manage and minimize that risk. It also asks the vendors to document dominant added value being offered

by the vendor (that is not in the client's specified scope and will create a dominant difference in project value) that makes them different from their competitors.

4. The interview of the critical personnel of the vendor to identify the person's relative vision, ability to predict things before they occur, and their capability to be accountable.
5. Prioritization of the best value based on the capability to perform (the past performance information, scope rating, RAVA rating, and interview rating and price).
6. Pre-award Phase where just the best value vendor creates a risk management plan (RMP) and a weekly risk report (WRR) that they will use to manage and minimize the deviation of the project.
7. Project Award.
8. Self-regulation of the construction project, utilizing the baseline plan, and minimizing the cost and time deviation from the baseline plan.
9. Final project rating of the entire team based on managing and minimizing the deviations in the project and final customer satisfaction of the client.
10. Modifying the contractor's team's performance by 50% based on the results of the recently completed project.

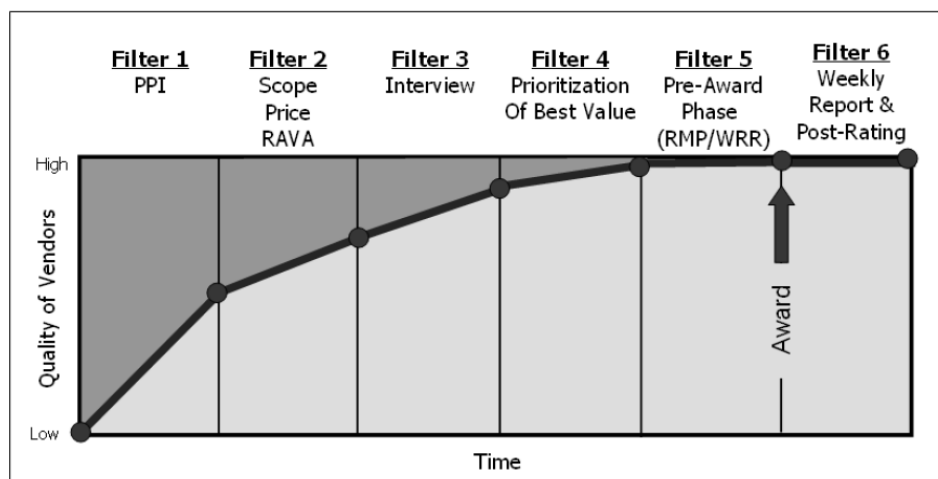


Figure 4.3 - PIPS Filters (Kashiwagi, et al (2009))

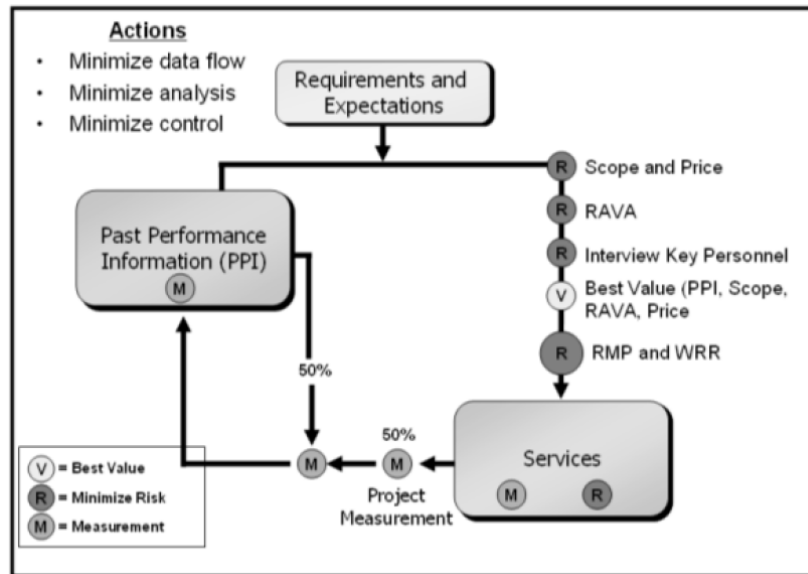


Figure 4.4- PIPS Self-Regulating Closed Loop (Kashiwagi, et al (2009))

PIPS is claimed to have been applied over 400 times and project success rate proven to surpass the traditional system of selection based on price competition only (Kashiwagi, 2011). Duren & Doree (2008) tested PIPS success claim on projects over the traditional system and concluded that:

1. PPIPS significantly showed better result regarding time and budget compared to the traditional system
2. Charges for extra works by the contractor under the PIPS method was more an exceptional unlike the custom in traditional projects.
3. PIPS clients are substantially more satisfied
4. Contractors rise to the challenge offered by the client to deliver creative solutions with extra value
5. Within a suitable project of certain minimum size, a reduction of client effort is possible
6. PIPS tenders lead to more value for money for the client

4.5.2 OGC Gateway™ Review Process

The OGC Gateway™ Process is a programme and project delivery methodology which examines programmes and projects at key decision point in their lifecycle.

OGC Gateway Reviews deliver a peer review in which independent external practitioners use their experience and expertise to provide Senior Responsible Owners of a program/project timely, independent and confidential advice at key decision points regarding progress and likelihood of delivery success using series of interviews, documentation reviews and team experience to provide valuable additional perspective on issues facing the project team (OGC, 2007). It is a part of an assurance framework to ensure programmes/projects achieve their targeted aims.

OGC Gateway Reviews are applicable to a wide range of programmes and projects, including (OGC, 2007):

- policy development and implementation
- organisational change and other change initiatives
- acquisition programmes and projects
- property/construction developments
- IT-enabled business change
- procurements using or establishing framework arrangements

OGC (2004) Gateway Process™ contain six well-defined, standardized and documented Gateways. Gateway Review 0 looked at strategic management at the programme level, and Gateways 1–5 at the project level, covering different stages of the project life-cycle (Williams, et al, 2010). At the project level, three Gateway reviews are carried out before contract award and two looking at service implementation and confirmation of the operational benefits (OGC Best Practice). A project is reviewed at the OGC Gateway Review appropriate to its lifecycle. Retrospective or combined OGC Gateway Reviews are not supported. There may be additional OGC Gateway Reviews if required, such as the decision points between OGC Gateway Reviews 3 and 4 for construction projects. The process emphasises early review for maximum added value (OGC Best Practice)

Figure 4.5 is an overview of the OGC Gateway Review process showing decision points appropriate for each review.

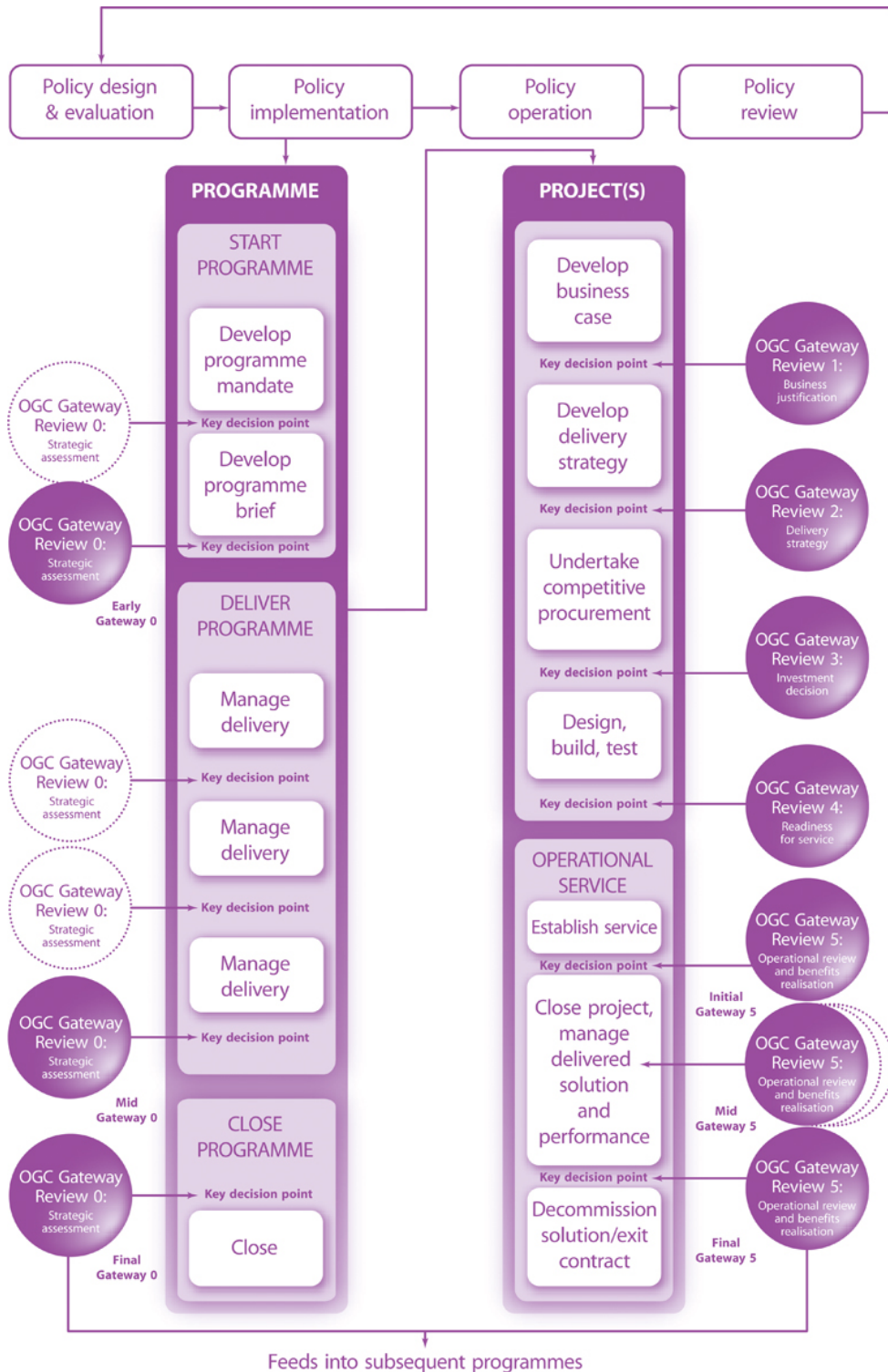


Figure 4.5 - Overview of the OGC Gateway™ Process (OGC, 2007)

According to OGC (2007), the OGC Gateway Process provides support to Senior Responsible Officers (SRO) in the discharge of their programme/project responsibilities to achieve their business aims, by helping the SRO to ensure:

- the best available skills and experience are deployed on the program or project

- all the stakeholders covered by the program/project fully understand the program/project status and the issues involved
- there is assurance that the program/project can progress to the next stage of development or implementation and that any procurement is well managed in order to provide value for money on a whole life basis
- achievement of more realistic time and cost targets for programs and projects
- improvement of knowledge and skills among government staff through participation in Reviews
- provision of advice and guidance to program and project teams by fellow practitioners.

4.6 Chapter Summary

The public sector engages in the procurement of construction projects to create physical infrastructures which play vital role in economic and social well-being of the public they govern. Also, value could be created through the procurement process itself. There are diverse construction procurement arrangements available to the public sector to realise its project objectives. However, the choice of which procurement route to take is not an easy one to make and is often determined by many project variables. There is a procurement strategy best suited for a given set of project variables, but there is no one strategy that is best for all cases. A viable procurement strategy should be one that effectively manages the challenges posed by generic and specific project variable. Procurement of public-sector projects in a way that will improve the opportunity for the achievement of value for money should embody a procurement strategy best suited for its unique characteristics.

From the reviews, integrated and relationship-based procurement arrangements appear to be more responsive to the traditional underperformance challenge of the construction industry unlike the traditional fragmented approaches. Also, with increased participation of the private sector and proliferation diverse PPP arrangements, public sector procurement of infrastructure is shifting focus from the traditional government provision of asset to purchase of service by the government from the private sector. However, the realities of public sector construction procurement in Nigeria as contained in extant literature suggest that these approaches to procurement are not well embraced. The traditional fragmented approach continue to dominate, and concern is expressed over an increasing recourse to the use of one or two procurement strategy for all project circumstances based on

familiarisation. Some authors believe that the Nigerian construction industry still have a “long way to go” in terms of embracing modern procurement strategies. There is also the perception that the PPA (2007) rules may have instituted a single procurement strategy for every project circumstance. This seeming inability of the PPA (2007) in supporting the use of a wider range of procurement arrangements could underlie its underperformance on its aim for the achievement of value for money.

The Nigerian PPA (2007) as a procurement regulatory framework meets international standard. The reason for its underperformance on the aim for the achievement of value for money is not evident from existing literature. Review of international perspective on public procurement best practices reveal promising implementation methodologies from which lessons could be learnt. The PIPS framework has proven process which may satisfy PPA’s legal requirement for competition and yet help secure a procurement contract based on best value criteria comprising both price and performance considerations, rather than the problematic lowest-bid selection criteria. Also, the OGC Gateway™ Review Process methodology has potentials to aid the procurement process early stage reviews that could improve the achievement of value for money. Overall, the lessons that can be learnt from these international examples includes the implementation of procurement arrangements that has:

- a shift from price/cost-based decision criteria to a value-based criterion;
- a shift towards integrated/collaborative teams;
- longer-term, whole-life perspective; and
- in-built continuous improvement mechanism.

Chapter 5

Public Procurement Procedure and Implementation issues in Nigeria

5.1 Introduction

Challenges affecting the performance of Public Sector procurement has been attracting attention of researchers of late world over. According to Olatunji, et al, (2016), Public Procurement Acts of most developing nations have not been able to achieve their desired purpose partly due to the challenges faced by the stakeholders in the implementation of the Acts, because of their economic, social and political environment. The Nigerian Public Procurement Act (2007) was enacted to remedy the weaknesses of procurement regime before it. Onyema (2011) described public procurement practices before the PPA (2007) as unprofessional, inefficient and ineffective. This view is generally held in existing literature, including Olatunji (2008), Ezeh (2011); Aladeloba (2012), Shwarka and Anigbogu (2012). Mansfield, et al, (1994) investigated the causes of delay and cost overruns in Nigerian construction projects and procurement related issues were concluded as top causes, including (p. 259); financing and payment for completed works and poor contract management amongst others. Post PPA (2007), evidence from literature suggest little or none has changed.

Amongst the objectives of the PPA (2007) is to deliver Value for money for the Nigerian taxpayer in government procurements. Many years later, especially for the public procurement of construction, there is limited evidence in existing literature that suggest the PPA (2007) is achieving its objective of achieving value for money for the Nigerian taxpayers. The reality for construction projects would suggest limited scope of achievement in term of value for money. Bima, et al (2015) opined that the enactment of PPA (2007) have not improved the level of construction industry performance.

Why the PPA (2007) is failing to fully realise its aim of achieving value for money for Nigerian taxpayers in its regulation of construction procurement is not evident from existing literature. What is the root cause of this problem and why are the provisions of the PPA (2007) failing to mitigate them? PPA (2007) is a descent of UNCITRAL model law and according to Udeh & Ahmadu (2013) is representative of international standard and

best practices. The minimal impact of the law may very well lie within its implementation or lack of it. Amemba, et al, (2015), suggest that poor performance of public sector procurement results from non-adherence to laid down process and procedure. Paradoxically, Ekun, et al, (2015) opined that for construction procurement, adherence to public procurement law contributes to the difficulties that impede the selection of an appropriate procurement strategy.

Consequently, this Chapter presents a review of existing literature on the challenges with the implementation of the PPA (2007), exploring what is currently known and the knowledge gaps that exists. But first, brief overview of the public procurement procedure in Nigeria.

5.2 Public Procurement Procedure in Nigeria

All procurement by the Nigerian public sector and other sectors where public contribution to funding is up to 35% of the total fund must follow the provisions of the PPA (2007). There are no separate set of rules for construction procurement distinct from those of other forms of public procurement, as such literature sources dealing with PPA (2007) implementation rarely made distinction between construction procurement and other forms of public sector procurement. The principle of the PPA (2007) as stated in its section 16 is to institute a procurement regime that is transparent, timely, and equitable for ensuring accountability, with the aim of achieving value for money and fitness for purpose; in a manner which promotes competition, economy and efficiency. Pursuant to these principles, the rules on procurement method (or procurement contract award procedure) and the conditions for their use is provided in sections 24 to 38. Udeh & Ahmadu (2013) identified the main procurement methods prescribed by the PPA (2007) as:

1. Open competitive tendering
2. Two-stage tendering
3. Restricted tendering
4. Request for quotation, and
5. Direct procurement

Default procurement method for procurement of goods and works is the open competitive tendering method where the Act provide in section 24 that all procurement of goods and

works shall be conducted by open competitive bidding except where the Act states otherwise.

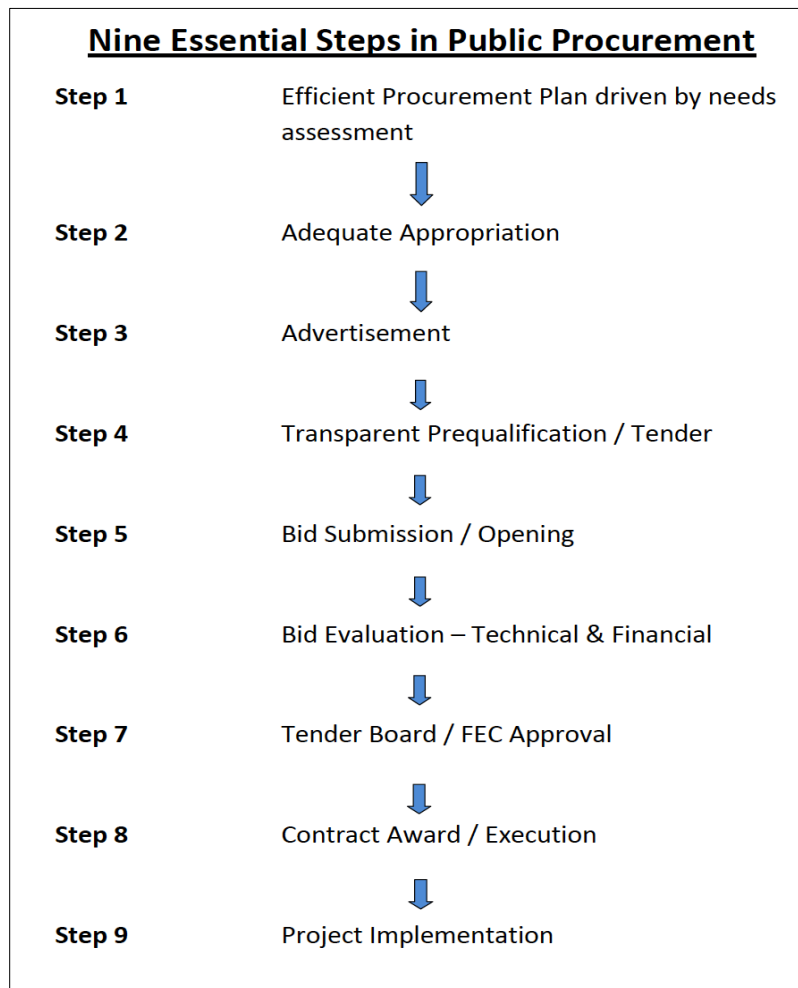
The Bureau of Public Procurement (BPP), a government agency established to oversee the implementation of the provision of the Act and formulate general policies and guidelines relating to public sector procurement exercise a lot of influence in the public procurement procedure in Nigeria. According to the Law, no public procurement contract above a certain monetary threshold, provided from time to time by BPP, may proceed without BPP's prior review and issuance of "Certificate of No Objection". In 2019, this monetary threshold, as published on the BPP's website, was fixed at NGN500 million (approximately USD1.4 million) for construction contracts. BPP also formulates general procurement policies. Section 3.3 of the public procurement procedure manual issued by BPP states that there are five basic concerns that govern its procurement policies (BPP, 2011):

- i. To ensure that goods and services needed are procured with due attention to economy and efficiency;
- ii. To ensure that public fund is used to buy only those goods and services needed for national development;
- iii. To give all qualified bidders an equal opportunity to compete for contracts;
- iv. To encourage development of local contractors and manufacturers; and
- v. To ensure that the procurement process is transparent.

BPP pursuant to its function produced Procurement Procedure Manual, Standard Bid Document for standardisation and from time to time publishes market price information on their websites to encourage transparency. Procurement procedure recommended by BPP comprising nine essential steps in public procurement is shown in Figure 5.1 below.

This "Nine Essential Steps in Public Procurement" promoted by BPP, could have its implication for the strategy a construction procurement will follow. The steps pre-suppose that at the time bidders are invited to join the process, a good idea of what is to be built is known and budgetary appropriation adequate for the project has been set aside. Jibrin, et al (2014) and Ezeh (2011) identified skill shortages as one of the challenges facing public sector procurement. For a Public Sector organisation where the skill set required for these early steps are lacking, a separate design and procurement planning stage has to be outsourced, cascading the procurement process into a separate stage akin to the traditional

design-bid-build procurement route. Correspondingly, Ekung, et al, (2013) suggests that adherence to rules of public procurement law contributes to the difficulty of selecting an appropriate procurement route for public sector construction. Existing body of knowledge, however, underscores the point that no single procurement method is applicable to all project situations and no one procurement route is a fit-for-all project circumstance.



*Figure 5.1 - Recommended Public Procurement Procedure
(Source: www.bpp.gov.ng)*

Opinions in literature on how successful the implementations practice of the PPA (2007) rules has helped improve public sector procurement, has remains mixed. For example, while Nwogwugwu & Adebayo (2015) and Udeh & Ahmadu (2013) both conclude that the enactment of the PPA (2007) has not brought about a clean and transparent system of public procurements for Nigeria as envisioned, Achilike & Akuwudike, (2016) claim that the procurement process instituted by the PPA (2007) has to “a reasonable extent” succeeded

in eliminating some contracting malpractices such as sale of contract paper to touts, sycophancy and nepotism. This assertion was based on the paper's analysis of the opinion of 548 public procurement practitioners where it computed a mean score of 3.67 on a 5-point scale, the extent to which practitioners agree that the contract award mechanism instituted by the PPA (2007) allow participation by reputable, competent and reliable contractors. And also, a mean score of 3.28 on a 5-point scale, the extent to which the practitioners agree that the PPA (2007) has established transparency and fair play in contracting procedures. Achilike & Akuwudike, (2016) sample was drawn from only the South-East region of Nigeria and therefore, their findings may not be representative of the entire country. So, it would appear that while the PPA (2007) has made noticeable contributions in reversing some ills that existed before it, more seem to be expected of it.

5.3 Public Procurement Act (2007) Implementation Issues in Nigeria

The PPA (2007) created a system where international best practice can thrive, however, some challenges remain. Jibrin, et al, (2014) concludes that although there has been significant improvement on awareness of the existing public procurement law, there remain low level of success in implementation and compliance. Existing literature document many matters of concern with PPA (2007) implementation. Examination of these implementation issues, challenges or problems as one may put it, indicate that they can be categorised to matters whose driving force is exogenous to the provision of the procurement Act and others endogenous in nature. What is not generally evident from the literatures, however, is whether these implementation challenges are the causation factors limiting the achievement of value for money aim of the PPA (2007).

5.3.1 Exogenous Implementation Issues

Implementation challenges exogenous to the provisions of the PPA (2007) includes procedural bottlenecks and issues with compliance. Ekung, et al (2015) affirms that there are concerns arising from procedural gaps which continue to challenge efficient public procurement of construction projects. This view is also supported by Bima, et al (2015) who opined that the PPA (2007) is bedevilled by challenges resulting from lack of widespread knowledge of the processes, blatant refusal to comply by some and political interference amongst other factors.

Ekung et al (2015) studied procedural and administrative impediments in public procurement practice in Nigeria which pose challenge to efficient public procurement of construction projects. Its findings can be summarised as follows (p. 207);

- Lack of information disclosure by procuring entities which could make it difficult for vendors to fully assess risks
- Excessive documentation burden on vendors. This could be related to a selection procedure that attach importance to weighted information, evidences and arguments than output. And also, apparent inability of procuring entities to retain suppliers who have previously supplied documentations that are still valid.
- Excessive administrative burden on the procuring entity related to limited use of Information and communication technology (ICT).

On its part, Jibrin, et al (2014) identified challenges to effective implementation and compliance with PPA (2007) to include:

- limited transparency of the procurement process,
- shortage of technical competence,
- refusal of the Legislative arm of government to submit to the rules of PPA (2007) in its own procurements,
- poor ethical and moral standards and
- lack of political will to prosecute violators of the Act.

These views are further echoed by findings of Manu, et al, (2018). Their survey of the opinions of public infrastructure procurement personnel found that challenges related to transparency, integrity and accountability are amongst the topmost challenges adversely affecting the effectiveness of public infrastructure procurement.

Similarly, Nwogwugwu & Adebayo (2015) also identified challenges to Public procurement processes to include:

- Sabotage,
- Political interference,
- budgeting and funding issues,
- Proxy contracting and

- unprofessionalism of government agents.

The challenge of political interference in the form of influencing contract awards for public construction projects was identified by Abdullahi, et al, (2018) as one of the major compliance barriers affecting the cost performance of construction projects in Nigeria. Their study of construction projects in Nigerian Federal universities observed that contract sum of the projects awarded based on influences either within or outside the procurement entities tended to be irrationally high. This was also linked to challenge of weak enforcement of public procurement guidelines.

William-Elegbe (2014) pointed out that public procurement process in Nigeria focus excessively on fighting financial corruption at the expense of efforts to ensure goods, works and services are of the required quality and delivered at the required time frame. It also confirmed deep rooted interest by politicians and lack of professional capacity of procurement officials as the challenges opposing PPA (2007) implementation in Nigeria. Anago (2011) also confirmed procurement skill shortages and adds deliberate act of sabotage and documentation bottlenecks which cause delays as the challenges experienced in the implementation. Manu, et al, (2019) found ‘acute’ deficiencies in the organisational capacity within States and Local authorities involved in procurement of public infrastructures which it opined could be linked to low attainment of public procurement objectives. While Manu, et al, (2019) survey focused on States and Local authorities, where exact provisions of the PPA (2007) does not necessarily apply, its findings appear to echo earlier opinions of Anago (2011) and William-Elegbe (2014) on procurement organisational capacity problems of the Federal government agencies.

Onyema (2011) on its part identified the following as challenges plaguing the implementation of PPA (2007);

- Financial corruption. Citing experts in public expenditure management, it stated that official corruption in various forms and degrees in Nigeria reduces value for money and public procurement economy by about 40%.
- Political interference
- Sabotage by procuring authorities who exploit loopholes in the rules
- Inefficient and ineffective structure of procurement cadre in the civil service
- Inability to successfully prosecute offenders

- Funding delays; late passage of annual appropriation budgets
- Poor screening of the technical and financial capabilities of contractors

Correspondingly, Ezeh (2011) lists the challenges facing the implementation of PPA as follows:

- Political interference and corruption
- Political authorization
- Legislative support
- Institutional resistance
- Skill and competence gap
- Capacity building for procurement officers
- Compliance monitoring by stakeholders, eg. Civil society groups, NGO, Professional bodies
- Late budget Approval vs. Slow start of Procurement process
- 12 months budget cycle vs. 3 – 5 year project life span
- Poor project execution and supervision
- Lack of integrity

Bodunrin (2016) review of challenges and prospects of public procurement practice in Nigeria suggests the existence of multiple procurement guidelines and procedures, overt emphasis on procurement of manpower, the fear of vigilance, poor quality training and lack of centralized data sharing facility etc.

Olatunji, et al, (2016) and Adewole (2014) suggests that the federal system of government in Nigeria which gives the 36 States and 774 Local Councils some degree of fiscal autonomy is responsible for the lack of wide scale application of the procurement Law. The States and Local Council governments combined account for 52% of National expenditure in Nigeria. Adewole (2014), however, added that some states did eventually enact procurement laws of their own, but analyses indicate they differ “substantially” and have “reduced veracity” when compared with PPA (2007). Adewole (2014) blamed this challenge of wider applicability of the PPA (2007) across all tiers of government on the following (p. 30-31):

- Lack of political will to initiate development change among political leaders

- Absence of strong and compelling institutions to compel and drive wider applicability
- Wide spread corruption amongst public officials who are threatened by the law
- Private citizen's inability to get involved and demand accountability; and
- Low level commitment to corruption war by the Nigerian political class

Familoye, et al, (2015) collated sixteen (16) public procurement challenges from literatures in Nigeria, elsewhere in Africa and around the world and assessed them to determine the most significant in Nigeria by survey of the opinion of construction professional involved in public procurement. By computing mean item score from a multi-choice questionnaire structured on a 5-point Likert type scale, it concluded that the top three challenges considered by practitioners as most significant affecting the implementation of PPA (2007) are (p.966):

- Size and complexity of procurement
- Political interference by the executives [arm of government]; and
- Shortages of procurement practitioners

Familoye, et al, (2015) however, did not provide evidence towards what can be concluded in terms of the ability of the PPA (2007) towards achieving its stated aims on account of these implementation challenges.

5.3.2 Endogenous Implementation Issues

Aside procedural and compliance issues with implementation, some authors also criticize some rules set by the PPA (2007). Olatunji, et al, (2016) and Ekung, et al, (2015) are concerned with the limitation imposed by the Act on methods of tendering especially for construction projects. Ekung, et al, (2015) sees a weakness in public procurement that is due to strict requirement for open and restricted procedure, which results to low level use of negotiated procedure with a viable economic vendor. It further opines that the PPA's rigid rule for price competition make it near impossible for price negotiation with a vendor whose competence has been previously proven and established in another job. Ekung, et al (2015), therefore, advocated for greater flexibility arguing that flexibility in public procurement regulations is being embraced globally. Olatunji, et al (2016) on its part suggests that this limitation makes it difficult for procurement official to respond adequately to unique requirements of some projects.

Similarly, the rules for open competitive bidding and lowest-bid selection criteria as prescribed in section 24(1-3) of the Act has been attributed to some procurement related project failures. Notwithstanding that Procurement Procedure Manual issued by BPP clarify that lowest-bid selection criteria are not just about the lowest initial price as this may not equate to lowest cost over the operating life of the item procured (BPP, 2011, p. 3). In addition, Section 33(2) of the Public Procurement Act (2007) stated that “provided a procuring entity can show good grounds derived from the Act”, lowest cost bidder need not be the winning bid. The reality in practice however, as studies suggests, is that bidders are more concerned about “being the lowest bidder” than being “the responsive and responsible bidder” (Ade-ojo & Babalola, 2013, p.1). It has been suggested also, that this approach to bid selection, although convenient, often lead to project abandonment, as contractor tend to offer unrealistic low prices just to win contracts (Olatunji, et al, 2016). Olawale & Sun (2010) and Olatunji (2008) both cited the lowest bid selection criteria as the leading cause of time and cost overrun of projects in Nigeria. Similarly, Dekel & Schur (2013) and Waara & Brochner (2006) – both cited in Ekung, et al (2015) found a significant correlation between lowest bid and failure of construction projects. This notwithstanding, lowest evaluated bid continues to be the dominant criterion for award of public procurement in Nigeria (Olatunji, 2008; Aladeloba, 2012). According to Anvuur et al, (2006), dominant reliance on price-based selection criteria limits the scope of value for money achievable. A move away from a wholly price-based selection criteria is essential.

It could however be argued in defence of the Act, that following the BPP’s recommended procedural steps for public procurement, the lowest-bid selection criteria appear intuitively not a problem because the lowest bidder ought to have been previously pre-qualified as competent for the job in the procurement steps preceding the eventual selection of a contractor.

A further challenge to implementation of PPA (2007) especially to construction procurement which may be considered endogenous relate to the selection of an appropriate procurement method or strategy. There is a consensus among researchers that selection of appropriate procurement method can shape the success of an individual project, and that no one procurement method is likely to be better than others for any type of project (Naoum & Egbu, 2015; Ogunsanmi, 2013; Muriro & Wood, 2010; Love, et al, 2008). However, research has shown that the dominant construction procurement method in the Nigerian

public sector has remained the traditional design-bid-build method despite its obvious weaknesses when compared with other integrated procurement methods (Ayangade, et al, 2009; Babatunde, et al, 2010; Dada, 2012; Mohammed & Dahiru, 2012; Oladinrin, et al, 2013). Olatunji, et al, (2016) suggests that the provisions in the Act failed to make a distinction on methods of procurement for construction and specialised project from that of goods and services despite the uniqueness of construction. Ekung, et al (2013, p. 662) accused the PPA (2007) rules of instituting inefficiencies by “typecasting single procurement strategy for every project circumstance”. Bima, et al (2015) concluded that Nigerian construction industry still have a “long way to go” in terms of embracing modern procurement strategies.

Furthermore, Olatunji, et al, (2016) identified some shortcomings of the PPA (2007) which it referred to as “loopholes”. These relate to the provisions in the Act about persons charged with various procurement responsibilities. It is concerned about the non-stipulation of a minimum professional and academic qualification criteria for those who can be or act as procurement manager or serve in procurement committees. This arguably could lead to procurement personnel competence issues. It is worthy of note however, that the Bureau of Public Procurement (BPP) mitigate this by running regular trainings for conversion to procurement officer’s cadre. Also, it argues that AEC (Architects, Engineering and Construction) professionals from the built environment were not included as those who will constitute the National Council on Public Procurement (NCP), a top procurement policy and decision body created by the PPA (2007). This implies that the main stakeholder in construction industry are neglected and this could impact effective project delivery.

5.3.3 Summary of Implementation Issues using the SLEET Methodology

From the discussion in the foregoing paragraphs, the issues with implementation of PPA (2007) are quite numerous and varied in their nature. There is therefore the need to reduce and organise them in chunks that could aid further understanding. This study chooses to conceptualise and discuss these implementation issues using the SLEET analyses methodology by categorising them based on their main drivers or enablers. Olatunji, et al, (2016) and Familoye (2015) both suggested that the challenges faced by procurement stakeholders, especially in developing countries relate to their economic, social and political environment.

SLEEPT is a mnemonic for Social, Legal, Economic, Environmental, Political and Technological units of analyses. According to Awodele, et al, (2012), creation of SLEEPT is historically attributed to the Centre for Risk Management and Research (CRMR) of the University of Salford as a tool for separately identifying drivers of a process. SLEEPT methodology has been successfully used in some published studies, for example Weththasinghe, et al, (2016), Awodele, et al (2012), Eaton, et al (2007) and Eaton & Akbiyikli (2005). Eaton & Akbiyikli (2005) especially used the methodology for analysis of the major risks related PFI projects. Similarly, PPA (2007) implementation issues can be construed to be risk factors that can limit the PPA (2007) from fully achieving its objectives and thereby make the desired impact, such as the achievement of value for money. In this instance, the object analysed bear close resemblance to the object analysed in Eaton & Akbiyikli (2005).

Other analyses frameworks based on drivers or enablers of a process exists such as PEST (Political, Economic, Social and Economic) analyses and PESTLE (Political, Economic, Social, Technological, Legal and Environmental) analyses. PEST and PESTLE are traditionally used in Strategic Management with focus mainly on external macro factors to the process or object analysed and therefore not favoured by this study to mitigate the misunderstanding that only factors exogenous to the PPA (2007) is being considered.

Table 5.1 and Table 5.2 are the summaries the categorisation of implementation challenges discussed above in paragraph 5.3.1 and 5.3.2 respectively using the SLEEPT framework. It is worthy of note from the categorisations that no PPA (2007) implementation challenge is driven by an environmental factor. Issues about geographic location, environmental protection, pollution and sustainability appear not to exist. While this may sound promising, it may not be unconnected to the poor attention being paid to sustainable development agenda in the construction processes within the developing countries (Oluwole, 2015). Also, there are few technologically or purely economically driven challenges. Majority of the challenges exogenous to the provisions of the PPA (2007) as found in extant literature are socially driven. These are mainly management, organisational and ethical or moral issues. On the other hand, examination of Table 5.2 indicate that PPA (2007) implementation challenges which may be categorised as endogenous to the provisions of the Act are mainly Legally driven. These relate to interpretation of the

provisions in the law which appear counterproductive in-terms of achievement of value for money or difficult to correctly implement in practice.

Table 5.1 - Exogenous Implementation Challenges of PPA (2007)

	SN	Factors	Reference
Exogenous Implementation Issues	SOCIAL		
	1	Lack of widespread knowledge of the processes of the Act by procurement stakeholders	Bima, et al (2015)
	2	Procurement personnel administrative issues; Inefficient and ineffective structure of procurement cadre/unclear qualification criteria for procurement cadre	Manu, et al, (2019); Olatunji, et al, (2016); Onyema (2011); Anago (2011)
	3	Skill shortages/lack of professional capacity and unprofessionalism of government agents	Bodurin (2016); Nwogwugwu & Adebayo (2015); Musa, et al; (2014); William-Elegbe (2014); Jibrin, et al, (2014); Anago (2011); Onyema (2011); Ezeh (2011)
	4	Delays caused by bureaucratic bottlenecks	Ekung et al (2015)
	5	Poor screening of the technical and financial capabilities of contractors	Onyema (2011);
	6	Contracting malpractices; such as proxy contracting, collusion, , etc	Nwogwugwu & Adebayo (2015)
	7	Limited transparency of the procurement process and inadequate Procurement requirement information disclosure by procuring entities	Ekung et al (2015); Musa, et al (2014); Jibrin, et al, (2014)
	8	Poor ethical and moral standards of procurement stakeholders	Manu, et al, (2018); Musa, et al (2014); Jibrin, et al, (2014); Ezeh (2011)
	9	Poor project execution and supervision	Ezeh (2011)
	10	Refusal to comply/Institutional resistance	Bima, et al (2015); A Musa, et al (2014); Adewale (2014); Jibrin, et al, (2014) Ezeh (2011)
	11	Deliberate act of Sabotage	Nwogwugwu & Adebayo (2015); Anago (2011); Onyema (2011)
	12	Scope and Complexity of procurement (Organisational)	Olatunji, et al, (2016)
	LEGAL		
	13	Excessive focus on curbing financial corruption at the expense of other procurement issues such as quality and timely completion	William-Elegbe (2014)
	ECONOMICAL		
	14	Poor budgeting and funding issues	Nwogwugwu & Adebayo (2015); Onyema (2011); Ezeh (2011)
	15	Financial corruption	Adewale (2014); William-Elegbe (2014); Ezeh (2011); Onyema (2011);
	POLITICAL		
	16	Political interference on the contractor selection process	Abullahi, et al, (2018) ; Bima, et al (2015); Nwogwugwu & Adebayo (2015); William-Elegbe (2014); Jibrin, et al, (2014); Onyema (2011); Ezeh (2011)
17	Lack of political will to prosecute violators of the Act/ Inability to successfully prosecute offenders	Abullahi, et al, (2018); Adewale (2014); Musa, et al (2014); Jibrin, et al, (2014); Onyema (2011)	
18	Lack of compliance monitoring by public stakeholders, eg. Civil society groups, NGO, Professional bodies; general public	Adewale (2014); Jibrin, et al, (2014); Ezeh (2011)	
TECHNOLOGICAL			
19	Lack of use of ICT, Lack of centralised Data and Excessive documentation burden on bidders	Bodurin (2016); Ekung et al (2015)	
20	Scope and Complexity of procurement (Technological)	Olatunji, et al, (2016)	

Table 5.2 - Endogenous Implementation Challenges of PPA (2007)

	SN	Factors	Reference
Endogenous Implementation Issues		LEGAL	
	1	Non-inclusion of AEC professional in procurement decision making boards	Olatunji, et al, (2016)
	2	Low level use of negotiated procedure viable economic vendor due to rules for price competition	Ekung et al (2015)
	3	Excessive focus on curbing financial corruption at the expense of other procurement issues such as quality and timely completion	William-Elegbe (2014)
	4	Lowest bid selection criteria leading to unrealistic bid amounts	Adejoh & Babalola (2013) Aladeloba (2012); Olawale & Seun (2010); Olatunji (2008);
	5	Limitations imposed on method of Tendering; default open competitive tendering method	Olatunji, et al, (2016); Ekung, et al (2013),
	6	Procurement rules that cascades to a single procurement strategy	Ekung, et al (2013)

As can be deduced from the summaries in Table 5.1 and Table 5.2, extant literature reveal that the implementation of the PPA (2007) is faced with many challenges. However, what is not evident in the literature is whether these implementation challenges are the causation factors limiting the achievement of value for money by the PPA (2007) regulation of procurement. The classification of these implementation issues based on their main drivers appear to indicate that they are mainly socially and legally driven. These comprise of management, organisational, ethical or moral issues, and issues with interpretation and implementation of the provision of the Law. These appear to be mainly transactional in nature, suggesting that further understanding of these challenges through the transactional paradigm of procurement could be beneficial. As earlier stated, how these transactional issues contribute to the underachievement of the PPA (2007) on its specific aim for the achievement of value for money is not evident from existing literature. This gives the opportunity for a more narrowed investigation, to discover how these challenges contribute to the limited impact of the law towards attaining its aim for the achievement of value for money for the Nigerian taxpayers, so that suggestions for improvement could be provided.

5.4 Limitations of Literature Sources and The Need for Further Investigation

Most literature sources focussing on the implementation challenges of the PPA (2007) rarely make clear distinction between construction procurement and other forms of public sector procurement. This may be connected to the reality that the PPA (2007) does not have

distinct set of rules for construction procurement only. Same set of rules which apply to procurement of works, also to the procurement of goods, despite the uniqueness of construction (Olatunji, et al, 2016). This lack of clear distinction in existing literatures pose the challenge of which PPA (2007) implementation issues as summarised in Table 5.1 and Table 5.2 can be presumed to affect construction procurement. To investigate this further, Table 5.3 is the summary of an additional scrutiny of the literature sources for the PPA (2007) implementation challenges summarised in Table 5.1 and Table 5.2. By taking a cue from the keywords provided by the authors and/or the study sample used for data collection, only 9 out of the 20 literatures sources were found to have a clear and distinct focus on construction procurement. These are: Manu, et al (2019); Abdullahi, et al, (2018); Manu, et al, (2018); Achilike, Akuwudike & Hilary (2016); Bima, et al, (2015); Ade-ojo & Babalola (2013); Ameh & Ogundare (2013); Ekung, et al, (2013), and Aladeloba (2012). Two other publications: Ekung, et al, (2015) and Familoye (2015), although not counted as clearly focused on construction procurement, the majority of their study sample were drawn from professionals in the built environment. Also, Anago (2011) and Ezeh (2011) featured in a conference proceeding organised by professionals in the built environment and therefore the articles could be written in the context of construction procurement. Overall, while majority of the publications listed in Table 5.3 could be considered not expressly focused on construction procurement, care needs to be taken in assuming that the findings and opinions expressed in these papers do not apply to construction procurement. This notwithstanding, there is the need for more investigations of these implementation challenges with clear focus on construction projects and under the heading of the achievement of value for money.

Table 5.3 - Summary of Literature Sources on PPA (2007) Implementation Challenges

S/N	Author	Publication type	Paper Keywords	Methodology/Data type & Sources	Focus on Construction?
1	Manu, et al, (2019)	Article in a Journal	Construction, Engineering, Infrastructure, Public procurement, Procurement capacity, Questionnaire survey	Survey; quantitative data from a structured questionnaire; Study sample: Public infrastructure procurement personnel	Yes
2	Abdullahi, et al, (2018)	Article in a Journal	Procurement guidelines, Enforcement, Cost, Performance, Nigeria	Survey; quantitative data from a structured questionnaire ; Study Sample: Construction procurement stakeholders and project parties	Yes
3	Manu, et al, (2018)	Article in a Journal	Procurement, Developing countries, Survey, Infrastructure, Sub-Saharan Africa, Procurement capacity	Survey; quantitative data from a structured questionnaire; Study sample: Public infrastructure procurement personnel	Yes
4	Bodunrin (2016)	Article in a Journal	Analysis, challenges, practices, public procurement and way forward	Literature Review; of secondary sources of Data – Journals, Articles, etc	No
5	Achilike, Akuwudike & Hilary (2016)	Article in a Journal	Nigerian construction industries, procurement process, public procurement, award of contracts, project failures and abandonment	Survey; quantitative data from a structured questionnaire.	Yes
6	Olatunji, et al, (2016)	Article in a Journal	Public Procurement Act 2007, PPA Challenges, PPA Loopholes, PPA Amendments, Nigeria	Literature Review; of secondary sources of Data – Journals, Articles, etc	No
7	Familoye, et al (2015)	Article in a Journal	Public Procurement, Challenges, Effective operation, Procurement Acts, Nigeria	Survey; quantitative data from questionnaire survey. Study Sample: government procurement administrators, construction contractors and built environment professionals	Not clear
8	Nwogwugwu & Adebayo (2015)	Article in a Journal	Integrity, Public Procurement, Transparency, Nigeria	Literature Review; of secondary sources of Data – Journals, Articles etc	No
9	Bima, et al, (2015)	Article in a Journal	Procurement, performance, construction projects, procurement strategy	Survey; quantitative and qualitative data from semi-structured questionnaire	Yes

Table 5.3 (Cont'd) - Summary of Literature Sources on PPA (2007) Implementation Challenges

S/N	Author	Publication type	Paper Keywords	Methodology/Data type & Sources	Focus on Construction?
10	Ekung, et al, (2015)	Article in a Journal	Administrative burden, Nigeria, Procedural parameters, Public procurement, Public procurement Act	Survey; quantitative data from questionnaire survey. Study Sample: procurement administrators, built environment professionals and contractors	Not clear
11	Adewole (2014)	Article in a Journal	Governance Reform, Procurement Law, Nigerian government	Literature Review; of secondary sources of Data – Journals, Articles etc	No
12	Williams-Elegbe (2014)	Article in a Journal	(Not provided)	Literature Review; of secondary sources of Data – Journals, Articles etc	No
13	Jibrin, et al, (2014)	Article in a Journal	Public procurement reforms, implementation, compliance	Literature Review; of secondary sources of Data – Journals, Articles etc	No
14	Ade-ojo & Babalola (2013)	Article in a Journal	Due Process, cost overrun, time overrun, performance, prequalification	Survey; quantitative data from construction projects.	Yes
15	Ameh & Ogundare (2013)	Article in a Journal	Construction, due process, Nigeria, project performance, public procurement	Survey; quantitative data from a structured questionnaire; Study sample: Professionals in the built environment	Yes
16	Ekung, et al, (2013)	Article in a Journal	Decision matrix, Nigeria, procurement strategy, partnering, selection, success criteria	Focus group discussions (comprising construction professionals)	Yes
17	Aladeloba (2012)	Conference Proceedings	Approval thresholds, Corruption, Due diligence, Financial bid, Prequalification	Survey; quantitative data from questionnaire survey; Study sample: Professionals in the built environment	Yes
18	Onyema (2011)	Article in a Periodical	(Not provided)	Literature Review; of secondary sources of Data – Journals, Articles etc	No
19	Anago (2011)	Conference Proceedings	(Not provided)	Literature Review; of secondary sources of Data – Journals, Articles etc	Not clear
20	Ezeh (2011)	Conference Proceedings	(Not provided)	Literature Review; of secondary sources of Data – Journals, Articles etc	Not clear

Further examination of the analysis in Table 5.3 also reveals that evidence from current literature on the implementation challenges summarised in Table 5.1 and Table 5.2 mainly relied on secondary literature sources or on practitioners' collective reflections and experiences across a number of projects over some period of time based on a quantitative survey. Therefore, there exists a knowledge gap, mainly due to the lack of evidence that is based on a real-life construction project context and lack of in-depth qualitative assessment. There is the need for a more in-depth study to get richer qualitative assessment and interpretation of experiences on a real-life project context of the implementation challenges faced by the PPA (2007) and how these challenges limit the scope of achievement of stated objectives, the risk factors that makes public construction procurement vulnerable to these challenges and how these challenges could be managed. An in-depth qualitative study with specific focus on the achievement of value for money objective of the PPA (2007) will provide an opportunity for a richer and more profound understanding of experiences on a project by project basis, and this could lead to suggestions on how future improvements could be made.

5.5 Chapter Summary

This chapter presented the review of existing literature on the challenges with the implementation of the PPA (2007) in Nigeria, exploring what is currently known and the knowledge gaps that exists. There are literature documentations of many challenges mitigating the effective implementation of PPA (2007). What is not evident from these literatures is whether these implementation challenges are the causal factors why the PPA (2007) is underperforming on its aim for the achievement of value for money. While there are implementation challenges which can be categorised as endogenous to the provision of Act, majority of the challenges were found to be exogenous in nature to its provisions. Also, further conceptualisation of these challenges using the SLEEPT analyses framework show that majority of the challenges are socially driven; mainly management, organisational and ethical or moral issues. If the PPA (2007) is to better realise its objective of achievement of value for money, there is the need for a procedural framework for effective implementation.

Overall, the review presented in this chapter has established following:

- Clear evidence that the PPA (2007) suffer from many implementation challenges. But unclear from the literature sources is whether these are responsible for the limited scope of achievement of value for money. This is due to the lack of supporting empirical evidence.
- Literature evidence mainly relied on quantitative analyses of primary data across projects.
- Lack of in-depth qualitative investigation and assessment of the application of the Law on construction procurement; and
- Lack of in-depth account of what happens on real-life projects under the heading of value for money.

Therefore, there is the need for an in-depth qualitative study understand the scale of these challenges on a real-life project and its implication to the achievement of value for money. This will hopefully lead to suggestions on how value for money can be better achieved.

Chapter 6

Research Methodology

6.1 Introduction

In the previous chapters, it has been established that the PPA (2007) has a limited scope of achievement in terms of its aim for value for money. Value for money is a phrase with an intuitive appeal, but its meaning for practical purposes is not consistent (Glendinning, 1988). However, it is generally agreed to mean deriving the best result possible from money spent with regards to a previously set objective. Value for money in the procurement of construction could imply the optimal use of resources to achieve the intended outcome; both tangible and intangible outcomes.

It has also been established in the preceding chapters, that there are challenges mitigating the effective implementation of the PPA (2007). However, the scope of these challenges on a real-life project and its implication on the achievement of value for money is unknown because existing literature sources lacked evidence of in-depth understanding based on the context of a real-life construction project. As a result of this, there is an opportunity for an in-depth study based on a real-life project to better understand the problem and hopefully, proffer suggestions on how value for money can be better achieved.

The purpose of this chapter is to review the basic concepts and principles of research methodology and to describe and justify the methodological choices adopted for this study. This research sought to better understand the implementation of PPA (2007) on construction procurements; why it is experiencing limited scope of achievement on its aim for Value for money and how the achievement of value for money may be improved.

6.2 What is research methodology?

Research is a common parlance often used to refer to a search for knowledge. However, a wholistic understanding of the term research methodology may come from the meaning of the two key words. Chambers 21st Century dictionary defined research as “detailed and careful investigation into a subject or area of study with the aim of discovering and applying new facts or information”. It also defined methodology on the other hand as “the system of methods and principles used in a particular activity, science, etc”. Research methodology could therefore refer to the search of knowledge or new information that is conducted

through an established system of methods or principles. Saunders, et al, (2009) define research as “something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge”. Easterby-Smith, et al, (2015) described it to be about both a creative and disciplined sense of curiosity. A good research piece, according to Naoum (2013), will focus on a certain aspect of a topic, seek to answer specific questions, solve a particular problem or test a hypothesis, with the overall aim of expanding knowledge.

Fellows & Liu, (2008) defined research methodology as "the principles and procedures of the logical thought process which are applied to a specific investigation". Saunders, et al, (2009, p.595), defined methodology as the “theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted”. The choice of which research methodology to adopt in a research study is determined by the following factors (Yin, 2014; Creswell, 2009 & Naoum, 2013):

- The research question/problem
- Personal experience of the researcher
- The audience for whom the report is written
- The purpose of the study
- Type and availability of information that is required

According to Yin (2014), research methodology adopted for a study should also explain and demonstrate rigour and dedication to formal and explicit procedure.

For this research, the methodology adopted was influenced mainly by the following:

- the nature of the research problem
- the best practical way to achieve the purpose of the research and provide answers to the research question, and;
- the extent of care and rigor appropriate for the award of PhD degree by the University of Salford.

Terminologies such as “research method”, “research strategy”, “research approach”, found in Research methodology literatures for example, Robson & McCartan (2016), Yin (2014), Easterby-Smith (2015), Naoum, 2013, Creswell (2009), Saunders, et al, (2009), etc., are

often used to mean different things by various authors and this can be very confusing especially for an apprentice researcher. To provide clarity and consistency, this research adopted mainly the typology and general meanings as defined in the “Research onion” model proposed by Saunders, et al, (2009). Terminologies from other authors were not completely excluded but used sparingly.

6.3 Philosophical Considerations

Chambers 21st Century dictionary defined Philosophy as “the search for truth and knowledge concerning the universe, human existence, perception and behaviour, pursued by means of reflection, reasoning and argument”. In the context of research, Saunders, et al, (2009), described research philosophy as relating to the development of knowledge and the nature of that knowledge and comprise important set of assumptions about the way a researcher view the world that influence the way data is collected to answer a given research question. According to Creswell (2009), philosophical ideas influence the practice of research and there is need for them to be identified. This need is a fundamental question confronting anyone doing social research – the construction of a philosophical position and orientation toward their research (Dainty, 2008).

Research literatures reveal a plethora of worldviews amongst researchers resulting to distinct traditions, also referred to as Paradigms, in various disciplines which also use different terms and categorization to differentiate one from another (Tracy, 2013). For an apprentice researcher, these differing terms, categorisation and typologies used to explain set of assumptions that makeup worldviews and sometimes their overlapping meanings can be very bewildering especially for Construction and Project management field of study which draw from both the Natural and Social Science disciplines. This is also the case sometimes even in the same discipline, for example, Saunders, et al, (2009, p.118), suggests that the term Paradigm in Social Sciences, although frequently used, tend to have multiple meanings and can be confusing.

Tracy (2013), provides a simple description of Paradigms as “preferred ways of understanding reality, building knowledge, and gathering information about the world. A researcher’s paradigm can differ on the basis of ontology (the nature of reality), epistemology (the nature of knowledge), axiology (the values associated with areas of research and theorizing), or methodology (strategies for gathering, collecting, and analysing data)”. According to Dainty (2008), the manner in which a research is

conducted should not be viewed in isolation from the ontological and epistemological positions adopted by the researcher. These positions are general orientation about the world and the nature of research which the researcher holds and is shaped by the discipline area of the researcher, the beliefs of advisers and past research experience (Creswell,2009). Similarly, Values - representing personal beliefs or the feelings of a researcher could be argued to be preconceptions that impact the validity of a social research outcome (Bryman, 2008). Research projects take place in contexts – of the researcher’s interest, expertise and experience etc and these would have its impact on the research method adopted and the results obtained there from (Fellows & Liu, 2008).

It is, therefore, imperative that the philosophical positionings of this research are made explicit as its conclusion can only be understood and evaluated in the context of the set of worldviews it assumes. But first, it would be appropriate to review and to make clear the of terms used in categorising ontological, epistemological and axiological assumptions used in the context of the research. The philosophical position assumed by the study is set out in paragraph 6.3.4.

6.3.1 Ontological Considerations

Ontology is philosophical assumption about the nature of reality and existence (Easterby-Smith, et al, 2015). The inquiry into the nature of being itself and of conceptual reality and concerned with the question of existence apart from specific objects and events (Fellows & Liu, 2008). According to Bryman (2009), central point of orientation of ontology on the one hand is the question of whether social entities can and should be considered objective entities that have a reality external to the actors, or whether they can and should be considered social construction built up from perceptions and actions of social actors on the other hand. These two orientations form the extremes of a continuum of four different ontologies in philosophical debates identified and described by Easterby-Smith, et al, (2015):

- Realism
- Internal Realism
- Relativism
- Nominalism

6.3.1.1 Realism

Realism is the ontological position on one end of the continuum which emphasises that the world is concrete and external with observable facts that have a direct correspondence to phenomenon being investigated. This assumption believes that there is a single reality and that facts can be revealed only by scientific observation.

6.3.1.2 Internal realism

Internal Realism is next on the ontology continuum assumes that there is a single reality but asserts that it is not possible for Scientist to access that reality directly. It is only possible to gather indirect evidence of what is going on in the physical process.

6.3.1.3 Relativism

Relativism is a position that suggest that scientific laws are not simply just there to be discovered, but that they are created by people. It argues therefore that there are many ‘versions’ of knowledge which depends on a scientist’s ability to argue and prevail over their peers or other vested interests.

6.3.1.4 Nominalism

Nominalism is an ontological position at the opposite end of the continuum which argues that social reality is no more than the creation of people through language and discourse.

Table 6.1 shows the summary of the four ontological positions in relation to truth and facts.

Table 6.1- Four different ontologies (Source: Easterby-Smith, et al, 2015 (ebook))

Ontology	Realism	Internal Realism	Relativism	Nominalism
Truth	Single truth	Truth exists, but is obscure	There are many ‘truths’	There is no truth
Facts	Facts exist and can be revealed	Facts are concrete, but cannot be accessed directly	Facts depend on viewpoint of observer	Facts are all human creations

6.3.2 Epistemological Considerations

Epistemology is the branch of philosophy that studies the origin, nature, methods, validity, and limits of human knowledge. It is concerned with how we know things and what we can regard as acceptable knowledge in a discipline (Walliman, 2006). Two extreme

epistemological perspectives are referred to in some literatures as Positivism and Social Constructionism (Interpretivism) (Walliman, 2006; Dainty, 2008; Bryman, 2008; Easterby-Smith, et al, 2015).

Positivism is an epistemological position that advocates that method of natural sciences should be applied to study of social phenomena. The aim is to establish causes and effects through an objective approach that can test theories and establish scientific laws through observable facts that is independent and uninfluenced by the observer (Walliman, 2006, p. 15; Fellows & Liu, 2008, p. 17). Positivists argues that the social world exists externally, and that its properties can be measured through objective methods rather than informed subjectively through sensation, reflection or intuition (Easterby-Smith, et al, 2015).

Interpretivism or Social Constructionism on the other hand, stems from the view point that 'reality' is not objective and exterior but is socially constructed and given meaning by people in their daily interactions with others (Easterby-Smith, et al, 2015). It therefore contends that object of natural science and people in those phenomena have different subjective meaning for the actors studied (Dainty, 2008, p. 3). Social constructionism aims to reveal interpretation and meaning to observed phenomena. It is thus a recognition that subjective meaning plays a crucial role in social actions (Walliman, 2006, p. 15). Through the subjective interpretation of and intervention in reality can that reality be fully understood. Interpretivists contend that truth and reality is a social construct of the persons involved and does not exist independently (Fellows & Liu, 2008, p. 18). Contrasting implications of these two opposite epistemological positions to a research endeavour is summarised by Easterby-Smith, et al, (2015) as shown in Table 6.2.

Table 6.2- *Contrasting Implications of Positivism and social constructionism*
 (Source: Easterby-Smith, et al, 2015(ebook))

	Positivism	Social Constructionism
The observer	must be independent	is part of what is being observed
Human Interests	should be irrelevant	are the main drivers of science
Explanations	must demonstrate causality	aim to increase general understanding of the situation
Research progresses through	hypotheses and deductions	gathering rich data from which ideas are induced
Concepts	need to be defined so that they can be measured	should incorporate stakeholder perspectives
Units of analysis	should be reduced to simplest terms	may include the complexity of 'whole' situations
Generalization through	statistical probability	theoretical abstraction
Sampling requires	large numbers selected randomly	small numbers of cases chosen for specific reasons

6.3.3 Axiological Considerations

According to Saunders, et al, (2009), axiology is a branch of philosophy that studies judgements about value. Values is a form of preconception which reflects either the personal believe or feelings of the researcher. The role that the researcher's own values play in all stages of the research process is of great importance and affects credibility of a research. Axiology is about the Researcher's own assumptions, about what is important and valuable in a research. A researcher's value judgement may lead to drawing conclusions which may be different from those drawn by researchers with other values (Saunders, et al, 2009). It is therefore important to declare it to those parties whom the researcher may have to contact in the course of the research. Axiological continuum ranges from a research being Value Free at one end, to being Value Laden at the opposite end. According to Bryman (2008), there is a growing recognition that it is not feasible to keep the values a researcher holds totally in check.

6.3.4 Philosophical Positioning in this Research

The philosophical viewpoints assumed by this study was influenced mainly by the nature of the research problem being investigated, the knowledge gap discovered in existing literature and what was considered best way the research aim could be achieved, and research question answered.

As established in previous chapters, existing literature suggests that the judgement about the achievement of value for money, is a subjective construction of a social actor involved, varying from one social actor to another and also from one point in time to another (Glendinning, 1998; Erikshammar, et al, 2010; Dewulf, et al, 2012; MacDonald, et al, 2012). This has an important philosophical implication for the research since the achievement of value for money is a key concept under investigation. Also, existing literatures focusing on the implementation of the Nigerian PPA (2007) in construction mainly relied on one sided philosophical viewpoint (see Table 5.3). For a more complete understanding of the problems that affect construction performance, Love, et al, (2002) & Dainty (2008) advocated for investigations that consider all philosophical viewpoints. This study approached the research problem following an alternative worldview in search of new insights.

6.3.4.1 Ontological Position

Predominantly, the research assumed an ontological position that is more towards Relativism. Opinions in literature suggests that the judgement about achievement of value for money depends on viewpoint of the assessor, and varies from one individual to another (Glendinning, 1998; Dewulf, et al, 2012; MacDonald, et al, 2012). Therefore, it can be concluded that there is no single reality about achievement of value for money. In seeking insight and finding solution to the research problem, the study relied on lived experiences, intuition and perspectives of practitioners and so have assumed reality as many versions of 'truths'.

6.3.4.2 Epistemological Position

On the epistemological continuum, the study predominantly assumed a position more towards the Social Constructionism view of what constitutes acceptable knowledge. This is because the phenomenon being investigated, i.e. the achievement of Value for Money in Construction through the implementation of PPA (2007), cannot be measured through objective means. This is because what constitutes value for money is a reality that is hardly a 'single truth' but a subjective assessment or construction of the social actors involved (Glendinning, 1998; Erikshammar, et al, 2010; Dewulf, et al, 2012; MacDolnald, et al, 2012). The study, therefore relied on what the phenomenon being studied mean to the social actors involved through their experience, reflection and opinion. In providing answers to

the research question, the study recognises and accepts reality as a social construction of the social entities involved in the research.

6.3.4.3 Axiological Positioning

The study also recognises that personal values of a researcher play a large role in interpreting results (Saunders, et al, 2009). Analyses in this study were drawn based on the researchers' interpretation of research participants' recount of experience and the realities highlighted were done so because the researcher considered them important. Also, the participants selected for primary data collection were chosen purposefully because the researcher consider them better sources of information than those not selected. Therefore, on the Value free – Value laden continuum, the research axiology inclines more towards Value laden than Value free.

However, to mitigate bias and improve credibility, data analyses was done in a systematic, consistent and open-minded manner by staying close to the data and letting it speak for itself as much as possible. During analyses, rival explanations were explored through self-reflexivity to challenge meanings already drawn from the data to check bias of the researcher's already formed opinion. Also, participants' selection was carefully done to ensure that only individuals with direct involvement in the projects studied were selected for the first phase of data collection. And in the second phase of data collection, Experts sampled were those whose expertise has been validated by their peers, as evidenced by the category of their membership with recognised professional organisations.

6.4 Research Design

Research design is the conceptual structure within which research is organised and conducted. It essentially comprises the plans and procedures that span the decisions from broad assumptions to detailed methods of data collection and analysis (Walliman, 2006; Creswell, 2009; Easterby-Smith, 2015). A research design provides the framework for the collection and analysis of data and subsequently indicates which research method is most appropriate (Walliman, 2006, p. 42; Bryman, 2008). The design of a research would depend on the nature of the problem being investigated; how the research questions will be answered, and the goal is to arrive at an operational plan that is most appropriate to the problem being investigated, avoiding “misfits” – where one ends up with one method, but another method is really more advantageous (Yin, 2014).

In addition, the way a research question is answered will be influenced by the philosophical assumptions the researcher brings to the study and the research approach adopted (Creswell, 2009; Saunders, et al, 2009). Figure 6.1 is a graphic indication of the methodological implications of the research philosophical positioning identified in the foregoing sections.

Philosophical positioning of this

Ontologies	Realism	Internal realism	Relativism	Nominalism
<i>Epistemology</i>	Strong positivism	Positivism	Constructionism	Strong constructionism
<i>Methodology</i>				
Alms	Discovery	Exposure	Convergence	Invention
Starting points	Hypotheses	Propositions	Questions	Critiques
Designs	Experiments	Large surveys; multi-cases	Cases and surveys	Engagement and reflexivity
Data types	Numbers and facts	Mainly numbers with some words	Mainly words with some numbers	Discourse and experiences
Analysis/ Interpretation	Verification/ falsification	Correlation and regression	Triangulation and comparison	Sense-making; understanding
Outcomes	Confirmation of theories	Theory-testing and generation	Theory generation	New insights and actions

Figure 6.1 - Methodological Implications of different philosophies (adapted from Easterby-Smith, et al, 2015)

Elements of a research design according to Saunders, et al, (2009), includes considerations of the research strategy, choice of data collection and analyses method and time horizon being considered.

6.4.1 Research strategy

Research strategy in the context used in this study means the overall direction of the research, including the route by which the research is conducted (Wadawatta, et al, 2011). According to Saunders, et al, (2009), choice of strategy is guided by a number of factors, including the research question and objectives, the extent of existing knowledge, the amount of time and other resources available to the researcher and the philosophical assumptions guiding the study. Types of research strategies common to research includes (Saunders, et al, 2009):

- Experiment
- Survey
- Case Study
- Action research
- Grounded theory
- Ethnography
- Archival research

6.4.1.1 Research Strategy Adopted

The case study strategy was considered a more appropriate strategy over other alternative strategies for the research problem at hand due to a number of reasons. Firstly, the strategy is more advantageous for the achievement of the research objectives as it provides the opportunity for a rich in-depth investigation of a real-life construction project. The review of existing body of knowledge on the research problem revealed general lack of evidence based on the in-depth investigation on a real-life project setting. Case Study strategy provides a good prospect for contributions towards filling this knowledge gap.

Secondly, the Case Study strategy has also been considered over other strategies because of the form of the research question. The form of research question, according to Yin (2014), is one of three factors to consider while deciding upon an appropriate strategy and recommended case study to be appropriate for answering the “how” and “why” research questions. Table 6.3 shows the consideration that has been made relating to three conditions to satisfy while deciding upon case study strategy.

Thirdly, the suitability of Case Study strategy compared with other strategies for the study at hand was considered, and case study strategy remained the most appropriate. While Action research provides an alternative strategy for achieving the research objective for an in-depth understanding based on a real-life context, it has not been selected mainly due to practical reasons. Action research is a research in action to bring about a change, where the researcher is often part of the change process (Saunders, et al, 2009; Easterby-Smith, 2015). There are concerns with the length of time of typical public construction procurement from start to finish required for the often-iterative procedure to cause and evaluate a change compared with the period for a full-time PhD study. Also, the researcher is not an employee of a public-sector organization and therefore unrestricted access was a genuine concern.

Perhaps, Action research can be considered the next best alternative as it is also compactible with the research aim of making suggestions that will bringing about a change.

Table 6.3- Consideration of Situations Relevant for Different Research Strategies (Adapted from Yin, 2014)

Method [Strategy]	Form of Research Question	Requires Control of Behavioural Events	Focuses on Contemporary Events?	Consideration for this Research
Experiment	How, Why?	yes	yes	Not selected because behavioural control is not practical for the research subject
Survey	Who, What, Where, How many, How much?	no	yes	Not selected because the suggested form of research question is not consistent with the research question being investigated
Archival analyses	Who, What, Where, How many, How much	No	Yes/no	Not selected because the suggested form of research question is not consistent with the research question being investigated
History	How, Why?	no	no	Not selected because the research needs to focus on contemporary events
Case Study	How, why?	no	yes	Selected; because of the research focus on real life contemporary events which requires no behavioural control and suggested form of research question is consistent with the research question investigated

Similarly, Grounded theory and Ethnography strategies, although presents the opportunity for in-depth qualitative data in-line with the research objectives, were also not considered suitable. Grounded theory involves the development of theory from primary data (Easterby-Smith, et al, 2015). In contrast, the proposed study does not aim to develop theory, but to understand a phenomenon in a real-life context; why the PPA (2007) is having limited scope of achievement in-terms of value for money and how the achievement

of value for money may be improved, partly relying on existing theory. Ethnography, on the other hand, requires the researcher to be immersed in the setting of the social world being studied as completely as possible in a way to describe and explain the phenomenon being studied just as the subjects of the research would (Saunders, et al, 2009). This is time and resource consuming beyond what is available to the researcher, therefore, the Ethnography strategy was also not selected.

Also, as described in Table 6.3, Experiment, Surveys and Archival research strategies have not been selected because, they are not suitable for answering the research question and generally not consistent with the philosophical worldview assumed by the study.

Finally, the case study strategy has been used successfully in similar previous studies. For example, Nisar (2007) used case study strategy to investigate value for money drivers in public private partnership projects in the United Kingdom. Also, National Audit Office (2004) successfully used real-life project contexts to illustrate how design quality impacts value for money in public sector construction projects.

6.4.1.2 Brief overview of Case Study Strategy

Yin (2014) provides a comprehensive definition of case study as an empirical inquiry that:

- Investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.
- Copes with technically distinctive situation in which there will be many more variables of interest than data points, and as a result
- Relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- Benefits from prior development of theoretical propositions to guide data collection and analysis.

The data for case studies come from variety of sources including observations, interviews, questionnaires, reports and archival records and this gives the researcher the advantage of arriving at a consensus of findings that could be considered robust (Fellows & Liu, 2008; Proverbs and Gameson, 2008).

There are positivists criticisms of case study strategy for lack of scientific rigor, that they rarely allow generalizations to be made from specific cases to the general population and they produce large amount of data, which allow researchers to make any interpretations they want (Easterby-Smit, et al, 2015). However, a contrasting position, more relevant to this research than the positivist viewpoint of case study strategy, is the constructionist position which is more less concerned with issues of validity, but more concerned with providing a rich picture of life and behaviour in organizations or groups by investigating cases because of their unique features, which may or may not be generalizable to other contexts. (Easterby-Smit, et al, 2015).

Yin (2014) identified five important components of research design for a case study:

1. Study's Question
2. Its Propositions or Purpose (if any)
3. The Units of analyses
4. The logic linking the data to the proposition; and
5. The criteria for interpreting the findings.

In response to the positivist criticism, it is suggested that making clear decision on these components prior to data collection would, to some degree, demonstrate rigor and improve validity (Easterby-Smith, et al, 2015). For this research, components 1 & 2 applicable to this study has been described in Chapter 1 of this report. While components 4 and 5 are also set out in paragraph 6.6 below.

6.4.1.3 *The Unit of Analyses*

The Unit of analyses component of Case study design is related to the fundamental problem of defining what the case is (Yin, 2014). According to Proverbs and Gameson (2008), the unit of analyses is a key issue in identifying and selecting case(s), and in the context of the built environment, unit of analyses maybe a construction project, a company or organisation, or an individual or group of individuals such as project managers, architects, etc.

The unit of analyses employed for this research is the construction project. This is on ground that the judgement for the achievement of value for money is determined by the value or benefits derived from the project outcome. To understand why PPA (2007) is having limited scope of achievement in terms of value for money and how this may be

improved, data collected from the selected construction projects was used to assess how value for money has been achieved (or not achieved), the enablers and barriers to achievement of value for money, the impact the implementation challenges of PPA (2007) have or the capability of the regulations to support achievement of value for money, what has gone well or not gone well on the project, and why. Relying on multiple sources of information for answers, as typical with the case study strategy, could result to a robust understanding of the problem and lead to suggestions on how future improvements could be made.

To build the picture of what happened on the case project, the study relied on individual project participants as sub-units of analyses. These participants each played a different role and represented different professional backgrounds and their subjective accounts gave insight to what the research problem mean to individuals who were operationally tasked with the job of delivering the case projects and thereby achieve value for money. The study collected and analysed recount of lived experiences, reflections, perspectives and opinions of each individual project participant to gain rich picture understanding of what goes on in public project procurement process in terms of the achievement of value for money and the challenges or barriers that limit the scope of achievement.

6.4.1.4 Case study designs and type selected

Yin (2014) categorise Case study designs into four basic types based on two distinguishing factors; whether they are single or multiple case and whether they are holistic or embedded:

- Type 1 – Single-case (holistic) designs
- Type 2 – Single-case (embedded) designs
- Type 3 – Multiple-case (holistic) designs
- Type 4 – Multiple-case (embedded) designs

The primary distinction in designing case studies, according to Yin (2014), is between single-case dealing with only one case or multiple-case dealing with more than one case. Embedded case, distinguished from holistic case, occurs when in the same single-case (or multiple-case) attention is given to a subunit or subunits of analyses.

According to Yin (2014), there are five rationale for assessing when the single-case is an appropriate design. These are when the case represents a critical case, an unusual case, a common case, a revelatory case or a Longitudinal case. On the other hand, Sounders, et al,

(2009) suggested that the rationale for using multiple cases focuses upon the need to establish whether the findings of the first case occur in other cases and, therefore the need to generalise from these findings. According to Proverbs & Gameson (2008), results from investigations based on a single-case will to some extent be treated with some degree of circumspection because no one can be sure how the results apply to other cases. In contrast, evidence from multiple cases are often considered more compelling and the overall study is regarded as being more robust (Yin, 2014). Therefore, this research favoured the choice of the multiple-case (embedded) design over a single-case design. Consideration for this was for a better data saturation and for a more compelling evidence that could lead to some level of generalizability of the research outcome.

The study selected a recently completed public sector construction project where PPA (2007) was implemented and the design was to continue adding additional similar projects as necessary to achieve data saturation. Figure 6.2 below is a graphic representation of the Case Study design of the research.

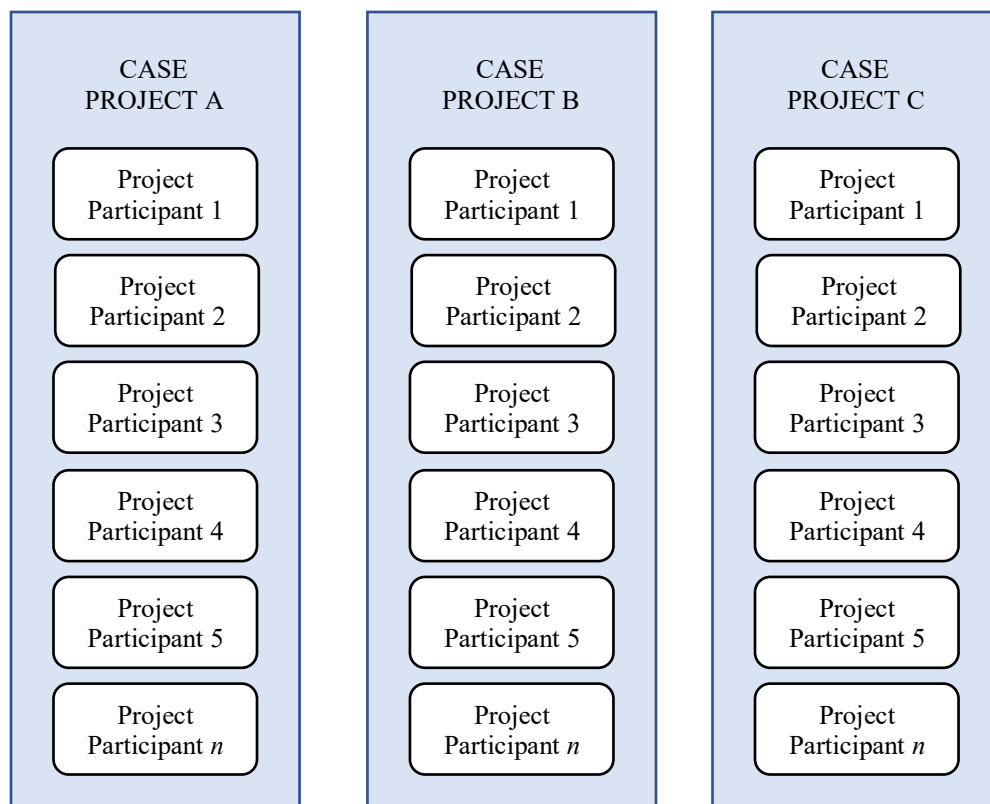


Figure 6.2 -Case Study Design of the Research

Proverbs & Gameson (2008), suggests that when results from multiple-cases support each other, the evidence will always be more compelling. Using a replication logic, the research strategy was designed to establish whether the findings from one case occur in the other cases and to build a general picture of what happens on real-life public construction procurements.

Overall three (3) case projects were studied. Selections were made from the three main geographic regions of Nigeria: Northern, South Western and South Eastern regions. Nigeria is known to be culturally diverse along these three main regions. The construction projects selected, each represented a typical (or common case) public sector construction procurement. Project participants were selected to ensure representation of the core traditional project team roles, comprising Client representatives, Contractor representatives, design Consultants – Project manager, Architect, Structural/Civil engineer, Services engineers and Quantity surveyor. Cross-case comparison of all three cases was upon reasonable data saturation, used to build a picture of the realities of implementing PPA (2007) on public construction projects, to understand why the law is achieving limited success on its aim of achieving value for money, and how improvements can be made.

6.4.2 Research choices

‘Research choice’ as used in this study refer to the general orientation to the collection and analyses of data for a research project. Three methods can be gathered from literatures: qualitative, quantitative and mixed methods (Creswell, 2009; Bryman, 2008; Walliman, 2006; Naoum, 2013; Easterby-Smith, et al, 2015). Simple distinction can be made between different choices by the main way data is collected, either by use of measurement or by description. Bryman (2008) further states that the difference between qualitative and quantitative methods goes beyond the distinction that quantitative researchers employ measurement while qualitative researchers do not, they also differ in relation to their philosophical orientation and theory. While quantitative method relates mainly to the positivist epistemology, qualitative method relates mainly to constructionist epistemology.

6.4.2.1 *Qualitative Method*

Creswell (2009) defined qualitative research as a means of exploring and understanding the meaning individuals or groups ascribe to a social or human problem. It emphasises meanings, experiences (often verbally described), descriptions, etc. (Naoum, 2013). Qualitative research seeks to find out why things happen as they do; to determine the

meanings which people attribute to events, processes and structures, etc (Fellows & Liu, 2008). The researcher here relies on the views of the participants, asks broad questions, collects data consisting of texts, describes and analyse these texts for themes, and inquiry can be said to be conducted in a subjective, bias manner (Creswell, 2012).

Bryman (2008, pp. 22, 366) contrasted qualitative research method from quantitative method as a method that emphasises words rather than quantification in the collection and analyses of data and that:

- predominantly emphasizes an inductive approach to the relationship between theory and research, in which emphasis is placed on the generation of theories;
- rejects the practices of natural scientific model and takes an interpretivist epistemological position;
- takes a constructionism [relativist] ontological position; a view of social reality as a constantly shifting emergent property of individual creation.

6.4.2.2 Quantitative Method

In contrast to the qualitative method, quantitative research has been described as a research method that emphasises quantification in the collection and analysis of data. According to Creswell (2012), quantitative research is a research approach useful for describing trends and explaining the relationship among variables found in literature. To conduct a quantitative inquiry, “the investigator specifies narrow questions, locates or develops instruments to gather data to answer the questions, and analyses numbers from the instruments, using statistics”.

Bryman (2008, pp. 22, 366) also differentiated quantitative research from qualitative research by its philosophical foundations as it:

- entails a deductive approach to the relationship between theory and research, in which the emphasis is placed on the testing of theories;
- has incorporated the practices and norms of the natural scientific model and positivism in particular; and
- embodies a view of social reality as an external, objective reality.

Table 6.4- Fundamental Difference between qualitative and quantitative research methods (Bryman, 2008,)

	<i>Quantitative</i>	<i>Qualitative</i>
<i>Principal orientation to role of theory to research</i>	Deductive	Inductive
<i>Epistemological Orientation</i>	Positivism	Interpretivism
<i>Ontological Orientation</i>	Objectivism	Constructionism

6.4.2.3 Mixed Methods

Mixed method research is an approach to research that combines both quantitative and qualitative forms. According to Creswell (2009, p.4), the mixed method involves philosophical assumptions, the use of qualitative and quantitative approaches and the mixing of both approaches in a study. Love, et al, (2002), argue that if construction management researchers are to better understand phenomena that influence organisational and project performance in construction, they need to adopt a robust research methodology that can take into account both ontological and epistemological viewpoints. Mixed methods research can be said to be more than simply collecting and analysing data of both kinds, but rather draws from the relative strength of one method to compliment the weakness of the other for better understanding of the phenomena investigated.

6.4.2.4 Research Choice Adopted

The research choice adopted for this study is mainly the qualitative research method. This method was considered to be the most appropriate for answering the research question and best suited for achieving its aim and objectives. According to Fellows & Liu (2008), qualitative research methods provide the opportunity to find out why things happen as they do. To propose measures for improving the achievement of value for money on public construction procurement, the study aimed for in-depth understanding of contemporary public procurement practices, why it is having limited scope of achievement in-terms of value for money and how the achievement of value for money may be improved. This was achieved by relying on the experience, reflections, opinions and interpretation of

practitioner involved in public sector construction procurement. These sorts of data are not easily reduced to numbers; hence a mainly quantitative method was not practical.

Additionally, the in-depth qualitative rich picture understanding of public procurement practices in terms of achievement of value for money is generally lacking in existing literature and the study hoped to make contributions towards that knowledge gap. More so, the mainly qualitative method adopted is compatible with the mainly relativist ontological assumption of the research, which recognises that there are many versions of ‘truth’ and facts depend on viewpoint of social actors involved in a phenomenon.

6.4.3 Time horizons

Time horizon deals with important question about timing to be asked in planning a research. Would the research be a “snap-shot” of a particular time or more like a “diary or series of snapshots” (Saunders, et al, 2009)? The decision about time horizon is regardless of the ontology or epistemology that informs the study (Easterby-Smith, et al, 2015), and independent of the research Strategy being pursued (Saunders, et al, 2009). However, like every other decision to be made while designing a research, decision for time horizons should be such that gives the best opportunity to answer the research question. The decision for time horizon is whether the research will be Cross-sectional or Longitudinal. Cross-sectional research is the study of a phenomenon or phenomena at a given point in time, whereas for a Longitudinal study, repeated measurements are taken over time (Easterby-Smith, et al 2015; Saunders, et al, 2009).

6.4.3.1 *Time Horizon Adopted*

This study followed a Cross-sectional design. A cross-sectional ‘snap-shot’ was considered very useful in learning of the current state of issues collated from literature review which spanned across many years since the coming into force of the Nigerian Public Procurement Act (2007). The study mainly targeted a ‘snap shot’ of the research participants’ experience, opinions, reflections and interpretations of recently completed public sector construction projects at the time of or very close to practical completion. Longitudinal time horizon has not been considered because the time required to complete the study would not be practical for the duration of a PhD study.

6.5 Data Collection Procedure

Primary Data collection for this study was conducted in two separate stages following the research objectives already set out in the previous sections of this report. The first stage of primary data collection involves the investigation of the procurement practices adopted for the selected case projects through semi-structured interview of practitioners involved in the case projects. The second stage of primary data collection, on the other hand, was through a two-stage Delphi survey. The Delphi approach was selected as a convenient and most effective means of arriving at consensus amongst the various experts sampled for the study, all of whom were geographically dispersed.

The following sections outlines the sampling techniques considered most appropriate and feasible towards the realisation of the research objectives and the procedure and techniques employed for data collection.

6.5.1 Overview of Sampling Techniques

Saunders, et al (2009) described two sampling techniques available as probability and non-probability Sampling techniques. Figure 6.3 shows the various types available.

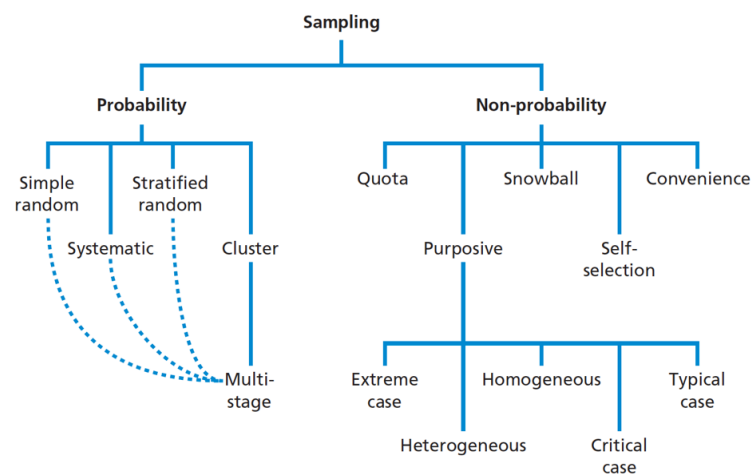


Figure 6.3 - Sampling Techniques (Saunders, et, al, 2009, p. 213)

6.5.1.1 Probability Sampling

Probability sampling, also referred to as representative sampling, is type of sample selection technique where the chance or probability of selecting each case from a

population is usually the same for each case. The probability of a case being selected is usually known. Types of Probability available for selection includes:

- Simple random sampling
- Systematic random sampling
- Stratified random sampling
- Cluster sampling
- Multi-stage sampling

6.5.1.2 Non-probability sampling

In contrast to Probability sampling, non-probability sampling, is a sample selection technique where each case in the population does not have equal chance of being selected in the sample. Cases are usually selected in a subjective judgemental way. Non-Probability sampling techniques available for selection includes:

- Quota sampling
- Purposive sampling
- Snowball sampling
- Self-selection sampling
- Convenience sampling

6.5.2 Sampling Technique and Sample selected for this Research

The non-Probability Sampling technique was adopted for the two stages of data collection. Type of non-probability sample technique selected for each stage of primary data collection was based on what was considered most appropriate for achieving the specific research objective being pursued at that stage. Table 6.5 shows a summary of the types of non-probability sampling techniques available, and the factors considered for the selection of the sampling technique used for the two stages of primary data collection.

The population for this research by design were construction professionals who have minimum five years' experience with public sector construction projects. For the interview stage of data collection, the research population comprise of only professional who first hand participation in the project teams of the case projects selected. These comprise of professionals from the Employers' organisation, Contractor organisation (including Sub-contractors and Suppliers) and Consultants' organisation.

Table 6.5 – Choice of sampling techniques made for this research (adapted from Saunders, et al, 2009, p.236)

Sample type	Likelihood of Sample being representative	Type of research in which useful	Consideration in this research
Quota	Reasonable to high, although dependent on selection of quota variables	Where costs constrained or data needed very quickly so an alternative to probability sampling needed	Not Selected. There are no relevant quota variables available
Purposive	Low, although dependent on researcher's choices	Where working with very small samples (such as in case study research)	Selected for data collection at both stages of data collection; Sample required is very small and the researcher has the opportunity to carefully select practitioners with the requisite experience.
Snowball	Low, but cases will have characteristics desired	Where difficulties in identifying cases	Not considered. Cases are not difficult to identify
Self-selection	Low, but cases self-selected	Where exploratory research needed	Rejected; due to low likelihood of sample representativeness
Convenience	Very low	Where very little variation in population	Rejected; due to low likelihood of sample representativeness

Table 6.6 below shows the Sample selected for the three selected Case projects. The objective for the choice of the research Sample was, as in Proverbs & Gameson (2008), to gain insight into different views of all parties involved in the case project. This is also influenced by the mainly relativist philosophical positioning of the research, that there are many versions of 'truth' and facts depend on view point of social participants. Data was collected in a manner to understand what achievement of value for money mean to the various participant in the case project.

The Sample selected for the second stage of primary data collection were public procurement practitioners with more than 15 years practice experience and whose expertise has been validated by their peers, as evidenced by the category of their membership and certifications with recognised professional organisations, such as the Project Management Institute (PMI), Royal Institute of Chartered Surveyors (RICS), Nigerian Institute of Architects (NIA), Nigerian Institute of Quantity Surveyors (NIQS) Nigerian Society of Engineers (NSE), APMG International, etc. A total of eight Experts sampled indicated interest to participate in the research.

Table 6.6 – Sample selected for the interview

Case Project A	Case Project B	Case Project C
<ul style="list-style-type: none"> • Client representative • Consultant Project Architect/ Project manager • Consultant Quantity Surveyor • Consultant Electrical Services Engineer • Consultant Mechanical Services Engineer • Consultant Structural Engineer • Main Contractor representative 	<ul style="list-style-type: none"> • Client representative • Consultant Project Architect/ Project manager • Consultant Quantity Surveyor • Consultant Electrical Services Engineer • Consultant Mechanical Services Engineer • Consultant Structural Engineer • Main Contractor representative 	<ul style="list-style-type: none"> • Client representative • Consultant Project Architect/ Project manager • Consultant Quantity Surveyor • Consultant Electrical Services Engineer • Consultant Mechanical Services Engineer • Consultant Structural Engineer • Main Contractor representative

6.5.3 Data Collection techniques

6.5.3.1 Interview Data

Data collection from the Case Projects was through semi-structured in-depth interviews. The use of questionnaires, as a means of data collection was not considered because it will not yield the rich type of in-depth data required to achieve the research objectives. Also, semi-structured type interview was preferred over the unstructured type interview to facilitate in-depth discussion and clarifications with the study participants while maintaining some structure in the opinions collected. Face-to-face interviews was conducted for a total of eighteen (18) participants across the three Case Projects from the research Sample indicated in Table 6.6. At the end of the interviews, there were noticeable feeling of satisfaction among majority of the respondents reflecting on the project activities the way the interview pushed them to do. Most were eager to see the research outcome when completed.

To facilitate in-depth discussion, an Interview Guide were sent in advance to give the interviewee a sense of what will be discussed, and interviews were conducted on the interviewee agreed day and time. Also, before the interviews proper, a general discussion was held to ensure the interviewee understood the requirement of the session and were comfortable to continue. All these were done to improve the reliability of data that will be collected.

The interview guide was composed to collect data in line with the study objectives and questions were grouped under four main sections as follows:

Section A: Background information

Collected general information about the interviewee construction experience, their organization and specific role on the case project [7 questions]

Section B: Implementation of Nigerian Public Procurement Act (2007) rules on the Case Project

Collected data on specific practice adopted during the procurement of case project [9 main questions]. The discussion in this section aimed to collect data that will help gain understanding of the procurement practices adopted based on the interviewee's reflection of the various procurement stages of the case project in-terms of how it supported the achievement of value for money, or otherwise. This followed the recommended steps for public procurement in Nigeria recommended

by the Bureau of Public Procurement discussed in the literature review section of this study.

Section C: Case Project Outcome

Collected data on project outcome based on interviewee's assessment of project [7 main questions]. Discussion in this section aimed to collect data on interviewee's opinion of the case project's outcome in terms of achievement of value for money and reflection on how they think the implementation of PPA (2007) facilitated what was assessed.

Section D: Implementation Challenges of PPA (2007)

Collected data on the implementation challenges experienced on the case project [24 main questions]. The discussion here aimed to collect data that will help identify which PPA (2007) implementation challenges were experienced on the case projects based on interviewee's reflection and how they affected the achievement of value for money. These followed the common implementation challenges collated from literature.

Trial interviews were conducted to test the initial questions on the Interview guide to test if they can collect data that would satisfy the research objectives. Analyses of the transcribed trial interview helped make improvement on timing by reducing the number of questions initially proposed. Feedback was also received from a professional transcriber on audio quality, speed of conversation and the need to speak one person at a time. A sample of the Interview Guide used for the interviews can be found in Appendix I of this report.

6.5.3.2 Documents

Data was also collected from Project Documents. These were mainly basic project information. A systematic content analyses of the documents was not part of the research design; however, these were sought to gain good background knowledge of the case projects. Documents collected or sighted includes: Drawings, Specifications, Bills of Quantities, Payment Certificates, Needs Assessment report, and Tender reports. There was no consistent set of documents across all three case projects due to varying levels of access granted. However, data collection from Documents were mainly requested to supplement and corroborate data collected from interviews.

6.5.3.3 *Delphi Survey*

Collection of data for the second stage data collection of the study was through the Delphi technique. The Delphi approach was favoured over alternative techniques, for example, focus group interview, because it was considered most effective and convenient means of arriving at consensus amongst the various Experts sampled for the study, all of whom were geographically dispersed. The Delphi process was concluded at the second round of consultations, unlike the three to four-stage classic Delphi process, because the research objective was achieved after the Round 2.

Round 1 comprise of a self-administered questionnaire with 21 open-ended questions. The sampled Experts were presented with research findings from the three case study projects on factors that are barriers to the achievement of wider scope of value for money on government construction projects with recommendations for their mitigation. On each factor presented, the Experts were asked 2 questions:

1. To comment on the adequacy of the preventive measures recommended by the study, and
2. To suggest additional or alternative measures based on their experience

After the last causal factor was presented, the Experts were requested to make additional general comments on how the achievement of value for money could be improved on public sector construction procurement. A sample of the questionnaire used for Delphi Round 1 can be found in Appendix II of this report. Six out of the consulted eight Experts completed and returned the questionnaire within the time period previously agreed.

In the Round 2 of the Delphi process, the summary of findings for Delphi Round 1 was presented to all the Experts who participated in Round 1 for concurrence. The study used an internet mediated self-administered questionnaire to achieve this purpose, and to facilitate timely response form the panel of six, who were busy practitioners and often on the go. A sample of the questionnaire used for Delphi Round 2 can be found in Appendix III of this report. The questionnaire used a seven-point bipolar rating scale to collect data that can be used to test if the Panel collectively agree or disagree with the preventive measures resulting from Round 1 of the process, and to test the level of consensus reached for each causal factor, whether a weak or a strong consensus.

6.6 Data Analyses Procedure

6.6.1 Case Projects data analyses

Data from the case projects were analysed on a project by project basis. On each case project, data was analysed across the accounts provided by the project participants in line with the research aspiration of obtaining a rich contextual account of what happens on public sector construction procurement under the heading of the achievement of value for money. After the analyses of all the case projects, a cross-case comparison of all three case projects was undertaken for a richer picture understanding of the implementation of the PPA (2007) on public construction procurement.

Thematic content analyses technique was the main data analyses technique employed for the analyses of the qualitative data collected from interview of the research participants. However, some quasi-quantitative techniques were also utilised, although sparingly. This include the use of word map to analyse and visually display the key words used by the study participants to describe the achievement of value for money, and the use of Pareto chart of frequencies to narrow findings from the analyses of case projects' data to more manageable scope for the second stage of the research process. The approach adopted for the thematic analyses is described in the paragraphs that follow.

6.6.1.1 *Thematic analyses procedure*

Braun & Clarke (2008) defined thematic analysis as a method for identifying, analysing and reporting patterns (themes) within data. The procedure for the study was approached by first sending all interview recordings to a professional transcriber for accurate verbatim transcription. After transcription by the transcriber, the researcher reviewed the transcription by listening to the audio recordings and filling gaps where the transcriber was unsure of what was said. For example, where technical acronyms were used or gaps in the recording where an interviewee signalled for a break. This also afforded the opportunity for further familiarisation with the data. Transcriptions were then formatted and uploaded into Nvivo software to facilitate coding.

Initial codes were generated using the subjects of the main sections of interview guide and used to code excerpts of the interviewee responses. In pursuant to the research objectives, the codes were subsequently sorted, organised and reported under 3 main broad themes, covering the following:

1. Interviewee opinion of the Project outcome in-terms of achievement of value for money and reflections on the PPA (2007) contributions to outcome
2. Interviewee experience of the various stages of the procurement process of the case project
3. Interviewees reflections on the barriers to the achievement of value for money on the project

To achieve the research objective of identifying the contemporary issues, barriers and challenges that limit the achievement of value for money, Mind maps similar to Figure 6.4 were used to visually organise codes into sub-themes under the main theme for barriers to the achievement of value for money, and to trace their links. Starting from the centre node of the theme ‘limited scope of VFM’ and moving outwards in any direction, the Mind map traces why and/or how the achievement of value for money was limited in scope, according the views expressed by the research participants.

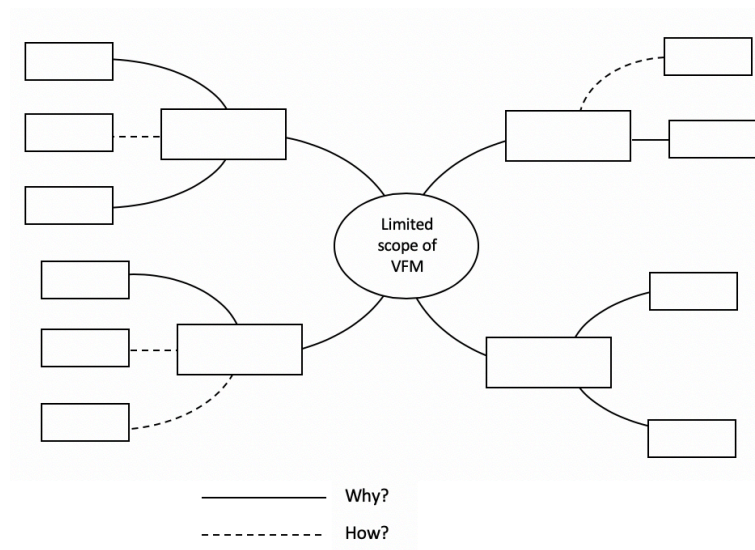


Figure 6.4 - Sample Mind map used for data analyses

Additionally, the Ishikawa diagram technique was used to attempt a cause and effect analysis of the findings, to get a clearer picture and to understand why the achievement of value for money was limited in scope on the case project. As illustrated in Figure 6.4 below, the barriers that cause the effect of limited scope of value for money are identified from the analyses and represented on the box nodes (Cause 1, Cause 2, etc.), while their causes (sub-cause 1.1, 2.1, etc) are listed along the ‘bone’ links of the ‘fishbone’ or Ishikawa diagram.

In some instances, additional causes (sub-cause 1.2.1, 3.1.1, etc) were identified for the ‘sub-causes’, and were represented as a horizontal ‘bone’ link branch-off on the affected sub-cause. In this way, the analysis attempted to get to the root-causes of the barriers to the achievement of value for money on the each case project from the views expressed by the study participants.

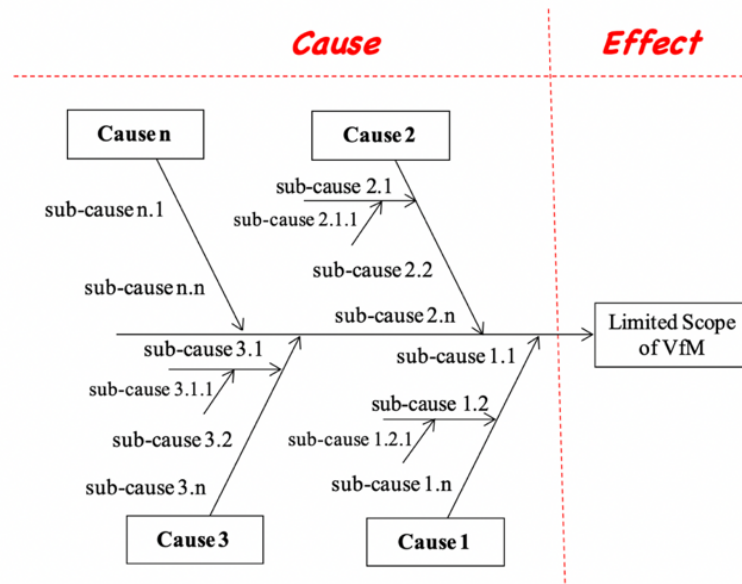


Figure 6.5 - Ishikawa diagram technique

Findings were reported using pseudo names for the interviewee to maintain their anonymity. Pseudo names were arrived at by using the actual professional designations of the interviewee, for example, Architect A for the Project Architect, Quantity Surveyor A for Senior Quantity Surveyor, etc. Anonymity of case project identity was also maintained by referring to the Client as the Client Organisation, Contractor as Contractor Organisation, Project as Case Project A, B and C and mention of exact project location was avoided. Extensive use of direct quotations was used in presenting findings and were indented and italicised for clarity. The intention was to stay as close as possible to the data to avoid or minimise bias. Same logic for analyses and reporting of findings were replicated for all the 3 case projects. A cross case comparison was used to collate findings across all three case projects.

6.6.2 Delphi survey analyses

The Delphi survey was conducted in two rounds. Round 1 returned qualitative data and therefore analysed qualitatively, whereas outcome of Round 2 survey was converted to quantities and analysed quantitatively.

6.6.2.1 *Delphi Round 1*

Delphi Round 1 data was analysed quantitatively also employing Content analyses technique. Responses from experts were analysed for similarities, contrasts and contradictions in opinions. Opinions expressed were collated, grouped and categorised based on their similarities and used to form basis of the Round 2 survey.

6.6.2.2 *Delphi Round 2*

Round 2 was questionnaire was designed to collect data that can be used to test if the Panel collectively agree or disagree with the propositions presented to them using a 7-point bipolar rating scale. Responses for each question were thereafter converted to an ordinal rank values from 1 to 7, 1 and 7 respectively representing the values of two opposite end points of the bipolar scale – ‘Strongly disagree’ and ‘Strongly agree’. The centre symmetry of the scale representing the opinion of neither agree nor disagree was allocated a value of 4. Using simple descriptive statistics, the study evaluated the consensus reached by the Panel by computing the Mean rank of the responses received for each question. A Mean rank of 1 is interpreted as a perfect strong disagreement, whereas, a mean rank of 7 would imply perfect strong agreement with the propositions resulting from the Round 1 of the Delphi process. A Mean rank of 4 imply a consensus level that neither disagree nor agree with the propositions provided. Furthermore, Mean ranks below or above 4 respectively denotes disagreement or agreement with the propositions, and the distance of the Mean rank from 4 indicates the intensity of the consensus reached, whether weak or strong. A Mean rank above 5.5, the mid-point between ‘perfect strong disagreement’ and ‘perfect strong agreement’, was considered by the study as a strong agreement, and the item under investigation is adopted. Items with a mean rank of 5.5 and below are to be subjected to a further investigation.

6.7 Reliability and Validity

Reliability and validity in a research are concerned with the credibility of the finding or conclusions drawn from a piece of research. According to Bryman (2008), Reliability is

concerned with the question whether the results of a study are repeatable. The extent to which data collection technique or analyses procedure will yield consistent findings (Saunders, et al, 2015).

Similarly, Validity is concerned with the integrity of the conclusions that are generated from a piece of research (Bryman, 2008). Whether the findings are really what they appear to be about (Saunders, et al, 2015).

Reliability and Validity are the logical tests used to assess the quality of a piece of research. Therefore, it was essential when designing this research to ensure that the research measure up with the criteria for a good quality. Yin (2014), suggests four tests commonly used to establish the quality of a case study research strategy as indeed used for assessing any empirical social research, and identified tactics for dealing with the tests. These are reproduced in Table 6.7 below alongside tactics employed in this research.

Table 6.7 - Tests for assessing the quality of research and tactics employed (adapted from Yin, 2014)

TEST	Purpose	Case Study Tactic	Tactic Employed in this research
Construct validity	Identifying correct operational measures for concepts being studied	<ul style="list-style-type: none"> • Use of multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report 	<ul style="list-style-type: none"> • Use of interviews and Documents as multiple sources of evidence • Review of draft report by key informants
Internal validity	Seeking to establish a causal relationship as distinguished from spurious relationship	<ul style="list-style-type: none"> • Do pattern matching • Do explanation building • Address rival explanations • Use logic models 	<ul style="list-style-type: none"> • Explanation building • Use of logic models (Mind maps, Ishikawa diagrams)
External validity	Defining the domain to which the study finding can be generalised	<ul style="list-style-type: none"> • Use theory in single-case studies • Use replication logic in multiple-case studies 	<ul style="list-style-type: none"> • Use of replication logic in the three case projects selected
Reliability	Demonstrating that the operations of the study can be repeated with the same result	<ul style="list-style-type: none"> • Use of case study protocol • Develop case study database 	<ul style="list-style-type: none"> • Use of case study protocol • Development of case study database

6.8 Ethical Considerations

This study understands the importance of ethical consequences of research endeavours. According to Bryman (2008), ethical issues arise at variety of stages in a research and should not be ignored because they relate directly to the integrity of the research and the disciplines that are involved (Bryman, 2008). Denscombe (2007) opines that social researchers should be ethical in their conduct of research by respecting the rights and dignity of those participating in the research, protecting them from harm that may arise from their involvement and operate with honesty and integrity.

Research Governance at the University of Salford also takes research ethics very seriously, and this study submitted itself to the scrutiny of the University's Research Ethics Panel and obtained the necessary Ethical Approval before the collection of primary data for the research. A copy of the Ethical Approval can be seen in Appendix V of this report. The application for ethical approval presented the following for scrutiny:

- Aim and Objectives of the research
- Outline Research Methodology
- Details of Data collection procedure
- Data collection instrument
- Description of proposed research participants and justification of Sample size
- How Informed Consent will be obtained
- Plans for Data Protection
- Codes of Ethics that will guide the research
- Sample participant's invitation letter
- Sample research Information Sheets

The ethical issues considered during the course of this research are summarised in table xx below.

Table 6.8 - Ethics considered by the research

Research Stage	Ethics considered
Literature Review	<ul style="list-style-type: none"> • Acknowledgement and citing of literature sources.
Research design	<ul style="list-style-type: none"> • Philosophical assumptions of the research to be identified and made clear. • Clarification of the rationale for the research design.
Primary data collection	<ul style="list-style-type: none"> • To Ensure participation in the research was voluntary, and make it possible for research participants to withdraw at any time without explanation • Informed consent to be obtained from all participants. Participants to have free and informed choices, no one will be pressured, coerced or induced to participate • Formal permission for access to be sought and received before data collection. Use of deception or covert means to obtain data would be strictly avoided • Data collected to be kept safe under lock and key for a period of three years, and thereafter destroyed. Electronic data to be stored in a password protected computer • Data will be used only for the intended purpose • Information collected from respondents to be treated with utmost confidentiality
Data Analyses	<ul style="list-style-type: none"> • Protection of participants confidentiality and anonymity. • Use of language respectful of participant's opinion, • Reporting of data fully and honestly
Writing up	<ul style="list-style-type: none"> • Reported fully and honestly • Did not falsify evidence, used polite and respectful language. • Respondents not to be identified in any report • Acknowledgement of all assistance received • Limits on generalisability of the research outcome to be clearly stated

6.9 Chapter Summary

This chapter has presented the basic concepts and principles related to research methodology and outlined the rationale for the methodological choices made towards achieving the research the aim and objectives and answering the research question.

Motivated by the knowledge gap in existing literature, the research focused on methodical choices that will best facilitate an in-depth study that will yield rich qualitative picture of the implementation of PPA (2007) on a real-life project. Therefore, the research strategy selected was the case study strategy.

Similarly, the nature of the phenomenon being studied: the achievement of value for money, as literature reviews establish, is generally a subjective judgement and varies from one individual to the other. The research therefore chose to follow a mainly relativist, social constructionist and value-laden philosophical viewpoints, and mostly relying on qualitative analyses of data collected through face to face semi-structured interviews of participants of a recently completed construction project. The interviews targeted the experience, reflections and opinions of the participants on the case projects in relation with the research question and aim. Thematic content analyses technique was considered most appropriate for identifying, analysing and reporting themes within data from each of the case projects selected. Again, to achieve the research aim of developing measures for improving the achievement of value for money on public construction projects, the Delphi survey technique was considered most effective and convenient means of arriving at consensus amongst geographically dispersed Experts sampled for the study.

Chapter 7

Evidence from Case Project A

7.1 Introduction

This chapter presents the results and analyses of data collected from the first Case project selected for the study (here anonymised as Case Project A). The methodological choices made towards answering the research question and achieving the study aims has been presented in the previous chapter. The findings presented here are mainly result of face-to-face semi-structured interviews conducted using the Interview guide (see appendix 1). The interview guide served as an agenda to ensure that the interview had probed the relevant issues with all respondents in a consistent manner. Interviews avoided sequential probe of items in the interview guide.

Face to face interview were conducted with six members of the Project team who participated in the procurement of the Case Project. They were:

1. Employer's representative (anonymized here as Client Rep A)
2. Project Architect (anonymized as Architect A)
3. Senior Quantity Surveyor (anonymized as Quantity Surveyor A)
4. Senior Electrical Engineer (anonymized as Electrical Engr A)
5. Senior Civil/Structural Engineer (anonymized as Civil Engr A)
6. Main Contractor representative (anonymized as Contractor Rep A)

Effort to reach and schedule an interview with the representative of the Consultant Mechanical Services Engineers, who was part of the project team proved abortive. Six of the seven interviews were conducted within a two-week period although negotiations and scheduling lasted much longer. All Interview sessions were recorded with the consent of the interviewee and average interview time was 59 minutes. Six of the seven interviews were conducted at the Interviewee offices and one was conducted in a hotel lobby. The hotel lobby arrangement was not pre-planned but was agreed to be more convenient after it was discovered that the researcher and interviewee happen to be around same location in the city compared with both risking late-afternoon Lagos city traffic congestion to get to the interviewee's office located across town.

7.2 Findings

7.2.1 Background of Case Project A

Data obtained from the case project document indicate that the scope comprise of a four-storey reinforced concrete framed academic complex approximately 7,700m² GFA and a separate two number four-storey residential hostel complex, approximately 6,500m² GFA, originally contracted at the sum of NGN 7.6 billion, and for completion within two years, but instead lasted over six years to reach practical completion. Indicative final account sum is approximately NGN 9 billion.

The scope also included extensive mechanical and electrical engineering services; for example, chilled water system HVAC, telecommunication electronics, elevators, firefighting and alarm systems, etc. The project had recently been handed over to its users and negotiations and agreeing of final accounts were on going at the time interviews were conducted.

7.2.2 Interview Respondents' Background

Respondents' selected for the study were persons who have had direct participation during the procurement of the case project, acting in various professional capacity; Project Manager, Architect, Quantity Surveyor or Engineer. Some were part of the project team as early as the project inception and witnessed the entire procurement process until the completed project was handed over to the users.

"I was a lead design engineer on that project, ..., and also supervised the construction process from start to finish" (Civil Engr. A, April 2017)

"I became involved in the tender stage and also in the post contract administration of the project up to completion" (Architect A., April 2017)

Respondent with the minimum participation in-term of period of involvement, participated in the last two years or so of the project.

I took over the [Case Project] from a colleague who retired and, ... I know I spent two Christmases ..." (Contractor Rep. A, April 2017)

Construction experience of respondents ranged from a minimum 10 years to a maximum of 26 years variously spent working in the private and/or public sectors.

I have had a civil service background; a little bit of consultancy background and I now work in [a] Construction Company (Contractor Rep. A, April 2017)

Respondent's organisations were mostly private consulting firms into professional consultancy services for both the public and private sector organisations. One respondent is an employee in the Client Organisation, and another employed by the Contractor Organisation. The Client Organisation is a public sector financial organisation, but also engages in "building facilities for its own use and convenience of its staff" and engage also in "intervention projects where [it] assist the federal government in infrastructural development". The Contracting Organisation is a construction company and has been in construction business for both private and public sector organisations in Nigeria for over 80 years.

Experience implementing PPA (2007) of the respondents can be gauged from their level of involvement in public sector projects. For the Respondents who are employed in the public-sector organisation, implementing the PPA (2007) would be a norm. However, for the others who do not work in a public-sector organisation, experience implementing PPA (2007) would be related to the type of client their organisation work for. When asked who the main Clients of their organisations were, all reported to have public-sector Clients, but also private Clients; private individuals and corporate organisations.

"Mostly the clients we deal with are government clients ..." (Quantity Surveyor A, April 2017)

7.2.3 Achievement of Value for Money

7.2.3.1 Perspectives to achievement of value for money

As established in Chapter 3 of this report, practical meaning attached to Value for money as a term is not consistent, notwithstanding its intuitive appeal. The interview probed to ascertain what the respondents considered as achievement of value for money reflecting on Case project A. This was to gain insight to the meanings ascribed to Value for money by

the individuals tasked with realisation of the Case project and potentially what could have influenced their thought process and perhaps their actions. When asked to reflect on the Case project and give their general impression of the project outcome in-terms of achievement of value for money, respondents opinions showed various perspective to assessing value for money. Their assessment of value for money achieved on the Case Project A appear to depend on what project performance criteria is thought to be more important, or out-weigh the other. It varied from generally outright positive impression to those of mixed feelings as to whether the project has achieved value for money considering the actual performance on some key performance criteria.

Some Interviewees were positive that value for money has been achieved in-term of successfully completing the works and delivering a facility that is thought to satisfy the need for it in the end.

“when we completed the project, and invited the stakeholders [Beneficiary Organisation], they were very happy because the project has met their requirement; So, in terms of value for money, all that was required to be done has been done. All that was defined as the functional elements of the building were provided. It has met the scope of works having provided for all the elements of all the scope; that’s the basic functionalities. And then, all the facilities of convenience have been provided. And, then, if we look at it, we intend to achieve a world-class Centre and it has some of the best facilities you can find anywhere in the world, in terms of learning, in that Centre” (Client Rep A, April 2017)

“So, really, we can say confidently that there’s achievement of value for money for that project. It’s just to say that the project has actually provided the basic need in which it was initially brought up for.” (Civil Engr. A, April 2017)

Other respondents were positive that value for money has been achieved on the Case Project based on a project performance criterion they considered most paramount; quality of works;

“Yes [value for money was achieved], ... with the quality of the job done by the contractor and the equipment [installed] there – it’s world class equipment and it’s one of the best in the country” (Electrical Engr. A, April 2017)

“My general impression on this particular project, ..., is that I think in terms of the quality delivered it has achieved value for money. There are downsides and challenges here and there in terms of time of delivery and all that, but in terms of the quality of the product delivered, I think it has achieved value for money” (Quantity surveyor A, April 2017)

Another Interviewee gave rather a hesitant assessment as to whether the project has achieved value for money given the projects mixed performance on the traditional project performance criteria of Quality, Time and Cost, and what trade-offs between them is acceptable;

“That’s a tough one. ...the project took far too long. And, yes, at the end of the day weighing naira and kobo against the physical structure that has been delivered, you would say, yes, value for money. But it’s taken far too long. And I think if you were going to measure the opportunity cost in the loss, or in the unavailability of the project, of the building, of the facilities for the beneficiaries to use in the past four years; if you put that into monetary terms, then, maybe you would say it did not have value for money, because it took too long. But if this, today, is the actual handover date, I would say, yes, value for money. So, yes, value for money. But it took too long” (Architect A, April 2017)

Furthermore, there was yet another perspective to assessing value for money that relate to concerns about the attitudes of users of the delivered facility, suggesting that achievement of value for money is a judgment that considers long-term usage of the facility assessed. An Interviewee was concerned that the end users lacked capacity to give the facility that care that is required to continuously achieve value for money.

“Well, if we are talking in terms of quality, yes. It’s been done well and the value – it has achieved the value that was intended. Even if I have

reservations at all it is on the end-user[s]; ... getting them to understand how to handle those facilities with the care that it requires is something I don't know how they are going to do" (Contractor Rep A, April 2017)

7.2.3.2 Role of PPA (2007) in ensuring value for money

The study sought evidence from the case project on how the PPA (2007) helps to facilitate the achievement of value for money. Respondents were asked how the PPA (2007) made contributions to achievement of value for money (as assessed by themselves), reflecting again on the case project. The respondents were quite unanimous on the fact that the contractor selection process required by the PPA (2007) helped secure a contractor competent for the project. Some respondent recounted:

"Well, I think to the extent of getting the right contractors, I think that is just it; but apart from that I don't think, in specific terms, the public procurement act aided the delivery of the project with the required quality, the cost that was expected, and the time, of course, and the strategy. I think for those things there is a lot of work that needs to be done to tweak the selection process in the public procurement to distort the cascading sort of traditional procurement strategy that is suggested or recommended by the public procurement act" (Quantity Surveyor A, April 2017)

"Because of the process we went through in selecting the contractor during the tendering process, ..., we were able to come up with a very reputable contractor that gave us the best quality of finished work" (Electrical Engr. A, April 2017)

"...., concerning this project, I want to say that, well; the right person got the job. On the client's side, I think that they have value for money. On the contractor's side well, because of the delay in completion we didn't quite get those parts right." (Contractor Rep. A, April 2017)

Also, the onset defining of project objectives or value proposition as required by the PPA (2007) is thought to have set the benchmark of what the project ought to achieve and against which the effectiveness dimension of value for money can be assessed.

“First of all, we knew, I mean we took very, very robust needs assessment, so we knew what we wanted...” (Client Rep. A, April 2017)

Furthermore, there is an observation that the PPA (2007) had been overprotective of the public-sector establishment, suggesting that the law does not impose as much strict requirement on the public-sector establishment as it should.

I think the public procurement Act tends to lean towards the protection of the government agencies to the detriment of the other parties to the contract. I think as much as they lean heavily to protect the government, they should also protect these other parties by insisting that processes are put in place to ensure prompt payment. [for example] It is difficult to push somebody to do work when they haven't been paid. (Architect A, April 2017)

7.2.4 Implementation of PPA (2007) in Construction Project

The study sought to understand the procurement practices used during the various stages of procurement prior to site construction, as evidenced in the Case Project to know to what extent they complied with the provisions of PPA (2007) and how those practices made contribution towards achievement of value for money. Respondents were asked to reflect and recount the procurement practices adopted, using a template of recommended nine essential steps to public procurement issued by the Bureau of Public Procurement. They were also asked to give their opinion, reflecting on the case project, why they think those individual process steps were important and how they made contributions towards achievement of value for money. Interviewee's responses are presented under the sub-headings of the activities undertaken. Evidence generally showed that the Case Project procurement largely complied with the process template of nine essential steps to public procurement recommended by the Bureau of Public Procurement.

7.2.4.1 Needs Assessment

Needs assessment for the Case Project was carried out by a team comprising some of the project consultants, representatives of the Client Organization and representatives of the project beneficiaries. The assessment confirmed that the project beneficiaries did not have adequate facility for the post graduate programs in Business and Financial disciplines, and therefore, the case for the Case project was made. Some of the interviewee recounted:

“They [Needs assessment team] came out that the [Beneficiary organisation] do not have good facilities for post graduate studies, so there’s a need for the [Client Organisation] to do an intervention project for the post graduate schools” (Client Rep. A, April 2017)

“It was after that visit [of the Needs assessment team] that they came down, sat down and tried to crystalize this into the nature of the project that could be put together” (Architect A, April 2017)

The Contractor organisation was not part of this process stage because at this stage they were not yet “*on board*” the project team.

When asked now the project is completed to reflect and give their opinions why it was important to have the Needs assessment done, the Interviewee were unanimous that this procurement step was important. Reasons are that It helped confirm that the project would fill a void that was existing in the Beneficiary organisation, helped secure stakeholders buy-in and helped determine the scope of works to be done. One interviewee particularly responded:

“Well, this particular step, I would say, is one of the most important steps in achievement of value for money, especially when you look at a project, not in terms of just the project phase, but the life span phase of the project. When the ... need for that project is captured adequately ... , I think the value proposition is a lot more than when it is not”
(Quantity Surveyor A, April 2017)

7.2.4.2 Budgeting

The Case project was budgeted for and included in the Client Organisation’s annual budget for 2009. Project budget was prepared by the Client Organisation with support of the consultant Quantity surveyors. It was suggested that the amount of money budgeted was considered adequate but later in the project there was need for more money due to changes that occurred. These changes include increases in work scope and market price fluctuations. One respondent recounted:

“I would say yes there was adequate appropriation [budget], even though there were some changes that came later on which required

some more appropriation for the project” (Quantity Surveyor A, April 2017)

“... also, taking into account the volatility of the economy, fluctuations here and there which added to the cost of the project...” (Architect A, April 2017)

Respondents considered adequate budgeting an important step in the procurement of the Case Project because It helped the Client organization make decision whether to go ahead with the project or not and ensured that money was legally available to spend for the project. It was also opined that the budget became a project constraint that helped prevent corruption as the fund is not seen to be “*limitless*” and forced project participants to appropriately weigh their spending decisions.

“It, also, makes you stop and think for everything you want to do, to actually evaluate: is this really worth it? Is it going to add value? Does spending one naira, or one million naira extra going to bring value to justify making that extra expenditure and going through the hassle of making the application for it [extra budget” (Architect A, April 2017)

7.2.4.3 Bid Solicitation

There was no advert placed in the media advertising the job opportunity for the Case Project. Instead, selected contractors were invited to tender. When asked, one respondent suggested that the reason for no media advert could be that the law was new at that time and re-alignments were going on in the Client Organisation.

“...maybe the [Client organization] was still trying to align their procurement processes with the Public Procurement Act. ...” (Client Rep. A, April 2017)

Selective tendering method was adopted and invitation to tender was issued to Five (5) contractors. Criteria used for the selection of the five contractors are discussed in the section that follow.

It was suggested that the selective tendering method adopted for selection of bidders was important because it averted in-efficiencies.

“the open tendering system [instead of selective method that was used] have lot of paper work, ... so you find time is wasted.... it takes longer time to conclude the tendering procedure and ... [that] would have impacted negatively” (Contractor Rep. A, April 2017)

But then, it was admitted that the open tendering methods as suggested by the PPA (2007) has its advantages; it gives access to a large pool of prospective contractors to choose the most qualified for achievement of the project requirement.

7.2.4.4 Prequalification of Bidders and Tendering Process

The pre-qualification and selection of bidders was handled by the client whereas the tendering process was conducted by the project consultants. The pre-qualification criteria used includes contractors “*track records*”, “*financial strength*” and “*technical abilities*” to execute the project. There were efforts made to confirm the documentary evidence in support of these criteria as one interviewee recounted:

“...there were visits to some of the contractors existing projects and sites just to ensure that yes, the documents provided are true, to confirm what they provided in terms of their documentation” (Client Rep A. April 2017)

This notwithstanding, some reservations were made by another respondent about the quality of the pre-qualification process carried out by the Client Organisation, suggesting that the process qualified some contractors who should not qualify:

“... my impression at the time was that there were gaps in some submission by tenderers ... maybe if we had done the prequalification they wouldn't have scaled through” (Architect A, April 2017)

Evidence from the Tender Report supports this opinion. Despite being pre-qualified, two of the five invited tenderers were ruled out for award on grounds of not meeting the “*technical criteria*” for the project, while a third bidder was excluded on ground that “*their track record for delivery of quality projects on programme and budget is untested in recent times*”.

The period from issue of tender documents to bidders and bid submission lasted approximately four (4) weeks (Tender Report, 2009). All five invited contractors submitted bids on the due date and bids were opened in the presence of bidders, consultants and officials of the Client Organisation.

Tender evaluation followed a two-stage evaluation process: “*technical evaluation*” and “*financial evaluation*”. The bidders submitted their technical bids comprising evidence of their legal capacity to go into contract, their technical capacity, their financial capacity, evidence that they comply with all government rules and regulations, taxes, etc. The “financial bids” were mainly the priced bills of quantities. Bid Securities (or guarantees) were provided by most of the bidders as required by the PPA (2007), but it appeared that the sums guaranteed were at the discretion of the bidders.

Evidence from the Tender Reports indicate that the technical evaluation of the tenders considered the technical ability of the bidders to execute the works as evidenced in previous jobs and those of the subcontractors proposed for specialist works. Also, their financial capability to provide “*some level*” of funding for the project, proposed programme of works and method statements that demonstrate understanding of the project’s scope and complexity were evaluated. Financial bids, or more concisely, the Commercial offers on the other hand, examined basic elements of pricing to ensure they were adequate, reasonable and that they are fair for the works to be carried out. The Tender report concluded that only two bidders were technically competent to execute the works and made recommendations on this ground for further price negotiations and award.

There are suggestions that the tendering process was transparent. Some of the interviewees recounted:

“I believe the bid process was transparent, ... to a large extent ...”

(Contractor Rep. A, April 2017)

“... the tender process was transparent ...same information was given to all bidders, they also bided on same day, tenders were opened in the presence of the bidders ...” (Architect A, April 2017)

When asked why transparent prequalification and tendering process was important for achievement of value for money reflecting on the case project, respondents were

unanimous that transparency was important for the procurement process. Transparency in the process was believed to help maximise the advantage of competition by giving the bidders the impression of a “*level playing ground*” so they can be confident “*that the [Client organization] is serious in undertaking this project*” and present their best bids. As such when the process finally settles on a winning bid, it will indeed be the best bidder in terms of all the evaluation criteria. Also, transparency in the process was believed can prevent some under-hand activities that can hinder selection of the best bidder that can deliver the project’s requirement. one Interviewee recounted:

“I think a transparent process in the selection enables you get the best person for the job. When it is a closed process, it gives room for nepotism where people invite tenderers based on criteria that may not necessarily be in the best interest of the project” (Architect A, April 2017)

7.2.4.5 Tender Approval, Contract Award and Execution

The contract for the Case Project was approved by the Client Organisations Board of Directors on behalf of the Federal Executive Council after going through all the levels of approvals including the Client Organisation’s Tender Board. When asked to reflect on the Case project and give opinion why it was important for a Client Organisation management Board of Directors participation in the process as required by the PPA (2007), the Respondents opined that the Board of Directors were indeed the project sponsors, therefore getting involved helps get their informed decisions and assume full ownership of the procurement process. It was further suggested that getting the Board involved ensures a proper alignment of the process with the bigger picture of the Client Organisation.

“I would say it is important in terms of aligning the Client’s budgetary allocations or capability with what has been advised” (Quantity Surveyor A, April 2017)

“It also helps you get value for money because they give another perspective for instance: as consultants, we have a tendency to want quality above all else and that could, sometimes, help us to drive costs up, ... But this is a tender board made up of administrators and the money people. So, they tend to look at things in the big picture; what is

the overall budget of the organization? Can we afford this? Is it in line with the kind of donation we would want to be making to that [Beneficiary Organisation]?” (Architect A, April 2017)

Recount of the interviewees and comparison of records from documents confirmed a further negotiation after the tender evaluation was concluded. This appear not in conformity with Section 33 (1) of the PPA (2007) which state that “*the successful bid shall be that submitted by the lowest cost bidder from the bidders responsive as to the bid solicitation*”. Recommendation from the Tender Report had identified two of the five bidders as responsive to the bid solicitation, but the contract award decision did not automatically favour the bidder with the lower cost.

The contract for the Case Project A was awarded, not to the lowest bidder. The award decision instead favoured the bidder who was adjudged the most technically competent to execute the project irrespective of their bid amount being the highest on offer. Why this decision was taken is not clear; why the award decision did not consider the next “technically competent” bidder with the lower bid amount is also not clear. However, the contract was awarded at a negotiated sum which was a 22% discount from the original sum tendered, and 17% lower than next “technically competent” bidder. When asked why the lowest bidder was not considered for award after being pre-qualified as the PPA (2007) rules require, an Interviewee response appear weary of the perceived risk that may be involved in so doing.

“The job was not awarded to the lowest bidder and this is the point on which (as a consultant and as a professional) I do not agree with the government policy on that [award must go to the Lowest bidder]. The lowest bidder may very well be the most incompetent bidder. The lowest bid may be the lowest bid because they do not understand what the drawings or the Bills require; they do not understand the quality that is required; they may not have the supervisory personnel of the right calibre to execute that job: and so they have tendered according to their ability, their capability and their level” (Architect A, April 2017)

According to an Interviewee, other formalities after award followed;

“The contract, sequel to the approval by the board of directors, the contract was awarded,, the contractor was issued the award letters, a site handing over was conducted by the [Client Organisation]”
(Client Rep. A, April 2017)

When asked if the contract was documented and signed-off by the parties as required by the PPA (2007), there were disagreements among the respondents over the existence of an executed Contract document. The interviewees variously disputed:

“Contract documents were signed” (Client Rep. A, April 2017)

“To the best that I can remember, I know that the contract agreements (having been prepared by the consultants) were forwarded to us. We signed it, sent it to the client for signature, but along the line the documents got missing within the client’s organization” (Contractor Rep A, April 2017)

“I am not sure that there exists a signed contract. There have been at least four sets of copies of the contract because each set have four or five copies that have been generated by the consultants, signed by the contractors and forwarded to the client for signature. And as I speak here today, I have not seen one copy that has been signed by the client”
(Architect A, April 2017)

“Yes, I can confirm there was a signed, executed contract between the client and the successful contractor” (Quantity Surveyor A, April 2017)

A further resultant of this argument played out during the contract administration when an issue with contract a clause concerning “on-cost addition to fluctuations”, which was believed to have been agreed to for inclusion in the contract during bid negotiations, caused arguments that was not easy to resolve due to non-existence, at that point in time, a signed contract bearing the disputed clause. One respondent recounted:

Now, during the tender negotiations between the client and the contractor, there was a particular clause which the contractor required should be included in the contract, which was that there should be a

twenty-five percent (25%) on cost addition to all fluctuation claims. This was agreed during the negotiation, but it was omitted during the first print of the contract document Somewhere along the line fluctuation claims were made during the implementation of the project and the contractor in his submission included the twenty-five percent on cost to the fluctuation and this was flagged by the parties processing the claim. And they said this is not contractual and was brought to our attention. somebody in the client's office found one copy [of contract document] where the 25% on cost was not recorded. But then [a] second copy was also in circulation somewhere in the [Client Organisation], And neither copy was signed by the client. the second one [copy] with the 25% on cost was signed by the contractor, So, that was a confusing point and there was a lot of hullabaloo, letters, e-mails back and forth. (Architect A, April 2017)

When asked why it was important in-terms of achievement of value for money to have a signed-off contract as required by the PPA (2007), respondents believed it was because it marked the project commencement and established a legally binding relationship between the parties under the Nigerian federal law.

“Without this, there's no relationship between the contractor and the client. With this it is very important to establish a link for the execution of the Job, and this step is very important in this process” (Electrical Engr. A, April 2017)

“...I think this particular step [in the procurement process] is very important which serves as a threshold or stage gate of the start and commissioning of the project” (Quantity Surveyor A, April 2017)

7.2.5 Barrier to achievement of value for money

When asked why the case project did not meet expectation on some key value for money metrics as assessed by the respondents, a number of barriers to achieving value for money identified by the respondents are presented under the subheadings that follow.

7.2.5.1 Prolongation

The respondents were concerned that the value for money achieved by the Case project was limited in scope due to the time it took to complete the project. Construction of the project was initially contracted to last for two years, but it lasted over six years in the end. There were concern about the time value of money lost due to prolongation, and that the Beneficiary Organisation lost the use or benefits of the facilities all through the years of delay.

“..... But it’s taken far too long. And I think if you were going to measure the opportunity cost in the loss, or in the unavailability of the project, of the building, of the facilities for the beneficiaries to use in the past four years; if you put that into monetary terms, then, maybe you would say it did not have value for money, because it took too long” (Architect A, April 2017)

“Because the contract period extended beyond what was originally planned. We were on that project for close to five or six years, and of course you know of the time value of money” (Contractor Rep. A, April 2017)

“There are downsides and challenges here and there in terms of time of delivery and all that...” (Quantity Surveyor A, April 2017)

Prolongation cascaded the project into deeper problems which further limited the scope of value for money achieved on the project.

“... the project was taking longer and you’re sure, too, prices were changing on us”. (Architect A, April 2017)

7.2.5.2 Cost escalation

Another concern the respondents had concerning achievement of value for money on the case project is about the project’s economic performance. When asked to assess the cost performance of the project, respondents were unanimous that the project had not performed to expectation in that regards, although for some reasons. One reason cited was the macro-economic realities that unfolded during project execution, which of course were beyond

the control of the project management in some sense. Considering this, some respondents suggested that cost performance of the project was good.

“... given the economic situation and all the variables of the economy that existed over the last period of the - I mean the period of construction - cost performance is very good” (Client Rep. A, April, 2017)

“... also taking into account the volatility of the economy, fluctuations here and there which added to the cost of the project. I think the cost performance of the project (I wouldn't say it is spectacular) is a derivative of other things that occurred” (Quantity Surveyor A, April 2017)

However, another respondent made a point to suggest that the prolongation of the project meant that it was vulnerable to the realities that continued to unfold.

“And that was because the project was taking longer and you're sure, too, prices were changing on us”. (Architect A, April 2017)

Then again, from the perspective of the Contractor Organisation, expectations were not met on the cost dimension, in-terms of the losses or reduced profits.

“... to a large extent, also, we had to execute works in the later part of the project based on the rates we had at the beginning of the project. and, of course, you know that when we talk about fluctuations (unfortunately not all items on the project were fluctuated) we are talking about fluctuations on labour and, may be, a very, very few items of materials, may be cement and all that, but every other thing, because of the delay, we found that a lot of money was actually lost” (Contractor Rep. A, April 2017)

7.2.5.3 Changes in project scope or Variations

Respondents were also concerned about the effects that variations in scope had on the case project, in-terms of the limiting effects it had on achievement of value for money. Some changes in design caused in-efficiencies and wastages resulting from re-work.

“.... well, many of the re-works we did were not because of bad workmanship, but it was, maybe, because the Architect or the client had a re-think; They have had to ask us to break down this wall so that we could enlarge this room; you know, remove this and replace with that, and all that.” (Contractor Rep. A, April 2017)

There were changes that impacted the contractor’s ability to proceed diligently with the works and these had impact on the overall project delivery time. One respondent cited an example of this:

“For instance, for the hostel block, there was a requirement from the client that we do an extra basement because of the general topography of where the hostel block was located. So, that actually held down the project, in terms of time delivery, for a while before it could progress out of that basement level and to commence rapidly with the works”.
(Civil Engr. A, April 2017)

Some of the changes in the project were attributed to some realities that became emergent or issue that came up due to additional information that were not available during the design phase of the project.

“Well, we call it the centre of excellence, and as technology changed we too, we changed too, to meet the state-of-the art technology. It is not like – they were not omissions. They became necessary in view of the new development and changes in the world of technology”. (Client Rep. A, April 2017)

“.... because some of the information was not available at the time of the tender and they became available during the constructions. So, variations occurred, of course, which led to delays which affected the time performance of the project” (Quantity Surveyor A, April 2017)

Notwithstanding the desirability or inevitability of this sorts of change order, they had their disruptive impact on progress as they have on budget because it appeared that Client Organisation's express approvals were required; and those approvals were not easy to come by.

"... major reason why the time performance expectation was not met was the delay in the approval process [by the Client Organisation]; whether it is of material sample or recommendations of consultants ..."

(Contractor Rep A, April 2017)

There is also a suggestion that some changes encountered on the project were because of late involvement of the Contractor in the procurement process, and a blame was levelled at the traditional procurement method adopted for the project. When asked to give an assessment of the project delivery process in-terms of achievement of value for money, one respondent pointed out a deficiency of the traditional method of procurement:

"I think the traditional way of procurement delivery of design, bid and build have a lot of inefficiency in it, in that you don't tap into the expertise of the contractor. there are a lot of these variations and things that, naturally, wouldn't have come up if the contractor was involved in the design process." (Quantity Surveyor A, April 2017)

This negative perspective of the traditional method of procurement was not shared by most respondents of the case project. Most believe the procurement method was not a problem. However, one respondent, albeit with a positive view of the traditional method, supported that some variations would have been averted had the Contractor been involved early.

"I would say on the strategy for this project, the strategy has proved to be very efficient and effective. However, we can't go without saying that there were little conflicts between the contractors and the consultant on the terms of buildability, construction method and, you know, output in terms of availability of some of the materials that were specified". (Client Rep. A, April 2017)

7.2.5.4 Occupancy and Maintenance concerns

Another barrier to achievement of value for money identified by the respondents borders on effective facility management of the completed project. Having delivered a facility which in the opinion of the respondents, is a high-quality state-of-the-art facility that is fit for purpose, there are concerns and scepticism about the appropriate usage and maintenance of the buildings that will guarantee the building will continue to maintain the quality standard achieved during construction.

“Right now, having built to the best of quality, in terms of its operations, we have fears that, given the level of infrastructural development around this thing [completed project], in terms of power supply and water supply we may have a bit of challenge in the operation of this project [facility]. we were considering a way of mitigating it in our M.O.U, it was something that will affect the life cycle cost of the project” (Client Rep. A, April 2017)

“ it’s a highly-sophisticated building with sophisticated air-conditioning systems, you know, and security systems, and all of that, in place. And knowing that the [Beneficiary Organisation] are not very well funded, it is of concern how this project is going to fare in the next five years. we’ve carried along some of the technical people from the works department. They understand how the systems work, but it doesn’t mean they’ll be able to afford the spare parts when they do need them. We are leaving some spare parts, but it doesn’t mean they’ll be able to afford the maintenance. It doesn’t mean they’ll be able to afford the diesel required to run the generators we’ve given them because power is a severe problem in Nigeria. It doesn’t mean that they have all the technicians they need to look after the Air Handling Units or the Chillers that they will be able to afford the call out charge for the contractor who imported and delivered this equipment. You know that is a concern” (Architect A, April 2017)

When asked why this concern was not considered during the Needs Assessment conducted earlier at the project inception, one respondent suggested that the severity of this need was not obvious at the time.

“It was picked up during the needs assessment, but the fact is that, given the economic indices, that has again become a serious concern that we need to review and review again. It was picked up; it was part of the draft M.O.U at that time, but, however, the price is really something else now” (Client Rep. A, April 2017)

7.2.5.5 Project and Contract administration issues

Commonly cited reason for project prolongation and cost escalation presented in the paragraphs above relate to issues bordering on project management and contract administration. While discussing the challenges which were experienced during project implementation and reflecting on how those challenges affected the achievement of value for money, barriers to achievement of value for money could be identified from the views expressed by the respondents. These are presented under the following sub-heads:

Insufficient pre-contract period

Insufficiency of the time allocated to the design development and information documentation phase of the procurement process was also pointed out as another reason that caused delays and contributed to the prolongation of the project. While the construction had been awarded, some form of design detailing were ongoing and certain decisions were yet to be finalised.

“I remember it was a very, very frantic rush.”

“The project was pretty much rushed from the needs assessment, ..., rushed into the pre-contract documentation and rushed into tender. It is my professional experience that the more time you spend in pre-contract; the more likely you are to have a product that is delivered on time. There was a lot of information that was contained in the drawing that were not detailed and so they were being detailed after the contract was awarded. And that takes time. We had a lot of provisional sums because the drawings were not detailed enough so the Q.S could not price [quantify] them properly, so they put provisional sums, you know. So, we had those delays. (Architect A, April 2017)

Excessive Government Bureaucracy

When asked about their experience with government bureaucracy on the project, most respondents were unanimous on the prevalence of delays on project activities due to bureaucracy in the Client Organisation. According to the respondents, these delays affected payment for completed works beyond the contractual period for settlement of certificates which negatively affected the contractor's cash flow and led to slowing down of the works or outright stoppage of works by the contractor.

“... some of the bureaucratic bottle necks are in terms of the payments which were delayed and which led to delay of some certain activities and suspension of certain activities.” (Quantity Surveyor A, April 2017)

I remember one re-curing decimal where the contractor would stall work on site, reduce their manpower and say, oh, they are unable to work because they haven't been paid for three months”. (Architect A, April 2017)

Some delayed decisions by the Client Organisation also had its impact on completion program on items which stood on the critical path.

“... bureaucratic bottlenecks occurred in terms of getting approvals for changes and variations that stood at critical path and it took, sometimes, several weeks to get approvals” (Quantity Surveyor A, April 2017)

“For example, some equipment, by nature of the project, required pre-shipment inspection, that is they had to be inspected at the factory of manufacture. And all these particular equipment were listed and sent to the client, saying, these are the things that we need to inspect. And it was sent well ahead of time, but for some of them we were waiting a year to get approval to inspect these items, and so they could not be imported. And even one or two that were imported could not be installed because we were waiting for approval” (Architect A, April 2017)

Disregard of contract terms

While recounting the reasons why the case project failed to meet completion time expectation, one respondent suggested that not keeping to some key contractual terms by the Client Organisation led to disruptions to the work program that resulted in project prolongation.

“We also had situations where an amount was certified by the consultants and then the contractor received something [an amount] completely different. So, this led to various disputes between the client and the contractor.

... also, an incident where the advance payment was amortized very quickly, very suddenly, contrary to the terms of the contract, and all of this led to the situation where the contractor says, I can't deal with this, and they shut down the site” (Architect A, April 2017)

Lack of PPA (2007) compliance monitoring

Compliance monitoring of PPA (2007) implementation by civil society groups, is one of the requirements of the law. This appear not to have been fully complied with as the respondents could recall outside bodies attending the bid opening during tendering but cannot recall any visits to site during construction.

“Yes, civil society groups and professional bodies were in attendance; that's during the bid submission” (Client Rep. A, April 2017)

“I didn't see any body [monitoring agency] like that apart from the client, and the consultants” (Architect A, April 2017)

“... all the period that we were on site I don't think that I recall any person, other than the [Clients'] officials, coming to review the project, visit the site, review the project ...” (Contractor Rep. A, April 2017)

When asked how compliance monitoring can help improve achievement of value for money, some respondents were quite optimistic that oversight compliance monitoring by

an agency outside the Client organisation would help mitigate some of the barriers to achievement of value for money experienced in the project.

But I would like to see a situation where there would be a project implementation unit,, whose sole responsibility would be to go around every federal government project; and have interactions with the contractors; look at the problem and, if the fault is on the side of the client, to be able to [ask] question and to ensure that those things that caused the extension of time, you know (particularly the delay in the approval process and all that, because these are the things that they would readily have picked up) so, they would have asked the reasons for the delay. And if that is done, you know, both the time and the cost would have been improved upon

..... it may have helped to have such a body, you know, saying we can't go on, this is not right, this is not right. But to a large extent the client tended to act in an autocratic manner sometimes" (Architect A, April 2017)

7.3 Discussion of Findings

While findings indicate that the Case Project A procurement process has largely complied with PPA (2007) regulatory framework, the scope of achievement of value for money has been limited. This appear consistent with the opinions in literature. On the value for money dimensions of time and cost, the Case Project has not met the value expectation of the project participants. However, on the quality dimension, the Case Project A appears to have satisfied the value expectations based in the opinion expressed by the respondents. Generally, evidence from the case project indicate that it is not all gloom in terms of the ability of the PPA (2007) to deliver quality project. Shittu, et al (2013) reported the “rapid increasing rate of defects” in buildings resulting from poor quality of works, but this appear not to hold true considering the evidence from this project. There was a consensus among respondent that the completed project was of a good quality and value for money was achieved in that regards.

In contrast, Ade-ojo & Babalola (2013) study of construction projects similar to the case project revealed a time overrun on projects at the rate of 108%, evidence from this single

case project however, revealed even worse time overrun of over 200%. Lessons can be learnt from aspects where the case project has done well and similarly, pitfalls may be avoided in the future projects where its performance has not met the value for money expectations of a public-sector project.

7.3.1 Procurement process under the PPA (2007) rules

The structured procurement process has helped avoid some pitfalls documented in existing literature common with public sector procurement. It has been documented that the period before the enactment of PPA (2007), public procurement was marked with abuse and irregularities, loss and diversion of public fund due to inflated contract sums, over invoicing, “white elephant” projects, award of contracts to friends and cronies, use of primordial considerations in procurement decisions, non-transparent and flawed processes that yielded incompetent contractor which were linked to project failures, (Olatunji, 2008; Ezeh, 2011; Aladeloba, 2012; Shwarka and Anigbogu, 2012; Olatunji, et al, 2016). Evidence from the case project has largely undermined these.

Views expressed by the respondents confirm that the Needs Assessment carried out at the project inception, ensured the Case Project was conceived to satisfy an existing real need, and therefore, not a “white elephant” project. According to the respondents, the Needs assessment helped to deliver what was needed and beneficial; that all required functional elements of the project were provided and intended benefit assured. This is in part supported by Watermeyer (2013) assertion that a key driver for value for money in construction procurement is to frame value for money proposition through clearly defined project objectives and expected outcome as well as parameters such as time lines, cost, and level of uncertainty. It would appear however, from the views expressed, that Needs assessment focused on the core benefits of a physical asset, and not on what is possible via the procurement process. Much of literature view value impact of public sector construction not only just as an end product, but also as a means to an end. Staples (2010) suggests that the public sector may decide to sacrifice economy to focus on achieving better whole-of-government outcome such as development of Small and Medium Scale enterprises (SMEs), training of Apprentices or providing employment for at risk unemployed youths, etc. There is, therefore, an opportunity here to widen the scope of value for money achievable.

Furthermore, the contractor selection process adopted for the case project has not followed the rules of the PPA (2007) in its strict sense. Firstly, it did not place a media advert

publishing the contract opportunity to all that may be interested as required by PPA (2007). William-Elegbe (2012) suggests that publication of contract opportunity will help prevent the risk of discriminatory practices such as award of contract to cronies. However, there is currently no evidence that this happened, although the basis employed by the client organisation for selecting or qualifying bidders is unclear. This could be a potential weak point in the process adopted.

Secondly, the process did not implement the default cheapest pre-qualified tender wins, as required by the PPA (2007). Instead, the decision process favoured the bidder with the most technical competence and albeit, the most expensive bid. Defence for this according to one respondent was that the PPA (2007) was still relatively new in 2009 when the tender process was done, and that the Client was still aligning their procurement process with the Public Procurement Act.

When asked how these deviations negatively affected the scope of value for money achieved, the respondents were unanimous to the contrary. They believed that those deviations were helpful in the selection of the calibre of contractor selected for the project. There was strong conviction amongst the respondents that the project achieved the quality standard it did mainly because the tender process end-up with a contractor of good calibre.

“Oh! Quality of finished work? If you ask me to scale between zero to hundred, I can say it was about ninety eight percent because the contractor in question here is a contractor who has done much similar projects in the past”.

“On this particular project, we were very thrilled with the quality and the calibre of the contractor that was selected eventually for this project. The contractor has a very good reputation; at the time they had over seventy years’ experience building high quality buildings in Nigeria”

The project participants and decision makers appear not to be swayed by the popular cheapest tender price mentality, but perhaps eager to pay more to guarantee better quality. This is not without its risks of legal challenge. The PPA (2007) has recourse provisions for aggrieved parties to challenge the process for a legal review. There is however, no evidence that this happened.

Much of literature recognise public procurement process to be made up of distinct phases. Arrowsmith, et al, (2011) identified the process of administering a procurement contract to ensure effective performance as a distinct phase of an effective public procurement process. However, the strict rules of the PPA (2007) appears to doused down after the contract is awarded. There seems no structured rule for resolving project implementation issues or strict application of contract agreements. Findings reveal that project prolongation was the key barrier to achievement of value for money on the project and the issues that led to prolongation were found to occur mostly at the post-contract stage. Buyer-seller power imbalance led to some disregard of contractual terms, especially by the Employer organisation.

“..... to a large extent, the client tended to act in an autocratic manner sometimes”.

7.3.2 Contributions of PPA (2007) towards achievement of Value for Money

Opinions expressed indicate a consensus amongst the respondents that transparency of the selection process as required by the PPA (2007) helped secure a competent contractor. According to Raymond (2008), transparency provides an assurance to all the bidding parties that the contractor selection will be done in a fair and equitable manner and this ensures that the right goods and services are supplied at the most economic price. The respondents recount on the transparency of the process is noteworthy:

“I believe the bid process was transparent, ... to a large extent ...”

“I think a transparent process in the selection enables you get the best person for the job....”

Again, the PPA (2007) rules made contributions towards achievement of value for money by its rule for public procurement to be driven by Needs Assessment. According to Watermeyer (2013), a key driver for value for money in construction procurement is to frame value for money proposition through clearly defined project objectives and expected outcome. Findings confirm that the Needs Assessment carried out at the project inception, ensured that there was a preconceived performance objective for the Case Project informed by a confirmed need.

“.... it was important for us to undertake the needs assessment because we need to define the objective..... and benefit to be delivered and overall will impact on the value of the work, the value of the project and then the benefit that will be obtained when the project is delivered.”

Another way the PPA (2007) may have attempted to make contribution towards achievement of value for money on the case project is through its rules for price competition. William-Elegbe (2012) suggests that selecting from a wide pool of suppliers imply higher degree of obtaining the right competitive price as opposed to a monopolistic one. However, this appear to have been compromised during the tender process of the Case Project A. Five bidders were invited to tender, but further scrutiny rejected three bidders on technical ground, implying that the actual price competition was between two bidders, not the widest pool expected. On paper, this would imply loss of economy as envisaged by the PPA (2007), but when viewed through alternative perspectives in literature, that the lowest cost at tender stage does not guarantee cheapest outturn cost, but could actually block the way to achieving best value (Wood, 2005).

It can be argued that a rational procurer could naturally have followed the rationale of the PPA (2007), but for the public-sector, that cannot be said with certainty. According to Ekwewuo (2017), public procurement is susceptible to undue influences and the resources at risk is significant. It would appear therefore, that making the prescribed process compulsory and the obligation to keep records for audit purposes is key to the PPA (2007) contribution towards achievement of value for money.

7.3.3 Barriers to achievement of value for money

Figure 7.1 is a mind map generated from themes that emerged from analyses of interview data on the barriers that limited the scope of value for money achieved on the Case Project A. Starting from the centre and moving outward in any direction, the mind map traces respondents' views why achievement of value for money on the project was considered to be limited in scope. Also, continuously asking why and/or how? and moving outwards reveals causal links manifest in the views expressed.

Views expressed suggests that the most compelling reason why Case Project A project had limited achievement in the scope of value for money was due to prolongation. The project

was originally scheduled to be completed in two year, but it delayed and lasted for over six years. As illustrated in the mind map, prolongation limited the scope of value for money achievable in more than one way. The completed facility was not ready for use as expected by the stakeholders, thereby deferring the benefits accruable or the need that the facility was meant to mitigate continued to be endured for extra four years. Also, prolongation of the project had additional cost to it, leading also project cost escalating more than expected due to prolongation claims.

“.... extension of time as you know it comes with its own cost implications”

Again, as the project prolonged, market prices of basic materials were escalating due to macro-economic reason beyond the control of the project. This again impacted the project's completion cost.

“And that was because the project was taking longer and you're sure, too, prices were changing on us”

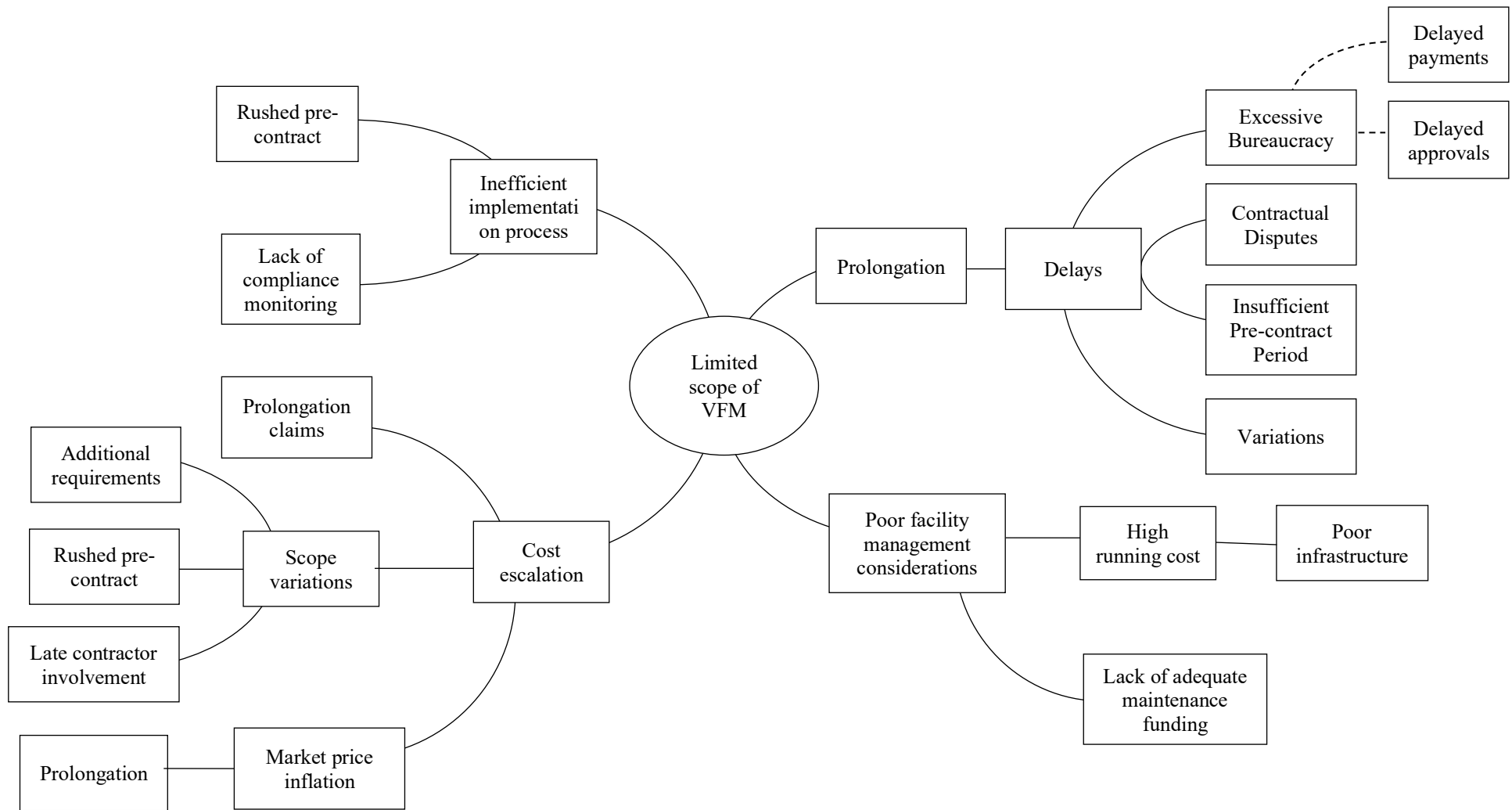


Figure 7.1 - Mind map of Respondents' views of barriers to achievement of VfM on Case Project A

As can be traced in Figure 7.1, evidence manifest in the views expressed show that the primary cause of prolongation was the result of delays; delays due to excessive bureaucracy, delays due to contractual disputes, delays caused by scope variations and delays occasioned by insufficient pre-contract time. It could be inferred that delays were caused by issues which come under Socially driven implementation challenges as conceptualised in Chapter 5 of this report. They are mainly management and organisational challenges.

Other causes of reduced scope of achievement of value for money include cost escalation due to scope variations that caused wastages and rework:

“well, many of the re-works we did were not because of bad workmanship, but because the Architect or the Client had a re-think; They have had to ask us to break down this wall so that we could enlarge this room; you know, remove this and replace with that, and all that ...”

However, it could be argued that the benefits which changes in project scope that targeted increases or improvement of the project’s value proposition but had negative impact on the other value for money dimensions is much of an individual’s judgement. However, in terms of a Public-sector project, involving several and diverse individuals, this could become complicated (Glendinning, 1988).

Respondents also believe that the project would have performed better in terms of achievement of value for money if there were PPA (2007) compliance monitoring by an external organisation and adequate planning for facility management of the completed facility. Views expressed suggest that only few of the PPA(2007) implementation challenges documented in the literature manifested in the case project.

7.3.4 Causes of Barriers to Achievement of Value for Money

As illustrated in the Mind map of Figure 7.1, evidence from Case Project A generally appear to indicate that the primary reasons why the project had limited achievement in the scope of value for money are due to project prolongation, cost escalation, variations in scope, occupancy and maintenance concerns and in –efficient project implementation process. It could be inferred that these are mainly management and organizational challenges and don’t seem to directly relate to Familoye, et al, (2015) three most significant

challenges facing the effective implementation of PPA (2007) of ‘Size and Complexity of procurement’, ‘Political interference’ and ‘Shortage of public procurement practitioners’.

By applying Ishikawa diagram, Figure 7.2 is an attempt at cause-and-effect analysis based on the views expressed by the respondents, why achievement of value for money was limited in scope for Case Project A. The problem of limited scope of value for money was generally viewed to have been caused mainly by prolongation, cost escalation, variations in scope, occupancy and maintenance concerns and in –efficient project implementation process. These were in-turn caused by various challenges experienced on the project as Respondents’ reflections appear to indicate.

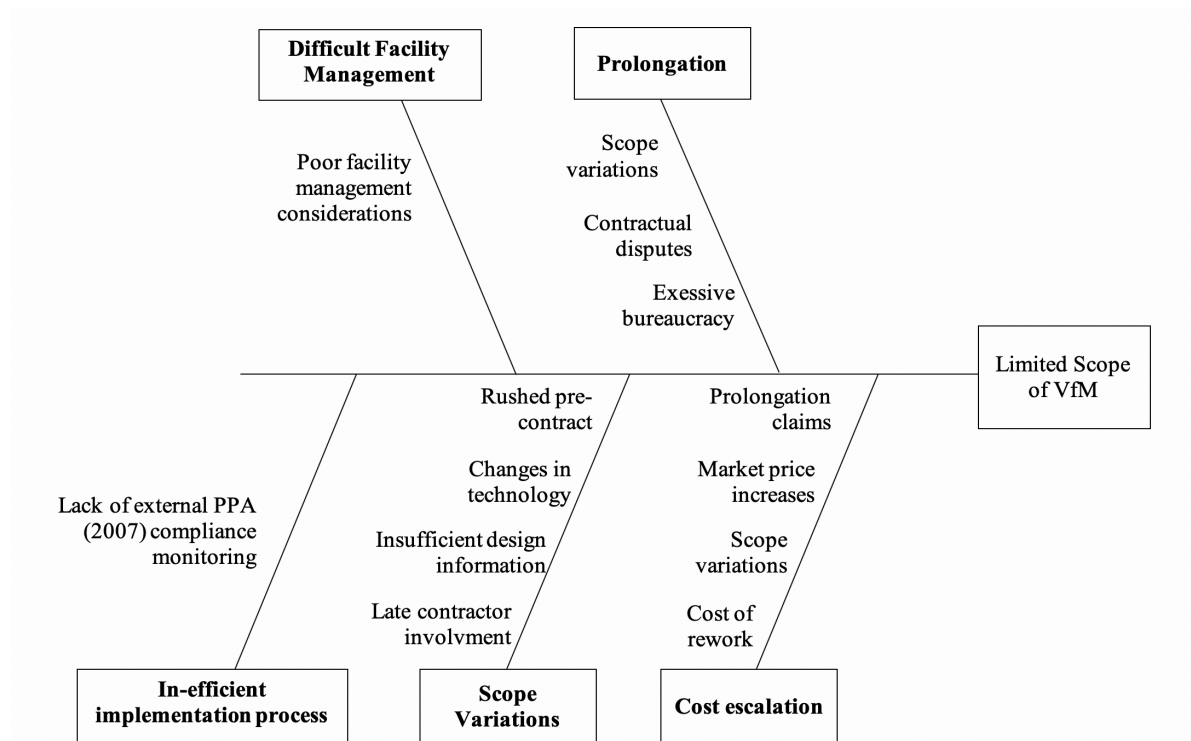


Figure 7.2 – Root-cause analyses of barriers to achievement of value for money for Case Project A

Prolongation limited the scope of value for money achievable in more than one way. The completed facility was not ready for use as expected by the stakeholders, thereby deferring the benefits accruable or the need that the facility was meant to mitigate continued to be endured for extra four years. Also, prolongation had a contributing effect on overall cost of the project, another reason for limited scope of VfM, in the form of prolongation claims. Again, as the project prolonged, market prices of basic materials were also escalating due to macro-economic reason. According to the views expressed by the respondents, the

project's prolongation was mainly caused by delays due to excessive government bureaucracy, delays caused by contractual disputes, delays caused by disruptions of Variations and delays occasioned incomplete design information due to insufficient pre-contract time.

In addition to the cascading effect of project prolongation on cost, views expressed by the respondents also indicate that cost escalation was also caused by scope variations that led to wastages, progress disruption and rework. Respondents also believe that the project would have performed better in terms of achievement of value for money if there were PPA (2007) compliance monitoring by an external organisation and adequate whole-life approach to procurement planning that will consider facility management issues during the project design phase. Bello, et al (2013) had argued that ensuring value for money on a whole-life basis has been only a presumption of the PPA (2007). Appropriate measures for mitigation of the identified challenges that lead to reduced scope of achievement of value for money for Case Project A in future projects could lead to improved value for money outcomes.

7.3.5 Success factors for improving scope of value for money achievable

From the findings on Case Project A, success factors for improving the scope of value for money achievable for public-sector procurement under the regulatory framework of the PPA (2007) will include the following:

- Prior Needs assessment
- Transparent contractor selection process
- Robust technical pre-qualification
- Negotiation with the most technically competent bidder
- Allocation of sufficient time for pre-contract activities
- Minimization of scope variations
- Measures to mitigate or minimize payment delays
- Measures to mitigate or minimize approval delays
- Reduction of contractual disputes
- Adequate planning for facility management of completed facility
- PPA (2007) compliance monitoring by external organization

7.4 Chapter Summary

This chapter presented the results and analyses of data from interviews conducted for Case project A. The evidence provided by the analyses is limited to the views of seven individuals sampled for the case project. These individuals are, however, project participants with first-hand knowledge of the procurement of Case Project A, together with their experience in construction and with the PPA (2007), do mean that the views expressed provide valuable rich insight into the reality of implementing PPA (2007) in a typical public construction project procurement which Case Project A also represents.

Findings show that the Case Project A procured under the PPA (2007) rules was viewed to have limited success in-terms of achievement of value for money. The most compelling reasons why achievement of value for money on the project was viewed to be limited in scope was because of the undue project prolongation caused mainly by excessive government bureaucracy, contractual disputes, delays arising from insufficient pre-contract period, and variations that made changes to the scope of the works. Also, the project was considered not to have met cost expectations as a result of additional costs incurred. Poor facility management planning, and lack of compliance monitoring by external organisation were thought to be at the root of inefficiencies that limited the value for money achieved on the project.

On the positive side, the successful completion of Case Project A was thought to have delivered a facility adjudged effective in terms of satisfying the need for it in the end, and the quality achieved on the project were considered good value for money. Analyses show that the PPA (2007) was considered to have made positive impacts in achieving the successes opined for the project. The contractor selection process required by the PPA (2007) was opined to have helped secure a competent contractor for the project. Also, the compulsory requirement by the PPA (2007) for compulsory conduct of a prior Needs Assessment which defines project objectives and value proposition based on real needs was opined to be crucial for effectiveness of the project. Lessons learnt from Case Project A could be the success factors for future improvements on public construction procurement under the regulatory rules of the PPA (2007).

Chapter 8

Evidence from Case Project B

8.1 Introduction

This chapter presents the analyses of data collected and results from the second Case project selected for the study (here anonymised as Case Project B). The analytical procedure adopted for data collected for Case Project A as described in previous Chapters was replicated for Case project B. As in Case Project A, the findings presented here are mainly result of face-to-face semi-structured interviews conducted using the Interview guide attached to this report (see Appendix 1). The interview guide served as an agenda to ensure that the interview had probed the relevant issues with all respondents in a consistent manner. Care was taken to avoid sequential probe of items in the interview guide.

Interviews were conducted face-to-face with six members of the project team who participated in the procurement of the case project. They were:

1. Employer representative (anonymized here as Client Rep B)
2. Resident Architect (anonymized as Architect B)
3. Project Quantity Surveyor (anonymized as Quantity Surveyor B)
4. Resident Mechanical Services Engineer (anonymized as Mechanical Engr B)
5. Contractor's Project manager (anonymized as Contractor Rep B)
6. Contractor's Commercial manager (anonymized as Contractor Rep B2)

The choice of names used to anonymize respondents is such that indicate the specific project team role that each played during the project procurement process. Using the role label for individual respondents is hoped to provide further insight to the point of view expressed by the respondents.

Representative of the Consultant Electrical Services Engineers for the project was uncomfortable with a recorded interview and declined participation. Also, the representative of the Civil/Structural Engineers recently left his organisation and was unwilling to participate. His replacement had only been on the project for a few months and the depth of his experience with the case project was considered unsuitable for the

research. All interviews were conducted within a two-week period, at the various respondent's offices.

8.2 Findings

8.2.1 Background of Case Project B

Case Project B is located in the Northern region of Nigeria and comprise of a four storey Office Building approximately 10,600m² gross floor area and a separate two blocks of four storey Residential Apartments approximately 6,900m² gross floor area. Construction works commenced on the facility in late 2009. One respondent recalled:

*“...we started this particular project, I think, in 2009”. (Client Rep. B.,
Jan. 2018)*

The contract for the construction was executed with a Nigerian indigenous construction company for approximately NGN 6.1 billion and a construction period of two years. The project has been recently completed in late 2017 and ready to hand over to the User Organisation. Indicative Final Account sum is approximately NGN 6.4 billion. No project document available to the researcher indicated a formal suspension of works at any point during the construction period. The scope also included extensive mechanical and electrical engineering services; for example, chilled water HVAC system, telecommunication electronics, elevators, fire-fighting and alarm systems, etc., and external infrastructure comprising internal roads, soft and hard landscaping, external services, etc.

Documents available also showed the procurement for the project had followed the Traditional Lump-Sum method of Design-Bid-Build. Stakeholders include the Public sector organisation who is funding the project (Employer Organisation), a team of Design Consultants, the Contractor organisation and the Public sector organisation who will use the facility upon completion (User Organisation).

8.2.2 Interview Respondents' Background

All respondents were construction professionals and had direct involvement on the project. Some were part of the project team from the inception of the project, the majority of the interview respondents however, joined the team at the site construction stage but claim good knowledge of the decisions made at the early days of the project and the effect those

had during the construction stage. When asked about their experience on some pre-construction project activities, one respondent commented:

“I, actually, was not involved in the process but, of course, we see the effect of the process in the final design and construction...” (Architect B., Dec. 2017)

The respondents were of various construction professional background and played different team roles as would be expected in a typical construction team.

“...for my professional background, I started out as a quantity surveyor and also majored in project management. [...]. I’ve been in construction industry for about seventeen (17) years now ... [...] I was also involved in this particular project, both in managing the quality of output and also the cost; [...] in the context of payments, variation issues and also claims arising from the supervising consultants on the project.” (Client Rep. B., Jan. 2018)

“I am a registered Architect. [...] My role on the project is the role of a Resident Architect. [...] basically, my role on the project is to coordinate the activities of all the other consultants and to also liaise between the site, the head office and also the client [...] we were tasked with the responsibility of ensuring that the project is achieved within the quality specified in the drawings and the bids...” (Architect B., Dec. 2017)

“I [was] the [Contractor Organisations] mechanical engineer as well as the electrical engineer, ... as well as project manager towards the end of the project.” (Contractor Rep. B, Dec. 2017)

Years of experience in construction among the interview respondents ranged between seven years to seventeen years. Aside the Employer organisation, which is itself a public sector institution, the rest of the respondent’s organisations have work experience for both Private and Public sector procurement.

“[my] organization has different clients, not just in Nigeria, but even outside the country; Multinationals, private corporations, religious bodies and the Federal Government”. (Architect B., Dec. 2017)

Level of experience on public sector project would be good indication of respondents’ familiarity with the implementation of PPA (2007). The interview probed to ascertain this, and it was confirmed that all the respondents have had personal experience working on Public sector procurement where PPA (2007) has been implemented. Some respondent confirmed as follows:

“From the wing I worked for, our clients are mainly from the public sector”. (Contractor Rep. B2, Dec. 2017)

“... been involved with my organization for the past seven years as well, and our core clients have been the Federal Government ...”
(Quantity Surveyor B, Dec. 2017)

8.2.3 Achievement of Value for Money

8.2.3.1 Perspectives to achievement of value for money

As in Case Project A, the interview of Project participants in Case Project B also probed the interpretations ascribed to *the concept of achievement of Value for money* by individuals tasked with the job of realising the Case Project. When asked to reflect on the Case project and give their general impression of the project outcome in-terms of achievement of value for money, all respondents were positive that the project achieved value for money. The reasons behind their judgement were, however, diverse. Some respondents were of the opinion that the project achieved value for money on the fact that the project itself was eventually completed, with all the planned facilities installed and ready to meet the expected need.

“Yes, I strongly believe it has achieved the value for money spent on it. [...] according to the brief and the requirement of the beneficiaries, the facilities that were required were provided” (Architect B., Dec. 2017)

“... from the way the project was implemented and then the final outcome, I think, most importantly the quality of the work[s] carried out” (Contractor Rep. B2, Dec. 2017)

“Yes, the project has actually achieved what it was meant for, in terms of the fund which was provided for it, and the value for the money being spent has been really seen in terms of the delivery of the project. [...] the project has really shown that whatever is needed in terms of mechanical services could be found in this project” (Mechanical Engr B, Jan. 2018)

Respondents also reached their judgement of achievement of value for money by considering the reaction of the project stakeholders upon completion of the project. Project stakeholders; the Employer organisation, Users organisation, construction team members, etc. seem satisfied and were happy with the project. Some respondents commented as follows:

“... during the handing over date and the other pre-handing over meetings we held with the end-users, the professionals involved and even the Client itself, the entire team [were] happy” (Quantity Surveyor B, Dec. 2017)

“... by the time we got to the end of the project and while we may not have met some of our key base lines, like the timeline or the schedule we set out to deliver the project, nevertheless the stakeholders were very happy. The [Employer] too, was happy to be able to deliver such an edifice within all the challenging landscape, you know, like inflation in the prices of goods, commodities, labour and site issues during that period of time. (Client Rep. B., Jan. 2018)

“It is a project that has actually been given a lot of praise and acclaim by both the client and the beneficiaries” (Architect B., Dec. 2017)

Notwithstanding the unanimous opinion of the respondents that the project has achieved value for money, when asked to assess the project based on some individual value for money criteria, their responses were not as unanimously as positive. For example. when asked to give their assessment on the performance of the project in-terms of meeting its completion time, the respondents were unanimous that the project did not achieve value for money in that regards. Some expressed concern as follow:

“I am not comfortable with the time performance”. (Contractor Rep. B2, Dec. 2017)

“For time performance, definitely it was below average and not satisfactory at all because we had a project which we ought to have delivered within two calendar years but ended up delivering it five years after the time we ought to have done so. Definitely this project didn’t meet the time expectation”. (Client Rep. B., Jan. 2018)

“Time performance is the area whereby most of us have a little bit of reservation because it is expected that the project should’ve been completed long ago, but we thank God that though the time overrun, nevertheless the project was completed”. (Mechanical Engr B, Jan. 2018)

One Respondent opined that late completion further limited the value for money achieved on the project in respect that some works completed earlier in the project started to deteriorate due to lack of usage.

“... a lot of things have been completed two, three, four years ago, and, of course, they start deteriorating with time when they are not in use. So, it actually had a negative impact on the project” (Architect B., Dec. 2017)

Also, on other project performance indicators such as cost performance, quality of finished works, project delivery process and level of wastages due to re-work, etc., the interviewee were not unanimous in their assessments. While some are of the opinion that the project performed well on a certain indicator, others have a negative assessment on same indicator. For example, when asked to assess the quality of the finished works in terms of achievement of value for money, some respondents differed as follows:

“... the quality of what is given at the end of the day is high and it shows that the money spent on it, [...] can be found on the project in terms of quality”. (Mechanical Engr B, Jan. 2018)

“Yes, I know that while a lot of the stakeholders saw it as a unique and good quality product, I, on a personal note, thought that they [the Contractor Organisation] could have done better”. (Client Rep. B., Jan. 2018)

“Em, this is a mixed grill; the issue of the quality. First of all, structurally, the project’s quality was very, very okay because I had a discussion with the structure engineers. They [the Contractor] met quality on that aspect. As for some of the finishing items, well, the quality could have been better. But the equipment is of very high quality”. (Architect B., Dec. 2017)

The concern about poor quality of works appear not to be on all aspects of the completed project. The views expressed seem to suggest that the quality achieved on the finishes scope of the works is where the concern was, as more was possible than was achieved.

“Yes, the concerns that we have is on the quality of finishing on some external works which were poorly done by unskilled labourers, and other things”. (Quantity Surveyor B, Dec. 2017)

These notwithstanding, the general opinion of the respondents remained unanimous that the project achieved value for money, irrespective of the limitations expressed.

8.2.3.2 Role of PPA (2007) in ensuring value for money

The interview probed for evidence from the respondents on how the PPA (2007) helped to facilitate the achievement of value for money. Interview respondents were asked to reflect on the implementation of PPA (2007) on Case Project B and give their opinion on how he PPA (2007) made contributions towards achievement of value for money (as assessed by themselves). Responses were generally in support of the opinion that the PPA (2007) had a positive influence on the project. One respondent remarked thus:

“I think it actually positively influenced it [the project] because the outcome is that there was a project that was delivered; it wasn’t an abandoned project”. (Architect B., Dec. 2017)

Contributions by PPA (2007) that facilitated achievement of value for money, according to the interviewees, appear to come from the contractor selection process prescribed by the PPA (2007) which the respondents believe helped secure a competent works contractor for the project and also ensured that the project was let at a competitive contract sum.

“Well, I think the competitive tendering process is only healthy for the project. [...] It also helps in reducing costs. Competition makes sure that everybody is on his toes when it comes to giving the costs. So, for me, I think it had a positive impact on the project”. (Architect B., Dec. 2017)

“Well, I think maybe specific things like advertising to get a good contractor on board would’ve helped in sourcing the contractor and, then, the tender exercise itself would’ve also helped in achieving competitiveness in the context of the contract sum that was agreed upon with the contractor for the work to be done. I think those two elements from the Act greatly helped the project”. (Client Rep. B., Jan. 2018)

“I think most of the implementation of the procurement act was actually before the proper execution of the project. And, in retrospect, ... we had a contractor that was quite competent, at least, financially and technically”. (Architect B., Dec. 2017)

8.2.4 Implementation of PPA (2007) in Construction Project

The second section of the interviews was designed to probe the procurement practice which Case Project B followed during the various stages of procurement prior to site construction to assess the extent to which it complied with the provisions of PPA (2007). The Nigerian Bureau of Public Procurement (BPP), the public institution charged with overseeing the implementation of the Public Procurement Act (2007) has in its publications, a recommended step by step process which was designed to guide public sector organisations to appropriately comply with the tenets of the Law. Using this recommended step-by-step process referred to as “Nine essential Steps to Public Procurement” as a template, the interviewee were asked to reflect and recount the procurement practices adopted for Case Project B and to give their opinion, reflecting on the case project, why they think those individual process steps were important and how they made contributions towards

achievement of value for money. Interviewee's responses are presented under the sub-headings of the activities undertaken.

Evidence generally showed that the Case Project procurement largely complied with the process template of nine essential steps to public procurement recommended by the Bureau of Public Procurement.

8.2.4.1 Needs Assessment

The BPP considers a procurement plan driven by a Needs assessment as the first important step for any public procurement process. From the reflection of the respondents, this step was undertaken by a team commissioned Employer organisation. One interviewee recounted:

“We did actually undertake this step in collaboration with the stakeholders, which are the [Public-sector organisation] who were to benefit from this project. So, part of the needs assessment was finding out what they required and what we could do. We also found out if they had resources in the context of even space so that we could build whatever we desired to build”. (Client Rep. B., Jan. 2018)

When asked why the conduct of Needs Assessment is important for the procurement of Case Project B, there appear a consensus among the interviewees that this exercise was vital for the project in terms of achievement of value for money.

“Why it has helped was because while we had kept the stakeholders in the loop, by the time we had done with the construction and delivery of the project, it created greater acceptability. So, I'd say, yes, it was very important”. (Client Rep. B., Jan. 2018)

“... we see the effect of the process in the final design and construction, and I personally believe that this was done because the beneficiaries of the project were actually very glad at the outcome and, apparently, it met the needs of the beneficiaries”. (Architect B., Dec. 2017)

In the opinion of the respondents, it would appear that the Needs Assessment conducted as part of the procurement process of Case Project B contributed towards achievement of

value for money by creating greater stakeholder acceptability of the project and stakeholder satisfaction as the project appear to meet real needs. Also, scarce resources were thought to have been put to judicious use as extra costs were avoided by not incorporating facilities not needed into the project.

“The needs assessment really streamlined the requirements and the project brief. There were no extra things that were brought into the design which were not required by the beneficiaries. [...] Things that were not needed were not brought in which would have definitely brought in extra costs”. (Architect B., Dec. 2017)

8.2.4.2 Budgeting

Statutory budget provision adequate to finance Case Project B throughout its construction period was made by the Client Organisation. This was confirmed by some of the respondents:

“... yes, there was an approved budget for the project”. (Client Rep. B., Jan. 2018)

“The project has been adequately appropriated for and the funds required for the project has been well delivered, and so it has helped in the success of the project. At no time has the project suffered any setback from the funding” (Mechanical Engr B, Jan. 2018)

Respondents considered having an adequate budgetary provision supported achievement of value for money on the Case Project B by helping to mitigate delays which are sometimes caused by lack of funding of finished works that force contractors to suspend works on site. There had been a consensus amongst the Respondents that the Project did not meet completion time expectation, but it would appear that poor project financing has not played any role towards that. When asked how adequate budgeting made contribution towards achievement of value for money, one Respondent recounted as follows:

“It definitely reduced the amount of time that would have been spent on the project. The contractor did not need to wait for the client to pay before he moved on. So, definitely, it reduced the lifespan and it reduced the issues of costs overrun or fluctuations that would have

arisen as the result of the client's inability to pay as at when due".

(Architect B., Dec. 2017)

8.2.4.3 Bid Solicitation

Public advertisement soliciting for bid for Case Project B was made in accordance with the provisions of the PPA (2007). When asked why it was important to place a public bid solicitation advertisement and how that contributed towards achievement of value for money, the respondent's opinions were divergent. Some respondents were of the view that public advertisement gave opportunity for a wider participation and contributed towards the selection of a financially and more technically competent contractor for the Case Project B.

"Advertising? yes, we also did a public advert in line with the procurement act" (Client Rep. B., Jan. 2018)

"advertisement gives equal opportunities for people to show their interest in the project. It also ensures that those that are financially and technically competent are given the same opportunity to bid for the project [...] it is very important so that they would have equal opportunities, and then get the right and competent people to do the project". (Architect B., Dec. 2017)

"when there's competition, I think people, especially the contractor, will try to bring out the best in whatever field he has in that particular project". (Contractor Rep. B2, Dec. 2017)

However, while recounting experience on Case Project B, another respondent was not as optimistic as the others on the contributions of public advert towards achievement of value for money. The opinion was that public bid solicitation, as against selective shortlisting of known competent bidders, made the process very "tedious" and did not necessarily yield the best result.

"I would say requiring a public advert as against, maybe, doing a closed advert with people whom you have previously worked with, I think, makes the process quite tedious. [...] we had a lot of interest shown – over four hundred! Now, within the short period that we had to

go through these processes, it meant we couldn't really do a very diligent job on assessing the people who would go further into the tender process itself. So, that was one. Secondly, I think there was also the risk that some big players who usually would've come in may not have considered coming in because they'll say, look since it is a free for all and no specialty required, they could have kept away, which is why I said that we may not necessarily have gotten the best people to come on board on the project.” (Client Rep. B., Jan. 2018)

8.2.4.4 Prequalification of Bidders and Tendering Process

The PPA (2007) considers transparency in the Tendering process as essential for achieving value for money. The interview sought to know the experience of the interviewee on the Contractor prequalification of bidders and transparent tendering process undertaken for Case Project B, and their reflection, now that the project has been completed, how those process made contribution towards achievement of value for money.

There was consensus amongst respondents that the tendering process conducted for Case Project B was transparent. One respondent recounted:

“... to the best of my knowledge, we did have a transparent prequalification process. Before the opening there were certain rules which were required of the people who were expressing interest. The rules were clearly stated and were well regulated by law”. (Client Rep. B., Jan. 2018)

When asked why transparent prequalification and tendering process is important for achievement of value for money, respondents were of the opinion that prequalification of bidders helped ensure that contractors who eventually go on to compete were the ones most suited for the project and also helped avert potential technical and financial issues latter on in the project.

“... looking at the pre-qualification stages would help you to see the contractors who have carried out a similar project and giving them such contract would give you the assurance of value for your money.” (Quantity Surveyor B, Dec. 2017)

“This process is necessary because to procure a contractor who would have the wherewithal to actually execute the project, you need to screen such people for certain requirement on the job [...] we needed people who were not just novices in construction. So, part of what this process did was to weed out those people and, to a large extent, yes, we did get somebody who had the necessary resources that could be deployed onto the project”. (Client Rep. B., Jan. 2018)

“for this kind of project, we actually needed a contractor that has a very high level of technical and financial capability, if that did not take place, we are going to have a lot of technical issues on site and we are going to have a lot of financial issues on site”. (Architect B., Dec. 2017)

Tender process followed the recommended price competition where a group of contractors who have been prequalified on the ground of their technical and financial capability to undertake the construction of Case Project B were asked to submit a commercial offer based on bills of quantities and tender drawings prepared by the project consultants. When asked why price competition was important for the Case Project B and looking back, how it contributed to achievement of value for money, responses was that price competition provided the opportunity for receiving a best offer value.

“... because it is a competition you are likely to get best offers for the work you’re doing; I think that is where it contributes towards value for money”. (Client Rep. B., Jan. 2018)

According to the recount of Client Rep. B, Tender evaluation was carried out by a joint team of Project Consultants and Professionals from the Client organisation. It would appear that evaluation of bids received did not only focus on the commercial offers, a further technical evaluation was also carried out on the already prequalified bidders.

“... for this particular project there was a bid evaluation, both technical and financial, and we worked with our consultants to do this process”. (Client Rep. B., Jan. 2018)

The tender evaluation team selected the tender with the “*lowest responsive bid*” amount for award of the Contract. Some reservations were however expressed on the Technical bids received. The submissions made by bidders in support of their technical abilities to execute the works appear to be generic, and not specific to the characteristics of the Case Project B.

*“... it was not quite as robust as I would’ve loved it to be in the context that at this stage I would’ve expected that the process would be more project specific and certain base lines would’ve been taken, especially in the context of the technical bid; you know, like the work breakdown structure, the program of works and all of that. [...]
I think with the benefit of hind sight, there could be further improvement on the technical aspect of bidding. [...]
... and I think this showed itself in the project because the time that was agreed at the contract couldn’t be met; the project overshot that timeline by over 200%”. (Client Rep. B., Jan. 2018)*

8.2.4.5 Tender Approval, Contract Award and Execution

Evidence show that the procurement for Case Project B also underwent the prescribed Tender Board and Federal Executive Council (FEC) approval process. When asked why this is important, and how it made contributions towards achievement of value for money, the respondents were of the opinion that while the process gives ownership of the entire process to the approving Board/Council it was legally required to obtain these approvals and that has to be undertaken so the procurement process can legally proceed to the execution phase.

“This particular project went through a tender’s Board in line with our organizational requirement. I think it is something required by law, so I would say, whether or not, it is important”. (Client Rep. B., Jan. 2018)

“... you know in Nigeria ... at the end you’d need what we call Federal Executive Council approval”. (Quantity Surveyor B, Dec. 2017)

“...it gives them ownership”. (Client Rep. B., Jan. 2018)

Drawing inference from a project experience elsewhere, one Respondent explained how important the Tender Board/Federal Executive Council involvement could be towards achievement of value for money.

“we have had situations where the Board would advise on negotiations which would further give a better value for money spent. So, while this did not happen on this project (it’s something that could happen). It gives relevance to having the tender board overly placed. So, yes, it is important for some of these reasons”. (Client Rep. B., Jan. 2018)

The Contract for Case Project B was awarded to the bidder with the lowest offer as prescribed by the PPA (2007). A formal contract was thereafter entered between the Client Organisation and the winner Contractor. When asked why it is important to have and executed Contract document and looking back, how that has contributed to achievement of value for money, the Respondents were of the opinion that a signed contract fostered the commitment amongst the parties to go on and actualise the project

“Okay, yes, there was an offer from the [Employer organisation] and, of course, an acceptance from the successful bidder, after which we translated into executing the contract and moving to site. [...] It is important because this creates the legal standing or the contract which binds both parties; us as the client and the contractor who’s to do the work. So, these steps were taken on this project and I think it is important”. (Client Rep. B., Jan. 2018)

“... definitely, the contract gave all the parties the commitment to ensure that the project was delivered. So, I think that was very critical”. (Architect B., Dec. 2017)

8.2.5 Barrier to achievement of value for money

A number of barriers to achievement of value for money were identified by the Respondents while explaining why the Case Project B did not meet expectation on some key value for money metrics, and also while recounting the procurement process prior to site mobilisation and experiences during construction stage of project. These are presented under the following subheadings.

8.2.5.1 Prolongation

The respondents were unanimously of the view that the project's prolongation limited the value for money achieved on the project. From the experience recounted, a number of factors can be seen to have contributed to the project's prolongation. The Construction of Case Project B commenced in late 2009, was intended to last for two year, but construction only reach practical completion late 2017. Two key factors were opined by the respondents to have contributed to project prolongation. Respondents were quick to point out weaknesses of the Contractor Organisation towards management and planning.

“... the first reason is the poor project management by the contractor. I discovered that they had some management issues, and the management structure actually left a lot to be desired. So that was one of the major reasons why I believe that the project had a time overrun”.
(Architect B., Dec. 2017)

“... because the contractors were quite weak in planning, getting them to have a proper program of work that they could utilize and run the project was a challenge”. (Client Rep. B., Jan. 2018)

“I think the problem in that regard lies with the Contractor. At times a nonchalant attitude to timing really caused the delay in the completion of the project. Maybe if they had done what was expected of them on time, they wouldn't have had the challenges of delay [...] ... the major one that comes to mind has to do with a particular expertise needed to carry out a particular task, which was not readily available, so they had to wait for such an expatriate to come around for the installation of a particular task.” (Mechanical Engr B, Jan. 2018)

One respondent blamed the way the Technical Evaluation was conducted during the Tender and was of the opinion that the Contractor Organisation's Planning weakness would have been found out at an earlier stage. Somehow, Technical evaluation of the Contractor's tender failed to detect problems with planning.

“Like I said, there were weaknesses in the context of planning. Now, if the technical evaluation had gone in-depth to make those bidders to bring up their work plans or their program of work towards achieving

this project, and it was properly or thoroughly interrogated, I believe some of these weaknesses would've been foreseen". (Client Rep. B., Jan. 2018)

The second factor pointed out by the respondents as contributing to project prolongation was the increased scope of the project. There were additional requirements by the Client Organisation during the construction stage of the project which had an impact on program.

"Secondly, I think in the course of the project, there were some additional requirements that came in by the client that, of course, had time implication so in a way the client, too, added a bit to the time overrun". (Architect B., Dec. 2017)

"One, during the implementation, there were review of design and, in waiting for the review, at times it [took] six months". (Contractor Rep. B, Dec. 2017)

8.2.5.2 Cost escalation

Another concern the respondents had over achievement of value for money on the Case Project B is cost escalation. The project cost on completion far exceeded the contract award sum. Reflecting on the project procurement process, the respondents gave their opinions of the causes of cost escalation of the project. Increases in market price of basic components for the project and project prolongation were mainly thought to have been responsible for the cost escalation of the project.

"... because of the different fluctuations in labour prices, material prices and all that, and especially as a lot of the finishing of this project had to do with foreign components, these were also affected by the devaluation of the Naira". (Client Rep. B., Jan. 2018)

"I think one of the reasons is due to course of time, at the time those items were valued and due to the time; that was taken to produce those products created the problems for us". (Contractor Rep. B2, Dec. 2017)

“Of course, I said the time to achieve the project as defined in the contract was exceeded. You’d expect a lot of costs to come from this”.

(Client Rep. B., Jan. 2018)

8.2.5.3 Changes in project scope or Variations

Changes in project scope and variations, although not viewed negatively by the Respondents in terms of achievement of value for money, but due to its timing, were seen to have contributed to project prolongation and increased cost of the project upon completion.

“... in the course of the project there were some additional requirements that came in by the client that, of course, had time implication so in a way the client, too, added a bit to the time overrun”.

(Architect B., Dec. 2017)

“There were certain variations in the context of the scope which we also had to manage”. (Client Rep. B., Jan. 2018)

“Another challenge which I faced came during the time that I started as the mechanical engineer, and it was on fire fighting. At the middle of the installation, the specification was changed and claims for the aborted work and the new price took us time [to resolve]. (Contractor

Rep. B, Dec. 2017)

8.2.5.4 Poor quality of works

Concerns about poor quality of certain aspects of the works was also considered as another limitation on value for money achieved on Case Project B according to the views expressed by the respondents. While there was a noticeable contentment on the quality achieved on services equipment installed and on the structural component of the works, opinions expressed by the respondents suggest that quality achieved on the finishes scope of the works did not meet the desired expectation due to poor workmanship. Also, there were concerns that the prolongation of the project led to deterioration of certain aspect of earlier completed works by the time the project was eventually commissioned.

“As for some of the finishing items, well, the quality could have been better” (Architect B., Dec. 2017)

“Yes, the concerns that we have is on the quality of finishing on some external works which were poorly done by unskilled labourers, and other things”. (Quantity Surveyor B, Dec. 2017)

8.2.5.5 Project and Contract administration issues

Commonly cited reason for project prolongation and cost escalation presented in the paragraphs above relate to issues bordering on project management and contract administration. While discussing and reflecting on the challenges which were experienced during project implementation and how those challenges affected the achievement of value for money, barriers to achievement of value for money, could be identified from the opinions expressed by the respondents. These are presented in the following sub-headings:

Excessive Government Bureaucracy

When asked about their experience with government bureaucracy on the Case Project B, a respondent was of the opinion that excessive documentation burden resulting from the procurement process required by the PPA (2007) impacted negatively on achievement of value for money. There was a concern about the level of documents generated by the open competitive tendering and the resources required review and assess them as limiting the scope of Value for money achievable.

“... strictly speaking from the context of the P.P.A, I would say it’s the sheer work because the public procurement Act requires that for such procurement, you’ll have to do a general bid – you know a general advert – for all comers. So, the sheer work in screening and selecting the people who’d go further into bidding for the work is something I don’t think gives value and it is difficult to recover money spent in this regard; if you reflect on the resources used in the context of dollars or naira, I don’t think you’d be able to recover such. [...]

A more selective tendering method would’ve been more appropriate for the desired quality that we set out to achieve”. (Client Rep. B., Jan. 2018)

Limitation on use of Negotiated Procedure

Existing literature had pointed out low use of negotiated procedure in contractor selection process one of the factors that limit achievement of value for money in government project under the regulation of the PPA (2007). When asked if the contractor selection process used for the Case Project B limited the scope of value for money achieved and if they think a negotiated procedure would have yielded a different result, some of the respondents agreed that a negotiated procedure would have yielded a better result in terms of the poor quality of construction experienced on the project and from the contractors point of view, a more reliable contract award sum.

“I think it is something that is quite critical because, going from experiences on other projects, there are certain contractors that you are comfortable with because, from experience, you know that when you give them projects, they deliver due to their competence, especially from the technical aspect. But because of the way the law is structured you can’t just go and pick up a negotiation with these people when you have a particular procurement. So, I think it is a challenge. May be something needs to be looked at.” (Client Rep. B., Jan. 2018)

*“... when you negotiate with a contractor you are more likely to get a more reliable quote, unlike when you get him to compete with others.”
(Contractor Rep. B2, Dec. 2017)*

Disregard of contract terms

Respondents were concerned of the lack of determination to comply with the Contractual agreement regarding time for completion by both parties to the contract. Especially the unwillingness by the Client Organisation to enforce their right to remedies for non-completion. Some Respondents expressed their frustration and opined that this contributed to project prolongation and cost escalation.

“Well, I know there was a contract time, and it was part of the procurement [agreement] which was not adhered to. And I know there

were several attempts by the client to round up the project. But I think the implementation of penalties wasn't actually enforced for reasons which I don't understand. This could have probably gingered the contractor to actually finish, at least, if not within the given time, but not with such a large cost overrun.” (Architect B., Dec. 2017)

“At times a nonchalant attitude to timing really caused the delay in the completion of the project”. (Mechanical Engr B, Jan. 2018)

Poor Teamwork and Integration

There were also issues with collaboration among the project team which the Respondents recounted as contributing the project's prolongation and subsequent cost escalation. For example, it appears that among the design team it was not clear to them who has a certain specific role to perform. One respondent recounted as follows:

“At the ground floor I can remember there was a change in level due to the topography of the ground. It took them [the design team] six months because the Consultant Architect was saying it was the Structural Engineer that should give us that level, while the Structural Engineer was saying it was the Consultant Architect that should do that”.
(Contractor Rep. B, Dec. 2017)

Some respondents blamed the Traditional Design-Bid-Build procurement strategy employed for the Case Project B as being responsible for the poor team integration experienced on the project. When asked how efficient the project delivery strategy was, some respondent opined as follows:

“I think I would've preferred design and build ... the problem with the traditional method is the different parties that are involved and in-between we have the problem [of procedural relationship].”
Contractor Rep. B2, Dec. 2017

“If I take it in the context of the likelihood where we had a project in which the contractor was free to have, maybe, a role in the design,

maybe some of the challenges we faced could've been addressed. Maybe they could've given us alternatives which would've delivered certain components of the project faster and thereby minimizing delay such as we experienced on the project. So, yes, it is possible that we could've done better with a different strategy.” (Client Rep. B., Jan. 2018)

Another problem with team cooperation noted by the respondent is that of non-proactiveness of some team members towards looming problems. Referring to the contractors weaknesses with programming and scheduling, Client Rep. B was of the opinion that the design team were not as pro-active with helping the Contractors overcome their problems. This was thought to contribute to delay and cost overrun experienced on the project.

“... individual weaknesses from the contractor's end, like the weakness to do planning: planning procurement and planning execution. And, then, from the design side, proactively resolving issues that come up, especially where a Contractor had challenges going forward with a particular method to execute work.

On the part of the design aspect, there were challenges that we had with some work spaces, especially because those components were import dependent; [...]. I would've expected that before now the Architect ought to have known the sources from which he was going to deliver these particular materials and would've guided the contractors accordingly so that when there are challenges, he would have been pro-active in suggesting alternative specifications”. (Client Rep. B., Jan. 2018)

Also, poor communication amongst members of the project team came under the spot-light as a factor that contributed to delays experienced on the project completion. When asked to reflect and assess the interaction and communication process between all parties involved in the project, one respondent opined as follows:

“I would say not to the best because, of course, I have spoken about delays that were suffered because certain decisions were not taken on

time, which could have saved time and, invariably, cost on the project. So, the team dynamics ought not to have had so many troubles because I think all the Consultants [Design team members] and Client ought to have been opened”. (Client Rep. B., Jan. 2018)

Lack of Consistent – Regular Employer presence on Site

A respondent was concerned about the site visiting intervals of representatives of the Employer Organisation which was considered to be too far apart. Compared with shorter intervals of site visits nearer to project close-out, the respondent was of the opinion that similar good progress in terms of works program made nearer to project completion could have been recorded earlier on the project. This is notwithstanding the fact the project consulting team were basically employed to represent the Employer on site.

“two weeks prior to the handing over, the Client was on site almost every day, and what we achieved in those two weeks were very significant. So, it shows that the client’s presence on site actually enhances the time and the commitment of the Contractor. But the situation we have now that the client officially comes only once in a while, especially during meetings, actually makes the contractor to just, may be, work for the site meetings”. (Architect B., Dec. 2017)

Contractor’s capacity Issues

A number of project organisation and management issues also came to the spot light as contributors to the prolongation of Case Project B. There were strong feelings that the Contractor Organisation lacked competence on programming and scheduling of the works and project organisation left much to be desired.

“the first reason is the poor project management by the contractor. I discovered that they had some management issues, and the management structure actually left a lot to be desired. So that was one of the major reasons why I believe that the project had a time overrun”. (Architect B., Dec. 2017)

“... individual weaknesses from the Contractor’s end, like the weakness to do a planning: planning procurement and planning execution”.
(Client Rep. B., Jan. 2018)

“I think the contractor didn’t have all the tools they needed to properly deliver the project on time” (Architect B., Dec. 2017)

Relatedly, there were also funding problems internal to the Contractor Organisation which contributed in slowing progress on the project site. When asked whether there were delayed payments of completed works that affected the Contractor Organisation’s cashflow which in-turn affected the Contractor’s programme, respondents were unanimous that this sort of challenge generally was not a problem experienced on Case Project B. Contractor Rep. B2 however, pointed out that the cashflow problems experienced on the project were internal within the Contractor Organisation. Poor cash flow from the Contractor Organisation Head office to the project site was identified to have contributed to delays experienced on site.

“Actually, there was no poor payment [by the Client Organisation], but the challenge that we faced in terms of funding was just slow cash flow from our [Contractor Organisation’s] management”. (Contractor Rep. B, Dec. 2017)

8.3 Discussion of Findings

There appears a unanimous opinion that the project achieved value for money spent on it based on the fact that the project was not abandoned but was completed and appropriate to meet the need it was conceived to meet, and also based on the undisputable stakeholder satisfaction, notably that of the User Organisation. MacDonald (2011) listed Customer satisfaction and Utility among the values relevant to construction procurement, and therefore, the achievement of these two is a good outcome for Case Project B in terms of value for money. This notwithstanding, there are evidence manifest in the views expressed by the respondents that Case Project B performed poorly in terms of cost at completion and time overrun. There were also concerns that the quality achieved with the finishes aspect of the works left much to be desired. Considering the multi-dimensional meaning of value for money envisioned by the PPA (2007), which includes the economic and efficiency

dimensions, achievement of value for money for Case Project B can best be said to be limited in scope.

Recount of experiences by the respondents also provide evidence that the procurement process for Case Project B had largely satisfied the requirements of the PPA (2007). A key objective of the PPA (2007) is to promote achievement of value for money in government procurement, but it will appear that the success of the PPA (2007) on Case Project B has been limited in that regards. The limited scope of value for money achieved on Case Project B appear to be consistent with the opinions in literature. Nonetheless, the views expressed by the respondents, indicate that more could have been achieved. Lessons can therefore be learnt from aspects where the Case Project has done well and similarly, pitfalls may be avoided in the future projects where its performance has not met the value for money expectations of a public-sector project.

8.3.1 Procurement process under the PPA (2007) rules

Evidence from the experiences recounted by the respondents suggests that the procurement process adopted for Case Project B demonstrated that the structured process for public sector procurement instituted by the PPA (2007) and promoted by the Nigerian Bureau of Public Procurement (BPP) has helped prevent many ills documented in literature as common with public sector procurement in Nigeria in the days before the procurement reforms. This seems to agree with Achilike & Akuwudike (2016) assertion that the procurement process instituted by the PPA (2007) has, to a reasonable extent, established transparency and fair play and succeeded in eliminating many contract malpractices previously common with the Nigeria public sector. However, views expressed by the respondents has shown that achievement of value for money as envisioned has been limited in scope.

Opinions expressed by the respondents affirm that the Needs Assessment conducted at the inception of the project had a positive influence on the project outcome in terms of value for money because it helped focus the project toward meeting existing real needs and thereby able to make useful impact. This is a clear departure from Ezeh (2011) description of ‘white elephant’ projects prevalent during the days before the PPA (2007). However, it would appear that the Needs Assessment had focused the value proposition of the project only on the impact of the project as an end product. Views from literature argue that there is more Public Value achievable by the public sector beyond creating physical facility that

provides or supports services. Staples (2010) suggests that the public sector may decide to sacrifice economy to focus on achieving better whole-of-government outcome such as development of Small and Medium Scale enterprises (SMEs), training of Apprentices or providing employment for at risk unemployed youths. In contrast with the private sector, it can be argued that the public sector construction can be made to deliver value as an end product as well as a means to an end. There was no evidence manifest in the views expressed by the respondents which indicate a deliberate attempt during the Needs Assessment and procurement planning to package the project to make value impact as a means to an end. There is an opportunity here to widen the scope of value for money achievable.

The structured procurement process of the PPA (2007) also demands confirmation of adequate budgetary provision that can guarantee funding for a project prior to any bid solicitation by any government entity. Much of literature confirm poor budgeting and funding issues which results to poor financing and payment of completed works as part of challenges facing public procurement (Nwogwugwu & Adebayo, 2015; Onyema, 2011; Ezeh, 2011). Ezeh (2011) especially, pointed out the challenge of 12 months budget cycle vs. 3 – 5 year project life span. Opinions expressed by the respondents including those representing the contractors confirm that there were no issues with payments of completed works on Case Project B, which suggests that budgeting all through the years the project lasted was spot-on. The budgeting practice implemented for Case Project B impliedly overcame the problems of payment delays occasioned by late passage of annual appropriation budgets into law common in Nigeria (Onyema, 2011). This is a good lesson that could be learnt from Case Project B.

The BPP's Public Procurement Procedure Manual recognises competition and transparency in public procurement as part of the hallmarks of a proficient public procurement process (BPP, 2011). Opinions expressed by the respondents indicated a general agreement that the procurement process for Case Project B was transparent. Arrowsmith, et al, (2011) opined that some of basic rules for transparency and competitive bidding contained in most regulatory rules have realisation of value for money as one of their aims. Therefore, transparency in the procurement process for Case Project B is indeed a good lesson to be learnt towards achievement of value for money as this is not always the case for public procurement in Nigeria. Familoye (2015) hinted that the PPA (2007)

primary objective of transparency in public procurement (amongst others) has not been fully achieved.

The use of public media advert for bid solicitation for Case Project B, although help secure a wide pool of prospective bidders according to the views expressed, it created its own problems which limited the scope of value for money achieved on the project. The large level of interest shown for the project produce a huge documentation problem that overburdened the assessment process in terms of cost and quality of the assessment, and views expressed suggests the process may not have yielded the best results. Ekung, et al, (2015) identified excessive administrative burden on the procuring entities as impediment to efficient public procurement of construction projects which it suggests is linked to the non-use of Information Communication Technology (ICT) tools. Deployment of appropriate ICT tools may be a way to overcome this inefficiency as expressed for Case Project B.

Another weakness, in the contractor selection process, appear to come from the technical evaluation of the selected bidders. There were suggestions that the evaluation process assessed bidders mainly on a project generic level and not specific to the characters of the case Project. This was viewed to have obscured some technical deficiencies of the selected contractor, and these deficiencies went on to limit the scope of value for money achieved. Correspondingly, Onyema (2011), identified poor technical screening of contractors as part of the challenges plaguing the implementation of PPA (2007) and impliedly, limiting it from fully achieving its set objectives.

Again, it appeared that price competition and selection of the lowest bidder provided an assurance of economy at the contractor selection stage, but this was not sustained at the final account stage as views expressed indicate that cost was exceeded for the project in part due to a deficiency from a technical non-economic criteria.

“... because the contractors were quite weak in planning, getting them to have a proper program of work that they could utilize and run the project was a challenge”.

“Of course, I said the time to achieve the project as defined in the contract was exceeded. You'd expect a lot of costs to come from this”.

The mentality that the lowest cost at tender stage produce cheapest outturn cost has largely been proven untrue and is thought to block the way to achieving best value (Wood, 2005). It appears that a contractor selection criterion that assesses and evaluates the risks to cheaper outturn cost would be a more realistic way of assuring economy.

8.3.2 Contributions of PPA (2007) towards achievement of Value for Money

Views expressed by the respondents point to the PPA (2007) rules for transparency and competitive bidding which ensured non-discriminatory practice that led to the selection of an adjudged capable contractor and competitive contract sum. The result, according to opinions expressed, is that the risk of project abandonment common with the Nigerian public sector was averted. One interview response was quite profound:

“I think it actually positively influenced it [the project] because the outcome is that there was a project that was delivered; it wasn't an abandoned project”.

This seem to resonate with Achilike & Akuwudike (2016) conclusion that the procedure instituted by the PPA (2007) has to a good extent reduced the prevalence of contracting malpractices in the Nigeria which most literature link to project failures in the years before the PPA (2007) (Ibrahim & Musa-Haddary, 2010; Ezeh, 2011).

Competitive contract sum as value for money expressed by the respondents seem to imply economy. Literature has shown that this criterion of lowest bid amount in isolation does not always imply economy at the end of the project (Wood, 2005). This appear also to resonate with the Case Project B. It should be noted however, that the PPA (2007) criteria for selection of lowest tender, requires selection to be from a pool of technically competent bidders. However, experience from Case Project B has shown that the technical evaluation of bidders' competence left much to be desired.

There is continued optimism in literature though, on the positive potentials of the PPA (2007). Oyebamiji (2018) survey of 200 procurement practitioners' opinion found that the implementation of the PPA (2007) is viewed as a catalyst for achievement of transparency, accountability, efficiency, and value for money in public sector procurement. Limited scope of value for money achieved on Case Project B could relate to the implementation challenges experienced.

8.3.3 Barriers to achievement of value for money

Evidence manifest in the opinions expressed for Case Project B indicate that reasons why the project is viewed as achieving limited scope of value for money is mainly due to the project's prolongation, extra costs upon completion and poor-quality concerns. These are visualised on Figure 8.1 mind map generated from the themes that emerged from analyses of interview data on the barriers that limited the scope of value for money achieved on the Case Project B. Starting from the centre and moving outward in any direction, the mind map traces respondents' views on why achievement of value for money on the project was considered to be limited in scope. Continuously asking why and/or how? and moving outwards reveals causal links manifest in the views expressed by the respondents.

The most compelling of this traditional trio, from the concerns expressed, is the prolonged time it took to actualise the project. The project was originally scheduled to be completed in two year but was completed five years after the scheduled time of completion. This prolongation appears to play a major role in limiting the scope of value for money achieved for Case Project B. Not only that the facility was unavailable for use or available to mitigate the need it was conceived for as planned, prolongation further contributed to cost overrun due to market price inflations and contributed to some quality issues upon completion due to deterioration of earlier completed works.

“... a lot of things have been completed two, three, four years ago, and, of course, they start deteriorating with time when they are not in use”.

Aibunu & Jagboro (2002) had found cost overrun and time overrun as the two most frequent effects of delays in the Nigerian construction industry, but it would appear that the delays on Case Project B had also affected the quality of finished works.

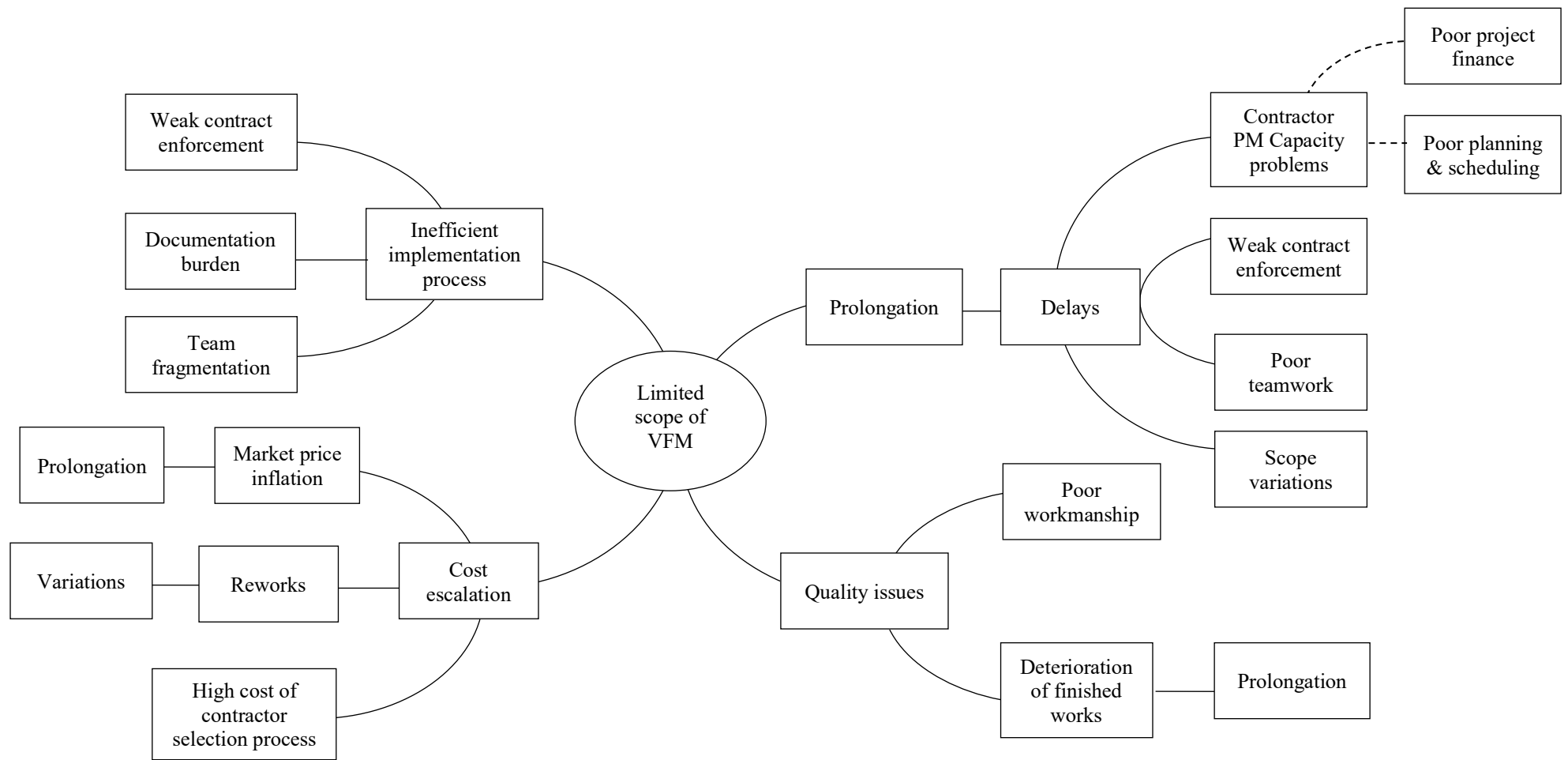


Figure 8.1 - Mind map of Respondents' views of barriers to achievement of Vfm on Case Project B

As the mind map reveals, the project's prolongation could be traced mainly to the delays caused by Socially driven implementation challenges as conceptualised in Chapter 5 of this report. Of note is the delays caused by the weak project management capacity of the contractor. Inuwa, et al, (2015) opined that the frequent criticism of the performance of Nigerian indigenous contractors is a consequence of management incapacity and poor planning. Correspondingly, opinions expressed point to weaknesses on the Contractor Organisation's ability to adequately implement works program to complete the project at the contracted completion time.

“the first reason is the poor project management by the contractor. I discovered that they had some management issues, and the management structure actually left a lot to be desired”

“...weaknesses from the Contractor's end, like the weakness to do a planning: planning procurement and planning execution”

“I think the contractor didn't have all the tools they needed to properly deliver the project on time”

Again, these echoes Inuwa, et al, (2014) opinion that Nigerian indigenous contractors are considered unproductive due to their inability to plan adequately for their contractual requirements. Views expressed also pointed to poor technical screening of the Contractor during the contractor selection process which failed to flag contractor's planning and scheduling weaknesses with attendant missed opportunity for early mitigation. Inuwa, et al, (2014) recommends Nigerian indigenous contractors to employ competent personnel and embark on continuous training, embrace project management techniques, and to invest in knowledge management as a means of overcoming this problem.

Furthermore, the project's prolongation was also linked to delays caused by poor teamwork by the experience recounted during the interviews. For example:

“At the ground floor I can remember there was a change in level due to the topography of the ground. It took them [the design team] six months because the Consultant Architect was saying it was the Structural Engineer that should give us that level, while the Structural Engineer was saying it was the Consultant Architect that should do that”.

This sort of confusion is to be expected, especially in certain team role where individual team members responsibilities overlap or have blurred intersecting lines, like in the example cited. However, less team fragmentation and good collaboration would make a lot of difference.

Opinions expressed by the respondents also point to poor quality issues linked to poor workmanship, although mainly on the finishes scope of the works only. It would appear that there was no concern on the structural integrity of the completed buildings, and quality of equipment installed was opined to be adequate.

“... structurally, the project’s quality was very, very okay.... As for some of the finishing items, well, the quality could have been better. But the equipment is of very high quality”.

Put into perspective, this could be considered a significantly good outcome for Case Project B because the prevalence of structural failures that lead to building collapse in Nigeria is viewed as significant (Akinyemi, et al, 2016). Hamma-adama & Kouider (2017) survey of 99 Nigerian construction industry practitioners concluded that the frequency of building collapse in Nigeria is at an ‘alarming rate’. This has been blamed on the the use of substandard building materials; poor workmanship, use of quacks instead of professionals, non-enforcement of building codes or construction regulations, corruption in the building industry etc. as found by Akinyemi, et al, (2016) from a study of the recorded cases of building failures in Nigeria. This notwithstanding, not achieving the desired quality on finishes scope limited the scope of value for money achieved for Case Project B in-terms of quality as views expressed appear to indicate.

Also, manifest in the views expressed is a causal link between the project’s prolongation and weak implementation of contractual terms. The Contractor appeared to disregard contractual completion time for the project and the Client was viewed as unwilling to press for liquidated damages.

“... a nonchalant attitude [of the Contractor] to timing really caused the delay in the completion of the project”.

“... there was a contract time, ... which was not adhered to. ... implementation of penalties wasn’t actually enforced for reasons which

I don't understand. This could have probably gingered the contractor to actually finish, at least, if not within the given time, but not with such a large cost overrun."

Apparently, Aibunu & Jagboro (2002) found that Clients were the significant cause of delay in Nigerian building projects. Perhaps, the outcome for Case Project B would have been different, as the views expressed suggests, if the Client had been more assertive. This, however, did not take away the Contractor's contributions to the problem from notice.

8.3.4 Causes of Barriers to Achievement of Value for Money

From the opinions expressed by the respondents, achievement of value for money for Case Project B is viewed to be limited in scope due to the project's prolongation, extra costs on completion due cost escalation and in-efficient project implementation process, and poor-quality concerns expressed on the finishes scope. As illustrated in the Mind map of Figure 8.1, these were in-turn caused by various challenges experienced on the project as respondents' reflections appear to indicate. Using the Ishikawa diagram technique, an attempt at the cause-and-effect analysis based on the views expressed by the respondents, reveals causal links to the reasons why achievement of value for money was limited in scope for Case Project B. The 'fishbone' diagram in Figure 8.2 provides a summary of these links.

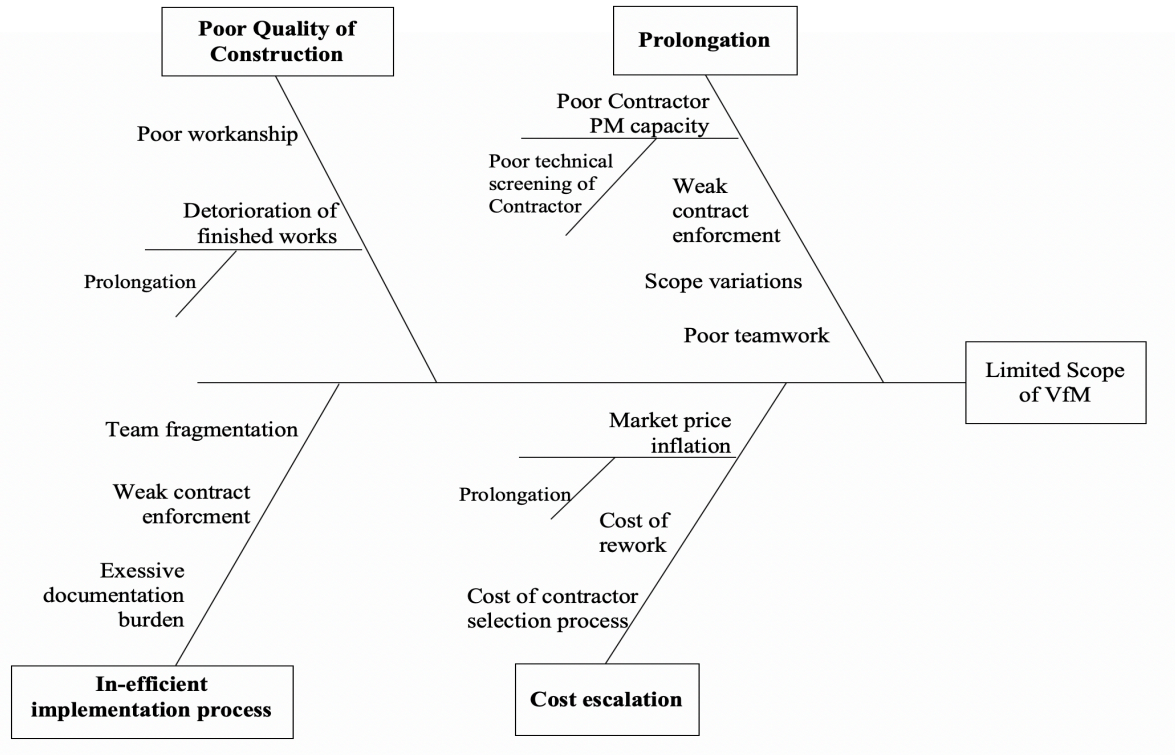


Figure 8.2 - Root cause analyses of barriers to achievement of value for money for Case Project B

As manifest in the opinions expressed by the respondents, project’s prolongation was mainly caused by delays due to poor project management capacity of the Contractor organisation, weak contract enforcement, disruptions to program caused by variations and poor teamwork. The Contractor weak project management capacity was also linked to poor technical screening of the Contractor during the contractor selection process. According to views expressed, the projects prolongation further had a knock-on effect on cost and on quality of the works. As the project continued to prolong, market prices were increasing due to inflation and earlier completed works were deteriorating. Poor workmanship was also a contributor to the poor-quality concerns expressed by the respondents.

In addition to the cost effect of prolongation, costs of reworks were also opined to have contributed to the cost escalation of the project. Some in-efficiencies in the implementation process of the project manifesting in delays and additional costs also limited the scope of value for money achieved on the project. Experiences recounted by the respondents point to the burden and cost of reviewing the level of interest generated by the open competitive method used during the contractor selection process unlike what is possible if the process

had followed a more restricted method. There were also delays caused by poor project team integration and weak enforcement of the terms manifest in the views expressed by the respondents.

The barriers limiting the scope of value for money achieved on Case Project B, as expressed by the respondents have at their roots, various challenges experienced on the project. Therefore, measures that could mitigate these challenges in future public sector construction procurement would lead to improvements in scope of value for money achievable.

8.3.5 Success factors for improving scope of value for money achievable

From the findings on Case Project B, success factors for improving the scope of value for money achievable for public-sector procurement under the regulatory framework of the PPA (2007) will include the following:

- Prior Needs assessment that defines wider scope of value for money
- Good budgeting practice by the Employer organization
- Transparent contractor selection process
- Technical screening of contractors that focuses on project specifics rather than generic requirements
- A more restricted tendering process focusing on bidder experience rather than open for all price competition
- Use of ICT tools to ease documentation burden on Employer organization
- Greater designer-builder team integration
- Minimization of scope variation
- Rigorous implementation of contractual provisions
- Improvements on Contractor project management capacity through training

8.4 Chapter Summary

To summarise, this chapter presented the analyses of data and results from interviews conducted for Case project B. The evidence provided by the analyses represents the views expressed by six project participants sampled for the study. The first-hand knowledge of the procurement process of Case Project B by the project participants, together with their experience in construction and with the PPA (2007), do mean that their opinions,

reflections and recount of experience provide valuable rich insight into the reality of implementing PPA (2007) in a typical public construction project procurement which Case Project B also represents.

Findings show that the procurement process of Case Project B generally complied with the rules of the PPA (2007). Views expressed by the sampled participants was also generally positive the Case Project B achieved value for money spent on it. The judgement for achievement of value for money was arrived at by the fact that the project was eventually completed, with all the planned facilities installed and ready to meet the expected need. Also, the satisfaction expressed by the project stakeholders; Employer organisation, User organisation, the construction team etc, upon completion was viewed as a validation of money achieved on the project. These notwithstanding, views expressed were negative on the unreasonable length of time it took to realise the project and there was a general feel that a better quality of certain aspect of the finished works could be better than was achieved. Therefore, achievement of value for money expressed by the sampled participants can best be described as limited in scope.

The most profound reasons why achievement of value for money can be considered as limited in scope was because of the undue project prolongation caused by several factors; the timing of scope variations, weak contract enforcement, delays caused by poor teamwork amongst the project team but mainly the Contractor's poor project management capacity which manifested in their poor planning and scheduling of the works and poor project financing. The Contractor's poor management of the works also affected the quality achieved on the works. The undue prolongation of the project had further limiting effect on value for money achieved on the project in-terms of the additional costs that came with it.

Analyses of the views expressed show that the PPA (2007) was considered to have made positive impacts in achieving the successes opined for the project. The PPA (2007) rule for prior Needs Assessment helped focus the project towards meeting existing real need and thereby able to make useful impact. The structured contractor selection process of the PPA (2007) was also opined to have helped secure a competent works contractor and also ensured that the project was let at a competitive contract sum. for the project. Views from literature continue to be optimistic on the positive potentials of the PPA (2007) in realising its objective of achievement of value for money for the Nigerian public sector. Therefore,

lessons learnt from Case Project B could be among the success factors for future improvements on public construction procurement under the regulatory rules of the PPA (2007).

Chapter 9

Evidence from Case Project C

9.1 Introduction

This chapter presents the analyses, results and discussion of data collected from the third case project selected for the study (here anonymised as Case Project C). The analytical procedure followed same adopted for data collected for Case Project A and Case Project B as described in previous Chapters. Also, as in the previous Case Projects, the findings presented here are mainly result of face-to-face semi-structured interviews conducted using the Interview guide attached to this report (see Appendix 1). The interview guide served as an agenda to ensure that the interview had probed the relevant issues with all respondents in a consistent manner. Care was taken to avoid sequential probe of items in the interview guide.

Interviews were conducted with six members of the project team who participated in the procurement of the case project. Five of the interviews was conducted face-to-face while the sixth was conducted via recorded telephone conversation. The project team members sampled for the study were as follows:

1. Employer representative (anonymized here as Client Rep C)
2. Project Architect (anonymized as Architect C)
3. Project Quantity Surveyor (anonymized as Quantity Surveyor C)
4. Resident Mechanical Services Engineer (anonymized as Mechanical Engr C)
5. Resident Electrical Services Engineer (anonymized as Electrical Engr C)
6. Contractor's Commercial manager (anonymized as Contractor Rep C)

The choice of names used to anonymize respondents is such that indicate the specific project team role that each played during the project procurement process. Using the role label for individual respondents is expected to provide further insight to the point of view expressed by the respondents. Representative of the Civil/Structural Engineers did not respond to the invitation to participate in the study.

9.2 Findings

9.2.1 Background of Case Project C

The character of Case Project C is generally similar to those of the other two case projects selected for the study. Case Project C is however located in the South-eastern region of Nigeria and comprise of one block of four-storey academic building approximately 8.800 m² gross floor area and a separate six-storey block of residential hostel approximately 7,500 m² gross floor area. The contract for the construction was sign late 2009 with a Nigerian indigenous construction company for approximately NGN 6.5 billion and a construction period of 104 weeks. The project has recently been completed and commissioned early in 2019 during a ceremony attended by the Nigerian Head of State. However, the first batch of four interviews were conducted between first and second quarter of 2018 when the project had neared practical completion. Indicative Final Account sum is approximately NGN 9.6 billion. Project document available to the researcher indicated a formal extension of time granted the contractor for additional 43 weeks bring the total contractual construction period of 147 weeks.

The project scope also included extensive mechanical and electrical engineering services; for example, chilled water HVAC system, telecommunication electronics, elevators, fire-fighting and alarm systems, etc., and external infrastructure comprising internal roads, soft and hard landscaping, external services, etc. Documents available also showed the procurement for the project had followed the Traditional Lump-Sum method of Design-Bid-Build procurement route. Stakeholders include the Public sector organisation who funded the project (Employer Organisation), a team of Design Consultants, the Contractor organisation and the Public sector organisation who will use the facility upon completion (User Organisation). The User Organisation had minimal participation during the procurement process and was therefore excluded from the interview sample for the study.

An event of note from the experiences recounted by the sampled participants was that the project became inactive for a long period of time after it neared practical completion due to internal financial problems of the Contractor organisation. Examination of records subsequently made available showed that between December 2016 to April 2018, no payment certificate was raised in favour of the contractor, suggesting 15 months of inactivity. The Employer organisation eventually conceded to a contract assignment proposal presented to it by the Contractor which paved the way for the balance of the works

to be completed by a new contracting organisation, albeit at an additional financial burden on the Employer organisation.

“... a lot of the slippage started to happen when the contractor started to have funding issues. I think because the project was at large for, I would say, two years nothing was happening, you know; I can't quite recall; I can only remember vividly from 2014. It was at large for a very long time. Nothing was happening on site. The contractor was not just on site. He was not doing anything”. (Architect C, Feb. 2019)

Also, representatives of the latter contracting organisation were not sampled for the study due to their limited time of involvement on Case Project C.

9.2.2 Interview Respondents' Background

All respondents were construction professionals and had direct involvement on the project. A few were part of the project team from the inception of the project, the majority of the interview respondents however, joined the team at a later stage but claim good knowledge of the decisions made at the early days of the project and the effect those had during the construction stage. The respondents were of various construction professional background and played different team roles as would be expected in a typical construction team.

“I am Engineer [xxxx] ... I've been in the construction industry for quite some time, since 1998. [...] P.M.P registered member [...] I got involved in the case study project in 2010. [...] My specific role on the project is electrical resident consultant handling all the aspects that has to do with electrical works”. (Electrical Engr. C, Jan. 2018)

“I trained as a Quantity Surveyor ... also Chartered with Royal Institute of Chartered Surveyor [...] also chartered with Royal Institute of Chartered Surveyor, United Kingdom. [...] I have been involved with this project for like six (6) years [...] I work as a project quantity surveyor on the project for the main contractor”. (Contractor Rep. C, April 2018)

“I have B.Sc. Building Construction, M.Sc. Civil Engineering [...] I have been the project officer; more like the project's assistant manager.

[...] By March this year I'd be four years [on the case project]".

(Client Rep. C, Feb. 2019)

"My specific role on this project is a project Architect. ... I started the project pre-construction. I was responsible for the Tender Evaluation - that's the technical evaluation of the bidders for the work- and wrote the Tender Report with the Q.Ss, and then somebody else took over the contract administration when the contract was awarded and moved to site. I eventually came back onto the project at about 2014 as the

Project Architect". (Architect C, Feb. 2019)

Years of experience in construction among the interview respondents since after qualifying as practitioners ranged between five years to eighteen years. Aside the Employer organisation, which is itself a public sector institution, the rest of the respondent's organisations have work experience for both Private and Public sector procurement.

"I've been working for my organization officially for about nineteen (19) years [...] We work for the government. The government is one of our major clients, and we have a lot of private sector clients, mostly corporate oil and gas companies - Shell and so on - and companies in aviation, and banking and finance". (Architect C, Feb. 2019)

Level of experience on public sector project would be good indication of respondents' familiarity with the implementation of PPA (2007). The interview probed to ascertain this, and it was confirmed that all the respondents have had personal experience working on Public sector procurement where PPA (2007) has been the guiding Law. Some respondents confirmed as follows:

"...our major client is the Federal Government". (Quantity Surveyor C, Dec. 2017)

"The government is one of our major clients ...". (Architect C, Feb. 2019)

9.2.3 Achievement of Value for Money

9.2.3.1 Perspectives to achievement of value for money

As in Case Project A and B, the interview of Project participants on Case Project C also probed the interpretations ascribed to *the concept of achievement of Value for money* by individuals tasked with the job of realising the Case Project. When asked to reflect on the Case project and give their general impression of the project outcome in terms of achievement of value for money, respondents used diverse criteria to arrive at their judgement. Most respondents had mixed feelings on the project outcome, while a few had an outright positive or negative assessment of the project outcome. When asked if the project had achieved value for money, one respondent viewed the project to have failed to achieve all three criteria of time, cost and quality and therefore did not achieve value for money.

“I don’t think so. [...] Because the project has been on for so long that there’s been cost overrun, time overrun, even the quality at a point in time” (Client Rep. C, Feb. 2019)

A somewhat contrasting view was expressed by another respondent who opined that the project had achieved value for money, irrespective of admitted weaknesses, on the ground that the project outcome was fit for the purpose it was conceived for.

“My assessment of the outcome of the project is that it was well executed and that there was value for money, but things could’ve been done better: we would’ve had a project in the sense that, for example: there was a little cost overrun on the project which could’ve been avoided if some steps were taken earlier before they occurred. On the general assessment, I think there was a value for money achievement.

[..]

The structure was well built to the satisfaction of the client, and the facility was completed with good finishes and (though it has some cost and time overrun) it was eventually completed; that was the essence of the project, at least to finish it to the satisfaction of the client”

(Contractor Rep. C, April 2018)

The rest of the opinions expressed on the project outcome as regards to achievement of value for money were mixed. While the project was completed and perceived to be fit for purpose, there were perceived failings in other value for money criteria which made most of the respondents reluctant to lay outright claim on achievement of value for money. There were noticeable concerns that more could have been achieved in terms of value for money. Some respondent expresses their views quantitatively:

“Well, I must say that in terms of value for money, generally, we cannot have a 100%; when you have 50% or 60%; it is a pass but not a good one. We expect this kind of project to be giving us about 85% to 90% results, but for me I’m saying that the projects value for money cannot be more than 60% achievement in overall”. (Mechanical Engr C, Jan. 2018)

“... value for money is dependent on three variables, that’s the cost, the time that the project is to be delivered and then the quality of the project. So, if two are met and one is not, then, that definitely means that the procurement law has not achieved a hundred percent value that it has been anticipated to give because the time line has not been met”. (Quantity Surveyor C, Dec. 2017)

Generally, the concern was that the project overshot its completion time apparently for no cogent reason and that was viewed as a limitation on the value for money achieved.

“I would say I’m not satisfied because for every project there should be a time-line and a start and finish date. We had overruns severally; this is a project that was meant to last for two years, but we are almost at the eighth year now on this project. [...] But, generally on the result, if the project is finally completed, I would say we are going to be happy because the value for money would have been achieved, because the whole aim of the project is to also help in terms of infrastructural deficit in the [user organisation]. [...]

Yes, it has achieved value for money but, because of the time overrun, we can say that we are not successful. But it has achieved value for money all the same”. (Electrical Engr C, Jan. 2018)

Aside the time overrun experienced on Case Project C being viewed as a limitation on value for money achieved, respondents however viewed satisfaction expressed on the completed project by stakeholders, especially those from the User Organisation, as an indication of achievement of value for money. While acknowledging setbacks experience on the quality achieved on the project, time overrun and additional costs incurred, some respondents nevertheless were of the view that project achieved value for money on the ground that the project was completed, and end users appear satisfied with the outcome.

“Yes, I think that the stakeholder’s expectations were high (I would use the word “high”) when it was a two years project. But, as it is now, it will no longer be high but just okay, because they know that the project would soon be finished, and that the expected result would still be good. But the time overrun is just what I believe most of the stakeholders in this project are not happy about”. (Electrical Engr C, Jan. 2018)

“[Sarcastically] Well, you’ve got a building standing. The building is built, you know, and working from the reaction of the end users and people who were not directly involved in the project, during the commissioning that took place, you know, just the inspection – they were quite happy. [...] But, to a professional, you’ll start to see the gaps, you will start to see the small quality issues. [...] In the end, yes [value for money was achieved], of course, but with some very slight reservations. A lot of money has been spent; I would say as much as 1.5 to 2 billion of it didn’t need to be spent”. (Architect C, Feb. 2019)

When asked if helping an indigenous local contractor grow in capacity could be considered achievement of value for money? One respondent was of the opinion that the Case Project help the contractor organisation grow in experience and capacity, and viewed that as an achievement of value for money “to some extent”.

“Hmm. It could be if that local contractor is interested in growing. [...] He acquired a lot of equipment, you know; the tower crane and all sorts of other equipment, and he brought on some expatriate experience

to beef up what he had. And they started quite well. So, value for money to some extent [...]
... and he did grow capacity because going from this project he went on to execute other projects of similar sizes. He got some pretty big jobs ... So, local content development? Yes". (Architect C, Feb. 2019)

On the additional costs incurred on the project by the Employer organisation, respondents were divided on their opinions about its impact on value for money achieved. While some respondents viewed it as justifiable and did not necessarily consider it as a limitation on the value for money achieved, others viewed it as negatively impacting the value for money achieved, especially, the additional costs incurred on the outstanding and remedial works done by the new contractor.

"... in terms of costs performance, looking at where we started, and looking at the cost overrun; I think we are okay with that". (Electrical Engr C, Jan. 2018)

"Yes, the cost performance was okay because the variations that came aboard were actually sanctioned by the client and it was okay; the cost performance was very much okay". (Contractor Rep. C, April 2018)

"... if it had ben finished at the original contract sum, cost performance would've been great. But with extra money, I'm not counting the additional work, ... just counting the outstanding work being executed at a higher rate, and the remedial works that had to be done. So, cost performance also missed the mark". (Architect C, Feb. 2019)

Overall, the views expressed suggest that the respondents considered value for money as a multidimensional concept, and their judgement about whether it was achieved or not appear to depend on which dimension that was considered more important to the assessor.

9.2.3.2 Role of PPA (2007) in ensuring value for money

The interviews also probed for evidence from the Respondents on how they perceived the role of the PPA (2007) in helping to facilitate the achievement of value for money as assessed by themselves. Respondents were asked to reflect on the implementation of PPA (2007) on Case Project C and give their opinion on how the PPA (2007) made contributions

towards achievement of value for money. Opinions expressed were generally in support of the positive influence the PPA (2007) had on the project in terms of achievement of Value for money. There was, however, expression of scepticism on the implementation of contractor selection process as prescribed by the PPA (2007), whether it indeed yielded the best result for the project. Generally, the responses appear to suggest that the project outcome would have been worse-off if not for the influence of the PPA (2007) and that there are prospects for improvements in the future.

“I think on this very project, and as a result of the Public Procurement act, we were able to get a seasoned contractor that is in the field. It wasn’t business as usual where you’ll get politicians to come and do construction works; I believe we were able to get a seasoned contractor and, I would say, as a result of that we were able to ascertain this level of achievement we have so far. Somehow, I feel we would have been worse off if we hadn’t followed the public procurement act. There’s room for subsequent improvement though”. (Electrical Engr C, Jan. 2018)

Some opinions expressed suggests that the rules of PPA (2007) had a good influence on the project in terms of achievement of value for money because the contractor selection criteria made compulsory by the law resulted in the selection of contractor who was perceived to have the technical ability for the job, and this was thought to be responsible for what was achieved for the project.

“Yeah, it has played a role because if you go back to the nine steps and look at step three, the advertisement made so many tenderers to come in and we looked at their bid submissions and evaluated their technical capacities. That technical capacity is one of the criteria that were used to select the contractor, and with that we were able to achieve the quality that we have achieved so far in the project”. (Quantity Surveyor C, Dec. 2017)

Another respondent however had a sceptical view on the implementation of the contractor selection process, suggesting that it may not have yielded the best result for the project. But again, the PPA (2007) rule for prior conduct of a formal Needs Assessment before a project

can proceed was also viewed to have made positive contribution on achievement of value for money on the project.

“I’m not sure. I think the only part of this that would’ve really helped that was the needs assessment. From step three (3) to step six (6) there is a problem because the best people may not have been invited to participate in the project, so the work didn’t necessarily go to the best possible contractor. [...]

... I’d like to say again that the needs assessment [was] spot on beautiful and I am glad that it is one of the criteria for the guideline on public procurement”. (Architect C, Feb. 2019)

9.2.4 Implementation of PPA (2007) in Construction Project

As part of the research objectives, the study sought to understand the procurement practices used during the various stages of procurement prior to site construction, as evidenced in the Case Project C to know to what extent they complied with the provisions of PPA (2007) and how those practices made contribution towards achievement of value for money. The second section of the interviews was therefore designed to probe the procurement practice which Case Project C and gauge the opinion of participants as to how value for money was achieved or why it was not achieved. The Nigerian Bureau of Public Procurement (BPP), the public institution charged with overseeing the implementation of the Public Procurement Act (2007) has in its publications, a recommended step-by-step process which was designed to guide public sector organisations to appropriately comply with the tenets of the Law. Using this recommended step-by-step process referred to as “Nine essential Steps to Public Procurement” as a template, the interviewee were asked to reflect and recount the procurement practices adopted for Case Project C and to give their opinion, reflecting on the case project, why they think those individual process steps were important and how they made contributions towards achievement of value for money. Interviewee’s responses are presented under the sub-headings of the activities undertaken.

Generally, views expressed by the respondents provide evidence that the Case Project C procurement largely complied with the process template of nine essential steps to public procurement recommended by the Nigerian Bureau of Public Procurement (BPP).

9.2.4.1 Needs Assessment

The BPP considers a procurement plan driven by a Needs assessment as the first important step for any public procurement process. From the reflection of the respondents, this step was undertaken by a team commissioned by the Employer organisation.

“My organization and some other teams (the consultancy teams) met with the [User Organisation], and they were able to point out to where they feel that they needed help. It was towards that direction that this project was now geared”. (Electrical Engr C, Jan. 2018)

According to the respondents, the outcome of the Needs Assessment exercise informed the design of the project and steered it to meet the specific need that was discovered during the assessment. One respondent opined that this decision to carry out a Needs Assessment prior to procurement planning was a good departure from what used to be prevalent.

“Before now, politicians were used to doing projects that they felt were okay on their own basis” (Electrical Engr C, Jan. 2018)

When asked why Needs Assessment was important and how it made contributions towards achievement of value for money on the project, respondents were of the opinion that the Needs Assessment ensured that money was spent in the right direction, and that the project outcome is useful by meeting real needs.

“needs assessment is absolutely necessary because nobody wants to invest a lot of money – billions of naira! – in a project that has no apparent benefit to the supposed end users. So, needs assessment, I think is most critical and most important”. (Architect C, Feb. 2019)

“... if the needs assessment was not carried out, we would be spending the money in the wrong direction” (Electrical Engr C, Jan. 2018)

*“Actually, it is very important in the sense that it has to do with the desire of the end users [...]
... by the time that project (as it was conceived) is finished, the manpower that will be coming out from there and also the services that it would render to people around here, within the zone where it is*

located, will save time and help them to do more things seeing they're close by, instead of traveling far. So, it's a kind of advantage if the project is brought to a conclusion and put into use". (Mechanical Engr C, Jan. 2018)

Also, the perceived Stakeholders satisfaction at the time the project was completed and commissioned was viewed as a contribution made by the Needs Assessment exercise. One respondent expressed as follows:

"Yes, it identified specific needs and it added. So, in all the comments from the people who visited the project, inspected the project and also from the [User Organisation], I never heard any like, oh! Why didn't we have this? Oh! We should've had this. We never got any of these kinds of comments" (Architect C, Feb. 2019)

9.2.4.2 Budgeting

Opinions expressed suggests that Statutory budget provision adequate to finance Case Project C throughout its construction period was made by the Client Organisation. Some of the respondents reflected as follows:

"In this project I think the clients were really prepared because, during the course of the project, we got to understand that adequate appropriation was made. We observed that several certificates were raised and paid. So, I believe that if adequate appropriation is not done, it will lead to a lot of abandoned project; the project would be (at a point in time) stagnated as a result of lack of resources". (Electrical Engr C, Jan. 2018)

"It was necessary to complete the project, so for every year we made sure there was [a budget] appropriation for it". (Client Rep. C, Feb. 2019)

When asked why adequate budgetary allocation was important for Case Project C and how it made contributions towards achievement of value for money on project, respondents viewed it as a necessary means of managing scarce resources and that it was important the project runs its course without interruptions due to funding gaps.

“Yes, because you have the need and the resources are not unlimited, so you actually even need, at that point, to decide if you have enough money to do this; if you have enough finance to implement this project, and if you don’t then it is better not to start it, or to see if the goals or the needs can still be met on a smaller scale. So, here it is very, very important”. (Architect C, Feb. 2019)

*“I feel that if there’s no adequate appropriation and you just allot money arbitrarily, the project just takes off and then there’s not much fund to fund the project: you are going to run into problems ...”
(Contractor Rep. C, April 2018)*

There were also, suggestions from the opinions expressed that the budgeting practice adopted for the project helped prevent it from being an abandoned project.

“... most of the government projects failed because there was no adequate [fund] appropriation”. (Quantity Surveyor C, Dec. 2017)

“I believe that if adequate [fund] appropriation is not done, it will lead to a lot of abandoned project; the project would be (at a point in time) stagnated as a result of lack of resources”. (Electrical Engr C, Jan. 2018)

“to the best of my knowledge, payments were not being delayed which translated to prior financial provision being made adequately for the project, so that enabled the contractor not to be stalled at the beginning of the project because of availability of funds that had earlier been planned and appropriated”. (Contractor Rep. C, April 2018)

9.2.4.3 Bid Solicitation

Public advertisement soliciting for bid for Case Project C was made in accordance with the provisions of the PPA (2007). When asked, the respondents affirmed this was so:

“Yes, it was advertised, and we have a document [in support]”. (Client Rep. C, Feb. 2019)

“Yes, it was advertised, and many contractors responded to the bid and my company also responded and they prequalified”. (Contractor Rep. C, April 2018)

When asked further, why it was important to place a public bid solicitation advertisement and how that contributed towards achievement of value for money, the respondents were unanimous on their view that public advert afforded a wider participation by interested parties and eliminated a ‘closed door’ process that would be fraught with suspicion of nepotism.

“In most times, before the coming of due process, you find out that most of the projects are being done by relatives of those in power, even though they might not be qualified enough to handle those projects. So, I believe that the advertisement phase in the due process is very vital, and it has been helping the construction industry”. (Electrical Engr C, Jan. 2018)

“It gives people a wider knowledge of what is going on. So, it is not as if you just pick some people in a closed door. [...] it gives everyone equal opportunity at knowing what is going on, and if they qualify based on whatever is required, they’ll come in and then indicate their interest in participating in the project”. (Mechanical Engr C, Jan. 2018)

Views expressed tend to suggest that creating a wider opportunity for participation through public advertisement facilitates the selection of a competent contractor suitable for the job. Although one opinion doubted if the process indeed produced the best contractor for the Case Project C.

“It has contributed in one way which is equal opportunity for all the tenderers ...”. (Quantity Surveyor C, Dec. 2017)

“If we don’t do that, we may not be able to get out the best to be able to carry out the job”. (Electrical Engr C, Jan. 2018)

“the advertisement would bring a pool of contractors from which a most competent and responsive contractor would be selected from the pool of bidders [...]

[on Case Project C] I am not so sure it actually gave rise to the best contractor being selected, but I think it also helped in a long way in adding value to the project” (Contractor Rep. C, April 2018)

Some respondents opined that public advert added value to the project by demonstrating equity and transparency and prevented things like nepotism.

“Advertisement here is for equity and transparency. ... if you leave it to the individuals within the client organization, they don’t know everybody; there may be people who are suitably qualified who they may not be aware of”. (Architect C, Feb. 2019)

“Without advertisement you have things like nepotism where you end up picking who you think is right, but in the end may not be the most qualified”. (Client Rep. C, Feb. 2019)

9.2.4.4 Prequalification of Bidders and Tendering Process

Recount of experiences by the respondents on Case Project C indicates that the contractor selection method followed a two-stage tendering process. An initial pre-qualification of bidders based on technical criteria, and a later price competition stage where pre-qualified bidders were each invited to submit a commercial offer based on priced bills of quantities for the works. This more or less complies with the default rule of the PPA (2007). The PPA (2007) further considers transparency in the tendering process as essential for achieving value for money. And so, the interview of project participants probed to know their experiences on the prequalification of bidders and on the price competition process undertaken for Case Project C, and also their reflection, now that the project has been completed, how those processes made contributions towards achievement of value for money.

Most of the respondents were of the view that contractor selection process was transparent. There was however no consensus amongst the respondents whether the process yielded the right result in the end in terms of the choice of contractor selected. When asked why transparent prequalification and tendering process was important for achievement of value

for money, the respondents were of the opinion that transparency demonstrated that that the process was not stage managed or skewed to favour a particular bidder.

I believe transparency does not create room for ambiguity”. (Electrical Engr C, Jan. 2018)

“... in anything you do if you’re transparent, of course, you’ll remove every bit of a doubt or kind of nepotism”. (Mechanical Engr C, Jan. 2018)

“... the tender and the pre-qualification must have been done very transparently, that’s why we were able to come on board, and we executed the project reasonably to the satisfaction of the client”. (Contractor Rep. C, April 2018)

“Yeah, it was transparent because everyone knew what the other contractor quoted for the job, so if you quoted very high you knew definitely that you were out of the job”. (Quantity Surveyor C, Dec. 2017)

These notwithstanding, opinions expressed by the respondents raised concern on the quality of the assessment of technical competence of the pre-qualified bidders as it appears the process did not yield the best result for the project in terms of achievement of value for money. One respondent alleged that some ‘patronage’ or ‘vested interest’ may have unduly influenced the selection process and was of the view that the bidders who were progressed to the price competition stage lacked previous project experience for the scope envisaged.

“Transparent pre-qualification is very, very important, but this is where the big problems begin because there seems to be - because we are dealing with a government organization - some patronage involved; some vested interests involved. We were not involved in the pre-qualification, I think that was handled internally within the client organization, but we were presented with a list of five contractors who were now invited to tender. And looking through their documentations; looking through the projects they had handled in the past, left to me, [to feel that] none of them should’ve been invited to participate in the

project. We are looking at a project that was estimated at about six billion – a little over six billion naira – and none of these contractors had executed a project of up to one billion. The most, if I remember, was about six hundred and fifty something million ...”. (Architect C, Feb. 2019)

This view appeared to be supported by the opinion expressed by another respondent who felt that the entire works scope ought not to have been awarded to the selected contractor but should have broken-up to work packages where other competent companies would have been engaged. When asked about his opinion if the contractor selection process yielded the right results, the response was as follows:

“In my opinion, I will answer in two-fold: yes, it yielded the desired result. But at the same time, I will also say no in the sense that, if given the opportunity, I would want a situation whereby a project would not just be given as a whole token to one specific contractor. You know, if the bid processes or the whole construction system is divided into sub-sections where competent companies are required for the various aspects of the job, it would’ve helped the project to run more smoothly than it had done so far. So, as I said, it is a yes and a no”. (Electrical Engr C, Jan. 2018)

These concerns put the evaluation conducted on the technical bids of the contractor under the spot light. The bid evaluation was carried out in two parts, first, a confirmation of the bidder’s technical capacity to cope with the works. And secondly, an evaluation of the commercial quotation of the bidder to assess how realistic they are, and which gives the most economic advantage to the Employer organisation. These were from the views expressed by a respondent:

“In bid evaluation, you look at the technical part of it and see if the person quoting for the job has the technical capability to deliver the job within the time, he quoted that he would deliver the job. And, then, the financial aspect of it is the cost. Some of them may likely under-priced the job because they know that the lowest tender always gets the job, of which I think it is important to look at the basic things that help you

know that the job is under quoted, then, you flag it off”. (Quantity Surveyor C, Dec. 2017)

But when asked if the outcome of what was done during the contractor selection stage gave the expected result as regards the selection of the most competent contractor who is able to deliver the value proposition for the project, views expressed were mainly not in the affirmative, including those expressed by the contractor’s representative sampled for the study.

“Well, as I have said also, it has yielded its result but at the same time not correctly. I said so because the contractor, in the case study, happens to be a very good civil engineer, but in the subsequent aspect of the job that has to do with the finishes and the rest, the contractor has some limitations in it. And I believe that these limitations were actually right there in his technical proposal but because those at the tender board, maybe as a result of not carefully or properly going through it, overlooked it. That, I want to believe, would’ve been one of the reasons causing the project delays up to this stage”. (Electrical Engr C, Jan. 2018)

“It wasn’t the best for the project. It wasn’t the best for the project: a better one could’ve been on board”. (Contractor Rep. C, April 2018)

“I must tell you sincerely that technically, in terms of skills and manpower, there was dearth; there was lack of man power at the beginning, and that affected the value for money there, on the part of the person who won the contract. There was no good technical manpower. They were just coming and going and that doesn’t make good for the success of a project”. (Mechanical Engr C, Jan. 2018)

There were more views in support of weaknesses in the technical evaluation of the successful contractor. When asked if the organizational complexity of the project was, perhaps, a little too much for the contractor, one interviewee responded in the affirmative and faulted the technical evaluation process during the contractor selection stage of the procurement.

“Yes. And, if I say this, then it would all come down to, maybe, he wasn’t capable in the first place. He wasn’t technically competent to carry the project, and that would lead to a hole in the bidding process”. (Client Rep. C, Feb. 2019)

To mitigate the effect of the poor technical competence noticed of the bidders progressed to the price competition stage, the assessors resorted to narrow with the best of what was available. As one respondent recounted; final decision was taken by selecting the best case from the pool of bidders already progressed to this stage without necessarily following the prescribed lowest bidder criteria of the PPA (2007). This was apparently preferred over outright cancellation of the process up to this stage. Recount of experience by one respondent hinted that the contractor tipped for award was selected by the decision makers on the hope that the project would help them build capacity.

“I’ll be frank and you can decide what part to put in your report or not. But I recall that at a time we looked at this people – they didn’t qualify to work on this project, so we try to see it as, okay, this is a project that could help the company and give them an opportunity to grow. Opportunities to expand, to become bigger, get equipment, bigger companies and all that. Or enhance their capabilities. So, we said, okay let’s look at the people in the organizations, and then we made some enquiries from people. All of them were [Case Project C location] based, so we asked somebody who was familiar with [project location] – do you know these people? What are they like – are they the kind of people that you give them work and they run away with your money, and all of that? And they identified one of them and said this one is a good person and he’s done some good jobs, and it seems like a respectable and honest contractor, and all of that. Eventually that was the basis for recommendation because their numbers were close, their qualification and experience were close. So, that became the tipping factor in selecting that particular contractor”. (Architect C, Feb. 2019)

This notwithstanding, there was a consensus amongst the respondents on the importance of bids evaluation in the public procurements as required by the PPA (2007). Bids

evaluation stage in the procurement process is viewed to help select the most advantageous bid and when not done properly, have a negative value for money effect.

“The process actually helps in identifying which bid offer gave the best value of money – that is the most economically advantageous tenders”.

(Client Rep. C, Feb. 2019)

“And this aspect, if it is not well done, you might end up losing the money you have invested”. *(Mechanical Engr C, Jan. 2018)*

9.2.4.5 Tender Approval, Contract Award and Execution

Recount of experiences by the respondent show that the procurement for Case Project C also underwent the prescribed Tender Board and Federal Executive Council approval process. When asked why this is important, and how it made contributions towards achievement of value for money, most respondents were of the opinion that the process was important as it serves as a second level control for the procurement process before it is signed off.

“... because it is their responsibility to look at the assessments that have been done so far, and to further assess the choosing of the approved contractor”. *(Electrical Engr C, Jan. 2018)*

“... it’s like a second level of checking and it’s quite important”.

(Client Rep. C, Feb. 2019)

The Contract for Case Project C was not awarded to the bidder with the lowest offer as prescribed by the PPA (2007). A formal contract was thereafter entered between the Client Organisation and the winner Contractor. When asked why it is important to have and executed Contract document and looking back, how that has contributed to achievement of value for money, the respondents were of the opinion that a signed contract created a legal structure for resolving problems in the future.

“I don’t think the lowest bid was taken; it wasn’t based on the lowest bid, so that wasn’t an issue”. *(Architect C, Feb. 2019)*

“Yeah, the contractor that was awarded the job and the client both signed the contract and we have a binding document that we would all have to abide and work with”. (Quantity Surveyor C, Dec. 2017)

“... like issues where the contractor breaches the contract there’s something to hold him to so as to avoid problems in future should the contractor decides not to carry on with his obligation, then there’s a valid contract to hold on to”. (Client Rep. C, Feb. 2019)

9.2.5 Barrier to achievement of value for money

While reflecting on the procurement process prior to site mobilisation and experiences during construction stage of Case Project C, the respondent identified a number of barriers to achievement of value for money. These are presented under the subheadings that follow.

9.2.5.1 Prolongation

The respondents were unanimous on the view that the project’s prolongation limited the value for money achieved on the project. From the experiences recounted, a number of factors can be seen to have contributed to the project’s prolongation. Views expressed pointed to the Contractor Organisation’s poor project management skills. There was an apparent failure to fully plan well for the works and the plan for the procurement of key materials and equipment was described as faulty.

“Well, in terms of time performance, what tops my mind is that the contractor’s procurement process was faulty from the inception of the project”. (Quantity Surveyor C, Dec. 2017)

“I think the problem we had in this case was that the contractor failed to plan fully well; he made a haphazard plan, and that’s what has led to where we are in this project, ... In terms of time”. (Electrical Engr C, Jan. 2018)

Another contributing factor to the delays that resulted to prolongation of the project, according to opinions, relate to a perceived poor technical competence of the Contractor

organisation when compared to what is expected for the project scope and complexity. The Contractor appear not to have committed suitably qualified personnel on the project.

“Yes, I would say that it was part of it, because when we look at it in terms of the technical aspect, as I have said before, the committee would’ve been able to find out, by looking at the personnel of the contractor in question, that there were weaknesses and would, thus, have been able to checkmate it from the beginning. [...] I believe that was what caused the issue of time overrun”. (Electrical Engr C, Jan. 2018)

“I still maintain that once any project is technically faulty, it affects every other thing. [...] Of course, it has to increase the time. You know, the program is affected”. (Mechanical Engr C, Jan. 2018)

Views expressed also suggests that the project prolonged due to the impact of delays occasioned by high level of re-works by the contractor, especially during the finishes scope of the works.

“We would have been past where we are now in the project and finished it, but for the re-work on things they did not do right at the first instance; they had to go back and re-do it again. I will give you typical examples. We had issues where we had to re-do an aspect of rendering that has been done before and an aspect of tarring that has been done before; this means more time and money as well”. (Electrical Engr C, Jan. 2018)

“When they started doing the finishing works, which is a very, very important job, there were a lot of re-works there because the contractor was not meeting up due to the fact that the workmen and the labour that he was employing to deliver that aspect of the work were not top quality or well trained. So, a lot of works were rejected. That made a lot of delays to come into play. That alone delayed the job for quite a while because when some of them were rejected, the contractor insisted that they should be accepted” (Quantity Surveyor C, Dec. 2017)

Again, there were indications that the Contractor organisations internal financial problems affected their ability to cope with the works schedules. According to the experiences recounted, the project became in-active for a long time and the Employer organisation appeared to take no immediate action to rescue the project.

“... a lot of the slippage started to happen when the contractor started to have funding issues. I think because the project was at large for, I would say, two years nothing was happening, you know; I can't quite recall; I can only remember vividly from 2014. It was at large for a very long time. Nothing was happening on site. The contractor was not just on site. He was not doing anything [...] The client was not penalizing him and was also not responding to any of our recommendations to determine the contract”. (Architect C, Feb. 2019)

“The contractor was unwilling to pay his sub-contractor and there, thus the sub-contractor was refusing to work. So, it was a back and forth, back and forth and, thus, delaying the various completion of the project [...]

It was an internal organization problem with the contractor – the contractor was financially incapable of executing the project. [...] Lack of financial capacity definitely slowed down everything on the project.

He was unable to pay workers; he was unable to pay the sub-contractor, so there was no work ongoing. The work was being done piecemeal. For a project that large, we were moving at 0.0000% per month” (Client Rep. C, Feb. 2019)

9.2.5.2 Cost escalation

Most views expressed on the additional cost incurred on the project appear to consider it justifiable given the circumstances that lead to it. However, the additional costs incurred at the final completion stages of the project owing to cost of remedial works, reworks and higher costs incurred on outstanding works due to market price inflation were viewed to have limited the value for money achieved on the project.

“... if it had ben finished at the original contract sum, cost performance would've been great. But with extra money, I'm not counting the

additional work, like the additional roads that we've done and all of that; not counting that, you know, just counting the outstanding work being executed at a higher rate, and the remedial works that had to be done. So, cost performance also missed the mark. [...]
.... we, as consultants, have to take some of the blames for certifying work, maybe because we were exhausted from having the contractor repeated two, three, four times and we were tired and just signed it off. Maybe he had come to the end of his ability, you know, but now some of that work had to be re-done". (Architect C, Feb. 2019)

9.2.5.3 Poor quality of works

Respondents viewed the poor quality achieved on the finishes scope of the works as a limitation on the value for money achieved on the project. There was a general feeling that better result could have been achieved if not for some challenges experienced.

"Yes, the quality of the project should have been more than what finally came out". (Contractor Rep. C, April 2018)

"The services installation is fantastic! Finishing is where the problems [were] ..." (Client Rep. C, Feb. 2019)

"... we did not really have situations where we had walls that were totally out of alignment, and things like that; no, they got the building right. The problem was in the finishes". (Architect C, Feb. 2019)

"The quality is not err – they didn't meet the expectations. We needed something higher than what we are having now there, in terms of quality or finish". (Mechanical Engr C, Jan. 2018)

"... it [quality] could have been done better..." (Quantity Surveyor C, Dec. 2017)

Challenges identified by the respondents as responsible for the poor quality achieved mainly relate to poor workmanship and inadequate supervision and management of the works of the finishes scope of the works.

“I will still tell you that the continuous changing of man power doesn’t make for a good finishing. Even if you continue repeating it, by the time you’re repeating, you’d be making damages to some other things”.

(Mechanical Engr C, Jan. 2018)

“And what I want to say is, quality or finish – not necessarily just the material – but the implementation as well; the workmanship matters because we have good quality materials, but then the finishing, the workmanship, was very poor, making the installation poor and as a result low quality”. (Client Rep. C, Feb. 2019)

“The contractor did not have the right technical people, artisans, working on the project. I am not sure when the bulk of the finishes were being done, but I remember that when I came on the project, we had issues mostly with the tiling and then the granolithic paving. You know, they were getting day-hire from the local market and they were just doing a shoddy job of it”. (Architect C, Feb. 2019)

The prolongation of the project also had its effects on supervision of the works. Views expressed point to the difficulty of effectively carrying out quality control activities, especially on the finishes scope due to lacklustre manner in which the works were proceeding.

“... when the project started to drag for so long even the people on site became jaded. So, we would come for the monthly site meetings and we would see things and we would like – ah! You guys didn’t see this? And they were like – oh! Really because nothing had been happening. Work was happening sporadically so they would only become aware that the contractor was working in this part of the building if they happen to pass-by because there was no communication anymore between the contractor and the Resident Consultants. Sometimes he wouldn’t even come to site for days [...]

... sometimes some poor quality work could’ve been done and would’ve gone so far that you’d be remit to start telling the person to take it down because it would be like, we’ve been doing this for such a long

time and nobody said anything. So, you'd have to now try to make good. I think somethings could've been avoided.” (Architect C, Feb. 2019)

Again, there were suggestions from the views expressed that the technical failings of the contractor which the technical evaluation exercise conducted during the contractor selection process failed to flag-off may have been responsible for the problems experienced on the finishes scope the works.

“... the contractor in the case study happens to be a very good civil engineer, but in the subsequent aspect of the job that has to do with the finishes and the rest, the contractor has some limitations in it. And I believe that these limitations were actually right there in his technical proposal but because those at the tender board, maybe as a result of not carefully or properly going through it, overlooked it”. (Electrical Engr C, Jan. 2018)

9.2.5.4 Project and Contract administration issues

While reflecting on the challenges which were experienced during project implementation and how those challenges affected the achievement of value for money, commonly cited reason for project prolongation, cost escalation and poor-quality concerns express by the respondents presented in the paragraphs above mainly relate to issues bordering on project management and contract administration. These are again highlighted and presented in the sub-headings that follow.

Excessive Government Bureaucracy

When asked about their experience with bureaucratic bottlenecks common with public sector establishments on the Case Project C, respondents recounted some delays due to government bureaucracy encountered on the project. While these appear not to be the major cause of the project's prolongation, views expressed suggests that some delays on account bureaucracy at the Employer's Organisation did have a contribution to the overall delays encountered on the project.

“we have experienced that because some of the items that were marked were provisional and you need to get the client's consent to get the

approval on what to do, and there were lots of delays in getting the approvals for payment, and for procurements”. (Quantity Surveyor C, Dec. 2017)

“I remember a time that our certificate was delayed for like almost three (3) months, as against the required twenty-eight days (28), and in the period overrun the contractor could not work because the cash flow was delayed. So, this actually resulted in a slow pace of work [...] Yes, it did contribute [to overall delay]”. (Contractor Rep. C, April 2018)

Poor Teamwork and Integration

Views expressed also revealed issues with team collaboration among the project team. Poor collaboration between the contractor and the supervising consultants appear to have resulted to some wastages due to re-works.

“The contractor and his technical crew, at a point in time, stopped getting approvals from the consultants and that led to most of the re-works experienced on the project. If you get approval, the consultants are meant to supervise what you do on a step-by-step basis, and the possibility of reworks would be negligible. But they failed to do that at a stage in the project, and that was what led to the various reworks that we had, especially in terms of the finishes as I have said”. (Electrical Engr C, Jan. 2018)

Lack of PPA (2007) compliance monitoring

Compliance monitoring of PPA (2007) implementation by groups external to the procuring entity, is one of the requirements of the law. Views expressed by the respondents tend to suggest that this was not the case for Case Project C, especially during the construction stages of the procurement process. There was a strong opinion that things would have unfolded differently for the project as regards achievement of value for money if there were external periodic monitoring of the project during implementation. One respondent reflected as follows:

“... if there was an independent body that would periodically monitor objectively this process, I think some of the things that happened would not have happened because (you know like I said again) there was patronage... [...]

Everything appeared internal – things could be covered up, you know? I wouldn't mind, as a consultant, being told by an external body that I wasn't doing my work properly because it would be an opportunity for me to sharpen the service that I am offering, you know, because if the project fails, I have failed too. So, yes, external monitoring for government projects, I think, is very important. For objectivity; for value for money, nobody should be left with money, especially with public funds, to treat it like it was their personal money”. (Architect C, Feb. 2019)

Contractor's capacity Issues

Some views expressed by the respondents provide fascinating evidence on the Contractor Organisation's poor project organisation and management skills. There were strong feelings that the Contractor Organisation lacked appropriate skilled personnel suitable for the job at hand.

“The contractor did not have the right technical people, artisans, working on the project”. (Architect C, Feb. 2019)

“I must tell you sincerely that technically, in terms of skills and manpower, there was dearth; there was lack of man power at the beginning, and that affected the value for money there, on the part of the person who won the contract. There was no good technical manpower. They were just coming and going and that doesn't make good for the success of a project.”. (Mechanical Engr C, Jan. 2018)

When asked why the technical evaluation of the contractor's competence failed to reveal lack of skilled personnel in the contractor's employment, opinion expressed by one respondent reveal how difficult that can be. It appears that contractors have a way of evading detection by fielding *resumés* of individuals not necessarily under their employment.

“... if you ask them to submit their list of workmen and certificates, they can submit any list of workmen and certificates that they have, based on experience, but they might not be part of their company anymore. They’ll first give you a submission which you cannot confirm at that time. It is at the implementation stage that you’ll see that the people coming are not the people that they actually submitted their C.Vs”. (Quantity Surveyor C, Dec. 2017)

Another related challenge experienced on the project which ultimately led to project’s prolongation and poor-quality issues experienced on the project relate to the contractor’s poor organisation and resourcing of the works. Views expressed by the respondents suggest that the organisational complexity of the works seem to have overwhelmed the meagre management resources deployed by the contractor.

“I think I will say it is a mistake on the part of the contractor. Sometimes (and this is a lesson for we the professionals) some of these contractors are given jobs and it might just overwhelm them. But in this case the contractor, no doubt, was a seasoned contractor but I think the volume of the job overwhelmed him and before he realized what was happening, emm, he didn’t properly plan himself”. (Electrical Engr C, Jan. 2018)

“... I think it was mostly organizational because I know at many times we were saying, look you’ve got one project manager, but this project is too big to have this one project manager, knowing the experience of that project manager. You need to have at least two reporting to one and then have even the breakdown of the trades. You know, it was ridiculous the work they were expecting certain people to achieve. We had even gone as far as working out plans for them which, of course, were just thrust out of the window. So, I think, to an extent, you know, when he was building and had the expatriate project managers, and they were doing the construction, they got it right. But coming to the finishing and coordinating all of that, I don’t think the contractor was putting in the necessary man power, and a different contractor

would've done it differently and achieved the project". (Architect C, Feb. 2019)

Again, compounding the contractor's problems, experience recounted by the respondents appear to indicate that the contractor started to experience financial difficulties as the works progressed. Opinions expressed by the respondents confirm there were no funding issues on the part of the Employer Organisation. The contractor's financial problems appear to be an internal problem.

"... the main challenges we have in the project were that the contractor had poor financial management in the accounting system and as well as that the contractor never had a consistent and sound technical team on the project from inception to the conclusion" (Contractor Rep. C, April 2018)

"... a lot of the slippage started to happen when the contractor started to have funding issues". (Architect C, Feb. 2019)

"The contractor was unwilling to pay his sub-contractor and there, thus the sub-contractor was refusing to work. So, it was a back and forth, back and forth and, thus, delaying the various completion of the project [...]

the contractor was financially incapable of executing the project". (Client Rep. C, Feb. 2019)

9.3 Discussion of Findings

Evidence manifest in the views expressed by the project participants sampled for the study suggests that the procurement for Case Project C achieved value for money spent on it, but that the scope of achievement had been limited. This resonates with the general opinion found in existing literature as discussed in the earlier chapters of this report. While the project was eventually completed as conceived and ready to meet the needs for which it has been conceived, views expressed confirm that the project fell below expectations on time for completion and on the quality achieved. According to existing literature, these are part of multi-criteria to consider while arriving at a judgement of value for money (Glendining, 1988; HM Treasury, 2006; Ezech 2012).

Experiences recounted by respondents provide evidence that the procurement process for Case Project C largely satisfied the regulatory requirements of the PPA (2007). A key objective of the PPA (2007) is to promote achievement of value for money in government procurement, but it will appear that the success of the PPA (2007) on Case Project C has been limited in scope in that regard. Nevertheless, views expressed by the respondents suggests that more could have been achieved, and therefore, lessons can be learnt from aspects where the Case Project has done well and similarly, pitfalls could be avoided in the future projects where its performance has not met the value for money expectations of a public-sector project.

9.3.1 Procurement process under the PPA (2007) rules

Evidence manifest in the opinions expressed by the respondent suggest that the procurement rules instituted by PPA (2007) facilitated noticeable improvements and prevented the occurrence of some malpractices that were prevalent before the enactment of the Act.

“It wasn’t business as usual Somehow, I feel we would have been worse off if we hadn’t followed the public procurement act”.

This resonates with Achilike & Akuwudike (2016) assertion that the procurement process instituted by the PPA (2007) has to a reasonable extent established transparency and fair play and succeeded in eliminating many contract malpractices previously common with the Nigeria public sector. However, despite the process improvements introduced by the PPA (2007), views expressed by the respondents has shown that achievement of value for money as envisioned by the law has been limited in scope.

The conduct of prior Needs Assessment made compulsory by the PPA (2007) was opined to have facilitated positive improvements in directing the value proposition of the project to meet existing real needs, and the project cannot therefore be described as what Ezeh (2011) termed as “white elephant” project. According to the views expressed by the respondents, the Needs Assessment identified specific needs which were added it to the project’s value proposition and thereby ensured that money was spent in the right direction. This is in part supported by Watermeyer (2013) assertion that a key driver for value for money in construction procurement is to frame value for money proposition through clearly defined project objectives and expected outcomes. This implies that Case Project C have a

useful value impact as an end product, a clear evidence of achievement of value for money.

This achievement, however, appear to be limited to value impact of the project as an end product, whereas, much of literature view value impact of public sector construction not only just as an end product, but also as a means to an end. Staples (2010) suggests that for the public sector may decide to sacrifice economy to focus on achieving better whole-of-government outcome such as development of Small and Medium Scale enterprises (SMEs), training of Apprentices or providing employment for at risk unemployed youths. There was no evidence from the views expressed by the respondents which indicate a deliberate attempt during the Needs Assessment and procurement planning to frame into the value proposition of the Case Project C, for impact as a means to an end. Therefore, there is an opportunity here to widen the scope of value for money achievable.

Furthermore, much of literature confirm poor budgeting and funding issues which results to poor financing and payment of completed works as part of challenges facing public procurement in Nigeria (Nwogwugwu & Adebayo, 2015; Onyema, 2011; Ezeh, 2011). Ezeh (2011) especially pointed out the challenge of 12 months budget cycle vs. 3 – 5 year project life span. In contrast, views expressed by the respondents suggests that there were largely no issues with payments of completed works on Case Project C, which suggests that budgeting all through the years the project lasted was good. The budgeting practice implemented for Case Project C impliedly overcame the problems of payment delays occasioned by late passage of annual appropriation budgets into law common in Nigeria (Onyema, 2011).

“It was necessary to complete the project, so for every year we made sure there was [a budget] appropriation for it”.

This is a good lesson that could be learnt from Case Project C. The structured procurement process of the PPA (2007) demands confirmation of adequate budgetary provision that can guarantee funding for a project prior to any bid solicitation by any government entity, but opinions in literature and the views expressed by respondents suggests this has not always been the case.

“... most of the government projects failed because there was no adequate [fund] appropriation”.

Again, the use of public media advertisement for bid solicitation for Case Project C was viewed by respondents as a demonstration of equity and transparency. Public advertisement was thought to provide wider opportunity for participation and competition for all interested parties. Arrowsmith, et al, (2011) opined that some of basic rules for transparency and competitive bidding contained in most regulatory rules have realisation of value for money as one of their aims. Similarly, the BPP's Public Procurement Procedure Manual recognises competition and transparency in public procurement as part of the hallmarks of a proficient public procurement process (BPP, 2011). Therefore, transparency expressed for the procurement process for Case Project C is indeed a good lesson to be learnt towards achievement of value as this is not always the case for public procurement in Nigeria. Familoye (2015) hinted that the PPA (2007) primary objective of transparency in public procurement (amongst others) has not been fully achieved.

Recount of experiences by the sampled project participants appear to indicate that the contractor selection process for Case Project C has followed the PPA (2007) two stage tendering process. Concerns has been raised in literature that the default contractor selection process instituted by the PPA (2007) appear to cascade the procurement to the often in-efficient traditional procurement route of design-bid-build irrespective of project circumstances (Ayangade, et al, 2009; Babatunde, et al, 2010; Dada, 2012, Ekung, et al, 2013). Correspondingly, Case Project C had followed the traditional design-bid-build procurement route, and analyses of views expressed provide no evidence of formal process for selection of an appropriate procurement route. The procurement of Case Project C has followed the traditional route.

Additionally, experiences recounted by the respondents suggest that the technical evaluation of bid conducted at the early part of the two-stage process lacked the required rigor and was unable to flag-off technical weaknesses of the selected contractor. The perceived technical weakness of the contractor was viewed as a factor that contributed to the limited scope of achievement of value for money on the project. Correspondingly, Onyema (2011), had identified poor technical screening of contractors as part of the challenges plaguing the implementation of PPA (2007) and impliedly, limiting it from fully achieving its set objectives. Going forward, conduct of a more rigours technical evaluation appears to be a good lesson that can be learnt from Case Project C.

There was a general feeling amongst the respondent that noticeable improvements compared to what was obtainable during the periods before the public procurement reforms in Nigeria. Case Project C, largely complied with the regulatory requirements of the PPA (2007), but as the views expressed by the respondent indicate, achievement of value for money as envisioned by the law was limited in scope. This notwithstanding, there was a sense that improvements were possible in the future.

“... There’s room for subsequent improvement though”.

9.3.2 Contributions of PPA (2007) towards achievement of Value for Money

Generally, opinions expressed by the respondents were in support that the case project’s compliance with PPA (2007) positively influence the outcome achieved in terms of value for money. Irrespective of the shortcomings experienced, respondents were of the opinion that the projects outcome would have been worse-off if not for the rules instituted by the PPA (2007). The contractor selection criteria imposed by the PPA (2007) was perceived to have made it possible to have only known construction contractors to participate in the procurement process unlike what used to be obtainable.

“... I feel we would have been worse off if we hadn’t followed the public procurement act”.

“I think on this very project, and as a result of the public procurement act, we were able to get a seasoned contractor that is in the field. It wasn’t business as usual where you’ll get politicians to come and do construction works;”

Again, the PPA (2007) rules for prior Needs Assessment also viewed to have made profound contribution in steering the project’s effectiveness towards existing needs. Scarce resources can be construed to have been put to a rational use.

“... I’d like to say again that the needs assessment [was] spot on beautiful and I am glad that it is one of the criteria for the guideline on public procurement”.

All these seem to confirm Achilike & Akuwudike (2016) conclusion that the procedure instituted by the PPA (2007) has to a good extent reduced the prevalence of contracting

malpractices in the Nigeria which most literature link to project failures in the years before the PPA (2007) (Ibrahim & Musa-Haddary, 2010; Ezeh, 2011).

Perceived area of in-effectiveness of the procurement process appear to stem from faulty implementation. Views expressed by the respondents indicate that the bidders progressed to the price competition stage of the contractor selection process appear not to have the requisite technical criteria for a successful delivery of the project, and this was thought to have made contributions to the limited scope of value for money achieved on the project. Views expressed suggests that this shortcoming was caused by poor technical evaluation of the bidders' competence rather than the PPA (2007) rules for technical evaluation of bidders.

“Yes. And, if I say this, then it would all come down to, maybe, he wasn't capable in the first place. He wasn't technically competent to carry the project, and that would lead to a hole in the bidding process”

“... when we look at it in terms of the technical aspect, as I have said before, the committee would've been able to find out, by looking at the personnel of the contractor in question, that there were weaknesses and would, thus, have been able to checkmate it from the beginning ...”

Correspondingly, Onyema (2011), identified poor technical screening of contractors as part of the challenges plaguing the implementation of PPA (2007) and impliedly, limiting it from fully achieving its set objectives. This notwithstanding, views expressed indicate optimism for progressive future improvements. Similarly, opinions in literature also suggests positive potentials of the PPA. (2007) on public sector procurements in terms of achievement of value for money. Oyebamiji (2018) survey of 200 procurement practitioners' opinion found that the implementation of the PPA (2007) is viewed as a catalyst for achievement of transparency, accountability, efficiency, and value for money in public sector procurement. Limited scope of value for money achieved on Case Project B could relate to the implementation challenges experienced.

9.3.3 Barriers to achievement of value for money

Case Project C has been viewed by the sampled project participants to have achieved limited scope of value for money mainly due to the project's prolongation, poor-quality concerns and additional costs incurred upon completion. Their judgment for value for

money appears to be mainly based on the traditional project management performance criteria of time, cost and quality. While the project was completed and perceived as fit for its purpose, opinions expressed by the respondents suggests that the maximum benefit has not been achieved due to the project's poor performance on completion time, cost and quality. Figure 9.1 is a mind map generated from the analyses of interview data on the limited scope of value for money achieved on Case Project C. Starting from the centre and moving outward in any direction, the mind map traces respondents' views why achievement of value for money on the project was considered to be limited in scope. Also, continuously asking why and/or how? and moving outwards reveals causal links manifest in the views expressed.

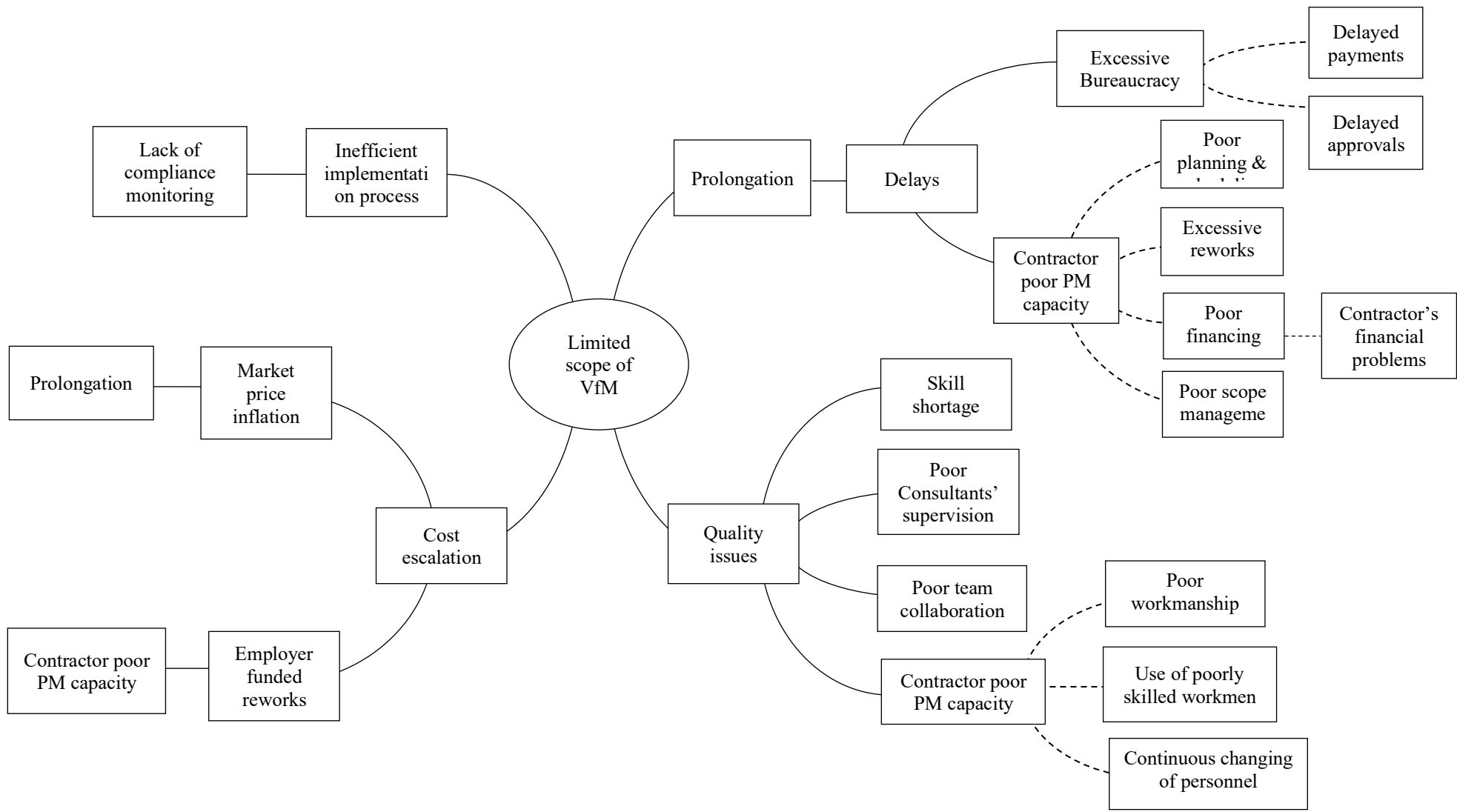


Figure 9.1 - Mind map of Respondents' views of barriers to achievement of VfM on Case Project C

The Contractor's poor project management capacity appears to be an eye-catching contributory factor to the prolongation and poor-quality achieved on the project. Inuwa, et al, (2014) opined that the modern-day construction business demand more from contractors beyond their traditional role of system assembly in design-bid-build procurement route, to more management oriented, integrated and discretionary systems. In contrast, the Contractor's capacity problem appear to be management oriented, manifesting in their poor planning and scheduling of works, their in-ability to cope with the scope of the project, high level of reworks and poor project financing; all of which led to the time overrun experienced on the project. These were manifest in the views expressed by the respondents.

*“... the contractor failed to plan fully well; he made a haphazard plan,
...”*

*“... in this case the contractor, no doubt, was a seasoned contractor
but I think the volume of the job overwhelmed him ...”*

*“We would have been past where we are now in the project and
finished it, but for the re-work on things they did not do right at the first
instance; ...”*

*“... a lot of the slippage started to happen when the contractor started
to have funding issues”.*

*“The contractor was unwilling to pay his sub-contractor ..., thus the
sub-contractor was refusing to work”.*

Also, the contractors hire of poorly skilled workmen and their inability to continuously retain skilled technical team was viewed to have contributed to poor quality achieved on the finishes scope of the works. All these appear to resonate with Inuwa, et al, (2014) identification of poor quality, poor workmanship, poor management capability financial difficulties and poor planning as among the factors that mar the performance of Nigerian indigenous contractors.

Views expressed by the interview respondents suggests that the technical evaluation of Contractor's competence for the works conducted during the prequalification stage of the contractor selection process failed to flag-off the contractor's poor technical capacity and

this led to the problems eventually experience during the construction stage. This view seems to be supported by Aje (2012), which concluded that an objectively prequalified contractor has potentials to deliver construction projects to acceptable quality standard within the scheduled time. Evidence from the views expressed suggest that the risk of poor performance by the contractor was discovered during the later tender evaluation stage but appears to be accepted without measures put in place to mitigate it.

“... we were presented with a list of five contractors who were now invited to tender. And looking through their documentations; looking through the projects they had handled in the past, left to me, [to feel that] none of them should’ve been invited to participate in the project ...”

To mitigate the kind of project management weaknesses manifested by the contractor, Inuwa, et al (2015) recommends the adoption of project management methodology, adoption of ICT in project planning, employment of competent workforce, continuous capacity building and good knowledge of the construction market by the Contractor.

The Mind map in Figure 9.1 also indicate that the respondents viewed the additional cost incurred on the project on account of remedial works and market price inflation as a limitation on value for money achieved on the project. In addition, views express also suggests adequate PPA (2007) compliance monitoring by agents external to the Employer organisation and the project team have the potential of making positive impact on the procurement outcome and lack of it had encouraged the in-efficiencies that limited scope of value for money achieved on the project.

“... if there was an independent body that would periodically monitor objectively this process, I think some of the things that happened would not have happened.... Everything appeared internal – things could be covered up ...”

9.3.4 Causes of Barriers to Achievement of Value for Money

Generally, evidence manifest in the views expressed by sampled project participants for Case Project C appear to indicate that the primary reasons why value for money achieved on the project was considered to be limited in scope due to its prolongation, poor-quality achieved in-efficient project implementation process and additional costs incurred. As can

be traced using the Mind map of Figure 9.1, these were in-turn caused by various factors and challenges experienced on the project as respondents' reflections appear to indicate. Furthermore, using the Ishikawa diagram technique, an attempt at the cause-and-effect analysis based on the views expressed by the respondents, reveals causal links to why achievement of value for money on the project was perceived to be limited in scope for Case Project C. The 'fishbone' diagram in Figure 9.2 provides a summary of these links.

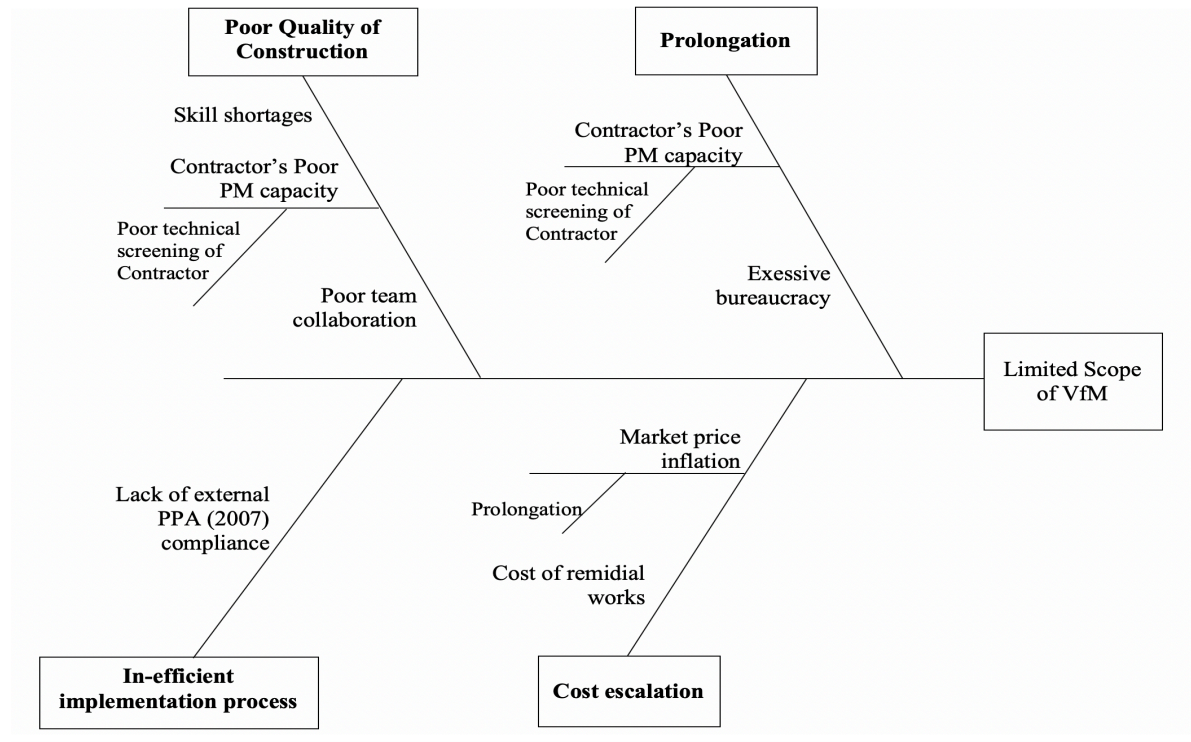


Figure 9.2 - Root cause analyses of barriers to achievement of value for money for Case Project C

From the views expressed, the project's prolongation was mainly caused by the poor project management capacity exhibited by the contractor organisation whose job it was to manage the assembly process. According to the respondent's views, the project's scope appeared to overwhelm the contractors, suggesting weaknesses in managing the organisational complexity of the works. The contractors were also at some point unable to adequately fund the works. Views expressed indicate that payment of completed works by the Employer organisation was as expected, therefore suggesting internal cashflow management problems within the Contractor organisation. Respondents opinion also indicated that the Contractor's poor technical skill contributed to high level of reworks

experienced on the finishes scope of the works. Aside contributing to the delays that led to prolongation, costs of reworks borne by the contractor arguably had the potential to further aggravate the contractors poor financial position.

Also manifest in the opinions expressed by the respondents were the causes of poor quality of works which limited the value for money achieved on the project. Again, most factors considered to have negatively affected the quality achieved on the works fall under the Contractor's inability to properly manage the works; poor workmanship resulting from hire of poorly skilled workmen, continuous changing of personnel and poor collaboration with the supervising team. Local shortages of some skill sets were also viewed to have negatively impacted the quality of the finishes scope of the works.

In addition to the cost effects of prolongation on the project, additional costs incurred by the Employer organisation on remedy of works not properly done in the first instance were also opined to have contributed to the extra costs of the project upon completion which was viewed as a limitation on value for money achieved. Also, lack of external PPA (2007) compliance monitoring was viewed to have encouraged in-efficiencies experienced on the project which were viewed as a limitation on value for money achieved.

Generally, these factors which are summarised on the fishbone diagram of fig xxx resulted in the barriers that were viewed by respondents to have limited the scope of value for money achieved on Case Project C. Therefore, measures that could mitigate these factors or challenges in future public sector construction procurement could lead to improvements in scope of value for money achievable.

9.3.5 Success factors for improving scope of value for money achievable

From the findings on Case Project C, success factors for improving the scope of value for money achievable for public-sector procurement under the regulatory framework of the PPA (2007) will include the following:

- Prior Needs assessment that defines wider scope of value for money
- Good project budgeting practice by the Client
- Transparent contractor selection process
- Robust technical screening of Contractors
- Measures to support project management capacity of Indigenous Contractor

- Improvement of craftsmanship through continuous training of workmen
- Measures to mitigate or minimize approval delays
- Greater designer-builder team integration
- PPA (2007) compliance monitoring by external organizations

9.4 Chapter Summary

In summary, this chapter presented the results and analyses of interviews data conducted with six members of the project team who had first-hand participation in the procurement of Case project C. Therefore, evidence provided by the analyses is limited to the views expressed by these six project participants sampled for the study. Their first-hand experience with the procurement of Case Project C, together with their experience in construction and knowledge of the PPA (2007), do mean that their opinions, reflections and recount of experience on the case project provide valuable rich insight into the reality of implementing PPA (2007) in a typical public construction project procurement which Case Project C also represents.

Evidence manifest in the views expressed by the project participants sampled for the study suggests that the procurement for Case Project C achieved value for money spent on it, but that the scope of achievement had been limited. While the project was eventually completed as conceived and ready to meet the needs for which it has been conceived, views expressed confirm that the project fell below expectations on the efficiency and economy dimensions of value for money. The project did not meet the timely completion expectation, additional costs had been incurred and concerns were raised on poor quality achieved on the finishes scope.

Findings also show that the procurement process of Case Project C generally complied with the rules of the PPA (2007) and that was viewed to have made positive impact on the project irrespective of the shortcomings experienced. Respondents suggested that the project would have been worse-off, if the rules of the PPA (2007) had not been applied. The PPA (2007) rules for prior Needs Assessment was viewed to have made profound contribution in steering the project's effectiveness towards existing needs. Also, the PPA (2007) contractor selection process had help the project avoid imposter contractors, which could be said used to be common during the era preceding the PPA (2007). Perceived area of ineffectiveness of the procurement process appear to stem from faulty implementation.

Analyses of the views expressed indicate that most factors at the root of the achievement of limited success on the project in terms of value for money relate to project management challenges mainly during the construction stage of the procurement process, which could be linked to also to procurement planning and contractor selection stages. Most profound was that the selected Contractor exhibited poor project management capacity, appearing to be unable to cope with the organisational complexity of the works, lacked good craftsmanship, and at a point were unable to properly finance the works.

There are prospects for widening the scope of value for money achievable on construction projects procured under the regulatory rules of the PPA (2007) if future projects could effectively avoid the pitfall identified on Case Project C and build on the area of its successes.

Chapter 10

Cross-case comparison and synthesis for improved practice

10.1 Introduction

The preceding three chapters of this report presented analyses and discussion of interview data comprising contextual accounts of the implementation of the PPA (2007) on the procurement of three public sector construction projects respectively. These accounts were reflections, lived experience and views expressed by project participants sampled for each case project, who were also operationally tasked with realising the projects. Data analyses was aimed at in-depth understanding of existing practice in order to synthesize for improved practice. This chapter is an attempt to collate, categorise and evaluate the results of data analyses of all three-case projects, towards building a richer picture of realities of public sector construction procurement under the regulatory rule of the PPA (2007), and its aim for achievement of value for money. The combined result of analyses from three case projects has the potential of providing a more saturated in-depth understanding of the realities of a public construction procurement under the heading of achievement of value for money and more robust synthesis for improving practice in the future, unlike what is possible from a single case project.

The collation and discussions in this chapter followed four main sub-headings, respectively presenting the following:

- How project participants across the three case study projects view and assess the achievement of value for money and how it compares with views from literature. How value for money is perceived by the social actors operationally responsible for realizing the case projects could provide an insight to what may have influenced their actions.
- The study participant's opinions on the contributions of the PPA (2007) towards value for money achieved on the projects, as assessed by themselves. Aim was to identify and highlight the key strength and weakness areas of the law, from the experience of the participants on the three case projects.
- The review and categorization of the procurement practices adopted for the three case projects. Following the same government recommended process template, the

third sub-heading presents the study participants views on how each process step contributed towards achievement of value for money, lessons to learn and pit falls to avoid on future projects.

- A synthesis of the study sample's views on the barriers to achievement of value for money, and the root-cause factors that could be the focus of measures for improved future practice.

10.2 Perspectives on value for money achieved

It was important for the study to understand the interpretations ascribed to *the concept of achievement of value for money* by practitioners, especially those individuals tasked with the job of procuring the projects. Value for money as a phrase in common use has an intuitive appeal, but for practical purposes, could have multiple connotations in different settings and at different times (Glendinning, 1988; Dewulf, et al, 2012). As clarified in the earlier chapters of this report, value for money as envisioned by the PPA (2007) is multi-dimensional in nature, not just the instinctive judgement on cost savings, but encompassing more as defined by a former Director General of Nigeria's Bureau of Public Procurement:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value” (Ezeh, 2012).

Also, value is generally recognized in literature as a subjective judgement and therefore could mean different things to different people, and at different times.

Therefore, the respondents were therefore asked to reflect and give their general impression, whether value was achieved for money spent on the case projects, with a follow-up question of how? and why? In their responses, diverse criteria were used to arrive at their judgement of achievement of value for money. Figure 10.1 is a word cloud of twenty (20) most frequently used words by the respondents while giving their assessment on achievement of value for money across the three case study projects. Key words used while reflecting on value for money achieved on the projects could give an indication of what

was considered important by the respondents and impliedly, a suggestion of what may have influenced their actions.



Figure 10.1- Twenty (20) most used words while assessing Value for Money by respondents (generated with NVivo 11 for Mac software)

As in word clouds, font sizes of the words indicate how frequent the word was used – the larger the font, the more frequent it was used. Overall, the collective views of the respondents across the three case projects appear to indicate a multi-dimensional understanding of the concept of achievement of value for money by the project participants akin to value for money perspectives of the Bureau of Public Procurement as defined by Ezech (2012). The word cloud also shows that words like ‘facilities’ [delivered], ‘quality’, ‘time’ were used more frequently by the study sample than ‘cost’ and ‘stakeholders’ [opinion]. How these words appear on the word cloud may imply a collective order of priority of what was considered important by the respondents. Although, on the individual project participants basis, judgement on achievement of value for money was generally made by trade-offs of what was considered more important as discussed in the three preceding chapters of this report. The criteria used by the respondents for assessing value for money achieved on the projects and the consensus views given are summarized in Table 10.1

Table 10.1 - Criteria used for assessing Value for money by respondents

CASE PROJECT A			
Factors Considered	Assessment		
	Positive	Negative	Mixed
Successful delivery of a built facility	✓		
Quality achieved*	✓		
Completion time		✓	
Fitness for purpose	✓		
Stakeholders satisfaction	✓		
Cost on completion			✓
Facility management considerations		✓	
CASE PROJECT B			
Factors Considered	Assessment		
	Positive	Negative	Mixed
Successful delivery of built facility	✓		
Quality achieved*		✓	
Completion time		✓	
Fitness for purpose	✓		
Stakeholders satisfaction	✓		
Cost on completion		✓	
CASE PROJECT C			
Factors Considered	Assessment		
	Positive	Negative	Mixed
Successful delivery of built facility	✓		
Quality achieved*		✓	
Completion time		✓	
Fitness for purpose	✓		
Stakeholders satisfaction	✓		
Cost on completion			✓
Capacity growth of an indigenous Contractor	✓		

* quality achieved on the finishes scope of the works only

Criteria used by the respondents are generally consistent with opinions in literature, although it could be observed that most factors considered were limited to values the project has to offer as an end product only, but not as a means to an end or as a process. Perspectives from Case Project C did consider capacity growth of a local business entity as a value achieved from the process of procuring the case project. Opinions in literature

suggests the possibility for more, such as environmental considerations, employment creation, demonstration of public accountability, transparency, fairness and equity, promotion of Equality and Diversity, health and safety, transfer of technology, etc (HM Treasury, 2006; Staples, 2010; Watermeyer, 2013; National Audit Office, 2013; Dada, 2013; Dada, 2013b). These were not manifest in the views expressed by the project participants sampled for the three case study projects. An alternative explanation could be that the study sample were individuals from mainly tactical and operational management level and not from the top strategic decision-making management level, especially of the Employer organisation. Nonetheless, considering the study sample were individuals tasked with the job of delivering the project, their perspective to achievement of value for money could be an indication of what was generally understood as achievement of value for money and perhaps, what influenced their actions. Measures for improving future practice would have to include strategies for clearly defining and expanding value for money objectives for projects with expected outcomes and making them explicit to the practitioners operationally responsible for procuring the projects.

Again, another factor of note is that the study sample across all three case projects viewed the successful delivery of the project as an achievement of value for money on its own merit. This may come from the backdrop of high incidences of outright project abandonment prevalent in Nigeria (Ibrahim & Musa-Haddary, 2010; Ezeh, 2011; Achilike and Akuwudike, 2016). According to Achilike and Akuwudike (2016), project failures and abandonment assumed a negative dimension in Nigeria which necessitated the constitution of a panel of inquiry in 2011 by the Nigerian President. It appears the respondents were satisfied that the case projects avoided this type of fate and therefore, it seemed logical to make-do with the in-efficiencies in the process that delivered the end product. This benchmark of project performance with local results could have its limiting effects compared to a broader international perspective. It appears that a push for future improvements would be to also benchmark project performances with outcomes from international best practices.

Furthermore, from the assessments made by the respondents, it could be concluded that the projects' success in terms of achievement of value for money were limited in scope. Some value for money performance expectations of the respondents had not been achieved. But this notwithstanding, the respondents were generally of the view that the PPA (2007) had

a positive influence on the projects' outcome and optimistic that more was possible than was achieved on the case projects. Therefore, opportunity appear to exist for future improvements on public projects procured under the regulatory framework of the PPA (2009) if pitfalls experienced on the case projects could be avoided.

“... there is a lot of work that needs to be done to tweak the selection process in the public procurement to distort the cascading sort of traditional procurement strategy that is suggested or recommended by the public procurement act” (Quantity Surveyor A, April 2017)

“I think it [the PPA (2007) actually positively influenced it [the project] ...” (Architect B., Dec. 2017)

“... I feel we would have been worse off if we hadn't followed the public procurement act. There's room for subsequent improvement though”. (Electrical Engr C, Jan. 2018)

These opinions are also supported by optimistic views on the potentials of the PPA (2007) from existing literature. Oyebamiji (2018) analyses of the opinion survey of 120 procurement practitioners concluded that practitioners view the implementation of PPA (2007) as a catalyst to transparency, accountability, efficiency and value for money. Similarly, Achilike & Akuwudike (2016) opined that the procurement process instituted by the PPA (2007) has to a reasonable extent established transparency and fair play and succeeded in eliminating many contract malpractices previously common with the Nigeria public sector.

10.3 Views on impact of PPA (2007) on achievement of value for money

Views expressed by the study participants from the three case study projects on the impact of the PPA (2007) towards achievement of value for money indicated areas of perceived strengths of the PPA (2007) in support of achievement of value for money. Equally, areas of perceived weaknesses appear obvious from the views expressed. Generally, participants' views were in support that the case projects' compliance with PPA (2007) positively influence the outcome achieved on the projects in terms of achievement of value for money. Irrespective of the shortcomings experienced, respondents were of the opinion that the projects outcome would have been worse-off if not for the rules instituted by the PPA

(2007). The structured processes instituted by the PPA (2007) appear to limit discretionary tendencies with its inherent risk for abuse. According to Ekwekwuo (2017), public procurement is susceptible to undue influences and the resources at risk is significant. It would appear therefore, that making the prescribed process compulsory and the obligation to keep records for audit purposes is key to the PPA (2007) contribution towards achievement of value for money.

When asked to reflect on the case projects and describe how the implementation of the PPA (2007) had facilitated achievement of value for money on the case projects as assessed by themselves, expressed views of the respondents, points to mainly three features of the PPA (2007). These are:

- Compulsory requirement for conduct of Needs Assessment prior to all procurements,
- The structured contractor selection process, and
- The rule for price competition.

10.3.1 Compulsory requirement for conduct of Needs Assessment

The PPA (2007) compulsory requirement for procurement plans to be based on a prior Needs Assessment was viewed to have made profound contribution in steering the project's effectiveness towards existing needs. Scarce resources can be construed to have been put to a rational use. According to Watermeyer (2013), a key driver for value for money in construction procurement is to frame value for money proposition through clearly defined project objectives and expected outcome. Findings confirm that the Needs Assessment carried out at the project inception, ensured that there was a preconceived performance objective for the Case Projects informed by a confirmed real need. This appears to be an important area of strength of the Law which needs to be sustained and continuously improved upon, going forward.

10.3.2 Structured contractor selection process

Also, according to the respondent's opinions, the structured contractor selection process of the PPA (2007) ensured that the contractors selected were construction company proven to be in the business of construction. This again, is in contrast to what was possible before the procurement Act, when contract award papers make it to the hands of 'touts' who buy and resell (Achilike & Akuwudike, 2016). PPA (2007) rules created room for wider

participation in procurement process by interested and qualified parties, and the rule for transparency and accountability of the process limits the risk of abusive and fraudulent practices. This notwithstanding, recount of experiences by the respondents in two out of the three selected case study projects have shown that the selected contractors, although known names in the construction business, exhibited lack of capacity appropriate for some of the projects' expectations, which contributed to the limited scope of value for money achieved on the projects. It would appear that the implementation of section 23 of the Public Procurement Act dealing with the pre-qualification of bidders has failed to detect and prevent the award of procurement contract to contractors with the requisite capacity for the project. Therefore, this is an important area of practice weakness that requires improvement in the future.

Relatedly, it could be observed that the structured process referred to by the study participants does not include any formal process for selecting the most suitable procurement route for the project. It has been well established in existing body of knowledge that successful outcome of a construction project is related to the use of an appropriate procurement route. There is a construction procurement route best suited for a given set of project variables, but no one route is best for all project circumstances. PPA (2007) is the generic Law for all government procurements, including procurement of goods and services, and therefore may not have considered the distinctiveness of construction in any great detail. This, however, is potentially a weakness in the Law, in terms of achievement of value for money on construction procurement. Similarly, concerns has also been raised in literature that the default contractor selection process instituted by the PPA (2007) appear to cascade construction procurement to the often in-efficient traditional procurement route of design-bid-build irrespective of project circumstances (Ayangade, et al, 2009; Babatunde, et al, 2010; Dada, 2012, Ekung, et al, 2013). One study participant suggested the tweaking of the law to prevent this from happening:

“... there is a lot of work that needs to be done to tweak the selection process in the public procurement to distort the cascading sort of traditional procurement strategy that is suggested or recommended by the public procurement act” (Quantity Surveyor A, April 2017)

In the interim, a good practice guide for improvements in the future would have to include a process of formal assessment of the projects variable in order to recommend the most suited procurement route, while keeping to the contractor selection rules of the PPA (2007).

10.3.3 Rule for price competition

Finally, the PPA (2007) rule for price competition was perceived by the study sample to have a positive impact on the case project as it ensured economy. William-Elegbe (2012) suggests that selecting from a wide pool of suppliers imply higher degree of obtaining the right competitive price as opposed to a monopolistic one. Contract award for two out of the three case study projects were not based on the rule for award to the bidder with the lowest bid amount. Decision makers appeared to have given priority to higher technical competence over cheaper bid amount while selecting from the pool of bidders invited for price competition. Opinions expresses by the respondents, however, suggests that price competition amongst the bidders ensured that all submitted their best competitive prices. But, at the completion of the case projects, experience recounted showed that economy achieved through price competition in isolation, did not guarantee economy in the end. Correspondingly, opinions in literature have also shown that the mentality that the lowest cost at tender stage produce cheapest outturn cost has largely been proven untrue and is thought to block the way to achieving best value (Wood, 2005). Olatunji, et al, (2016) opined that the lowest-bid section approach leads to project abandonment, as contractors tend to offer unrealistic low prices just to win contracts. Similarly, Olawale & Sun (2010) and Olatunji (2008) both cited the lowest bid selection criteria as the leading cause of time and cost overrun of projects in Nigeria. The implications of these for future practice improvements, would be the adoption of a contractor selection criterion that focuses more on bidders' capacity and relevant experience rather than on most economic tender offer.

10.4 Procurement process under the PPA (2007) rules

As part of the research objectives, the study sought to understand the procurement practices adopted during the various stages of procurement prior to site construction, to know to what extent they complied with the provisions of PPA (2007) and how those practices made contribution towards achievement of value for money from the perspectives of the project participants sampled for the study. Overall, evidence from the three case studies indicate that the case projects substantially complied to the regulations of the public procurement act. Using the step-by-step process template promoted by the Bureau of Public Procurement

as a good practice example, interview respondents were asked to reflect on the procurement of the case projects and give their opinion, why they think those individual process steps were important and how they made contributions towards achievement of value for money. Recount of experience on what transpired during the pre-contract procurement process reveal why the project participants view each process step as important and how they contributed to achievement of value for money. Importantly, why or how the opportunity for value for money was missed and therefore lessons that can be learnt for future improvements. These are summarised in Table 10.2 under the headings described for each Case Project in sections 7.2.4, 8.2.4 and 9.2.4 respectively of the preceding three chapters.

Table 10.2 - Views expressed on procurement practices adopted for the Case Projects

Activity	Views on contribution towards the achievement of Value for money	Lessons learnt/Pitfall to avoid
Needs Assessment	<ul style="list-style-type: none"> • Created greater stakeholder acceptability and buy-in • Helped avoid unnecessary costs by determining appropriate scope • Ensured money was spent in the right direction • Steered the project towards meeting existing real needs 	<ul style="list-style-type: none"> • There is need to expand value propositions of the project beyond value as an end product, but also as a means to an end or by-product • To include formal systematic assessment of which procurement route is most suited for the project
Budgeting	<ul style="list-style-type: none"> • Ensured money was legally available for spending • Facilitated the decision on affordability of the project • Helped mitigate delays caused by lack of funding • Prevented financial corruption as the funds was not seen to be limitless 	<ul style="list-style-type: none"> • To ensure yearly statutory budget cycle matches the cashflow required annually all through the procurement life span • To ensure adequate financial allowance to cater for price inflation and scope variation

Table 10.2 (cont'd) - Views expressed on procurement practices adopted for the Case Projects

Activity	Views on contribution towards the achievement of Value for money	Lessons learnt/Pitfall to avoid
Bid Solicitation	<p>Public media advert:</p> <ul style="list-style-type: none"> • provided wider participation, with better likelihood of selecting a contractor most appropriate for the project • demonstrated equity, transparency, equal opportunity for all and prevented nepotism • engendered better competition 	<ul style="list-style-type: none"> • Measures to reduce documentation burden, e.g. the use of ICT • Consider the use of restricted method to avoid tedious and inefficient evaluation process of large bidder turn-out
Pre-qualification of bidders and Tender process	<ul style="list-style-type: none"> • Transparency of the contractor selection process assured the integrity of the process and encouraged confidence and presentation of best offers by the bidders • Pre-qualification of bidders based on technical capacity ensured that the winner of price competition is competent for the job and helped minimise technical and financial capacity problems • Price competition helped receive the most economic offer 	<ul style="list-style-type: none"> • To adopt selection criteria that considers risks of poor performance over economic advantage • Reducing risk of poor performance by focusing on most technically competent bidder rather than the most economic offer • Pre-qualification documentation to be more project specific as against generic form of documentation • Objective pre-qualification of bidders based on verified experience • More rigorous scrutiny of bidders' technical claims including visit to bidders' facilities and recent projects • The use of two-stage selection process to improve efficiency of the process • To consider breaking up project to simpler work packages where the preferred bidder's capacity to manage the organisational complexity of the works is in doubt

Table 10.2 (cont'd) - Views expressed on procurement practices adopted for the Case Projects

Activity	Views on contribution towards the achievement of Value for money	Lessons learnt/Pitfall to avoid
Tender Approval, Contract Award & Execution	<p>Top management approval:</p> <ul style="list-style-type: none"> • helps get top management involvement and ownership of the process • fulfils the legal requirement to proceed with implementation • afford another opportunity for further price negotiation • provides a second level control for the entire process <p>Contract execution:</p> <ul style="list-style-type: none"> • provides legally binding relationship • fosters commitment amongst the parties to actualise the project • provides legal structure for managing disputes 	<ul style="list-style-type: none"> • Final award to consider bidder's technical capacity over most economic price offer • Good version control of contract document during contract negotiations • Double check that the correct final version of the contract is signed off by individuals responsible for signing

10.5 Barriers that limit achievement of value for money

The three Case Projects selected for this study were viewed by the sampled project participants to have achieved limited scope of value for money mainly due to a number of reasons. These are: the prolongation of the projects, cost escalation, variations in scope, Facility management difficulties, inefficient project implementation process and poor-quality of construction. Although these were not all evident in each of the Case Project, but collectively represent an insight on why achievement of value for money was considered to be limited in scope. The first-hand experience of the study sample with the procurement of the Case Projects, together with their experience in construction and knowledge of the PPA (2007), do mean that their opinions, reflections and recount of experience constitute rich contextual account of the realities of implementing PPA (2007) on a public construction project procurement.

These barriers to achievement of wider scope of value for money identified from the views expressed by the study participants were in-turn caused by various factors and challenges experienced on the projects as analyses of participants reflections indicate. Using the Ishikawa diagram technique, a visual representation of the cause-and-effect relationship of

these barriers and their root-causes was made for each Case Project as indicated on the ‘fishbone’ diagrams in Figure 7.2, Figure 8.2 and Figure 9.2 respectively. An aggregate of these three ‘fish bone’ diagrams, depicted in Figure 10.2 provides a richer picture of the causal links to why achievement of value for money on the projects were perceived to be limited in scope. On the ‘fishbone’ diagram, the barriers to achievement of wider scope of value for money identified from analyses are represented on the box nodes, while their causes are listed along the ‘bone’ links of the ‘fishbone’. As can be observed, some root-cause factors contributed to more than one of the barriers represented on the box nodes. For example, “Contractor’s poor PM capacity” was found to contribute to the delays that led to “Prolongation” and also among the causal factors of “Poor quality of construction”. Also, some box node items were found to be part of the root causes of other box node items. For example, ‘Prolongation’ and ‘Scope Variations’ were found to be part of the casual factors of ‘Cost escalation. In total, 21 root cause factors were discovered across the 3 case projects to be responsible for a total of 6 barriers to achievement of wider scope of value for money discovered from the views expressed by the study sample.

Implication of these findings is that the success factors for future projects, in-terms of achievement of wider scope of value for money would be the systematic implementation of measures that can mitigate these causal factors during procurement.

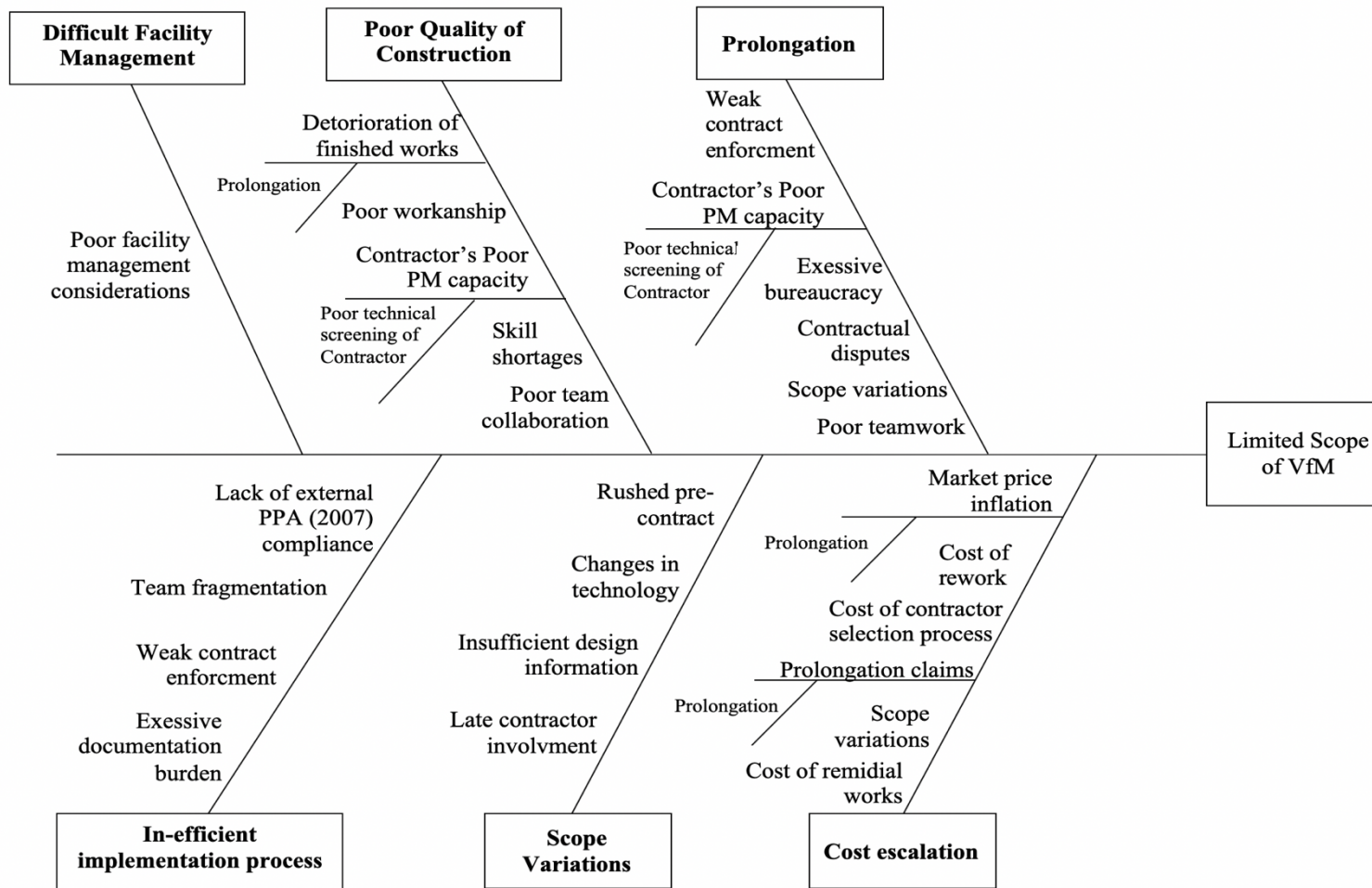


Figure 10.2 - Aggregated root cause of barriers to achievement of value for money for Case Projects A, B and C

10.5.1 Categorisation of root-causes

To improve on practicability and effectiveness of measures to mitigate these root-cause factors, it would be a good idea to organised them into manageable chunks by common themes and prioritise the themes based on the number of times its constituents appear on the fishbone diagram of Figure 10.2. Table 10.3 shows the organisation of the discovered 21 root-cause factors into 9 themes based on issues they represent in common. The fishbone box node items that double as root-cause are categorised as single item themes because they are composite items, consisting of a number of root-cause items, e.g. ‘Prolongation’ and ‘Cost escalation’.

Table 10.3 - Organisation of root-causes into themes

Themes	Root causes
Time Over-run	Prolongation
Contractual problems	Weak contract enforcement
	Contractual disputes
Project team issues	Poor teamwork
	Poor team collaboration
	Team fragmentation
Contractor Issues	Contractor's Poor PM Capacity
	Poor workmanship
	Skill shortages
Administration & Process related issues	Excessive bureaucracy
	Cost of contractor selection process
	Rushed pre-contract
	Late Contractor involvement
	Excessive documentation burden
	Lack of external PPA (2007) compliance monitoring
Reworks	Cost of reworks
	Cost of remedial works
Design related problems	Insufficient design information
	Changes in technology
Variations	Scope Variations
Facility management problems	Poor facility management considerations

By applying Pareto’s analyses technique, these 9 themes can be further organised in an order of priority based on the frequency of their occurrence within the fishbone links of the

Ishikawa diagram. The aim is to focus solution to the problem on a few groups of causal factors that make the greatest impact, in-terms of limiting scope of value for money achieved on the projects. In computing the frequencies of occurrence of root-cause items, composite items are weighted by the number of their constituents as shown in Table 10.4. For example, ‘Scope variations’ has a weight of 4, because it is composed of 4 constituent root-cause items, as follows; ‘Rushed pre-contract’ (1) + ‘Changes in technology’ (1) + ‘in-sufficient design information’ (1) + ‘Late contractor involvement (1) = 4. Similarly, ‘Prolongation’ has a weight of 9, computed as follows: ‘Weak contract enforcement’ (1) + ‘Contractor’s poor PM capacity’ (1) + ‘Excessive bureaucracy’ (1) + ‘Contractual disputes’ (1) + ‘Scope variations’ (4) + ‘Poor teamwork’ (1) = 9.

Table 10.4 - Table of frequency of root-cause items

Themes	Root causes	Frequency	Weight	Theme frequency
Time Over-run	Prolongation	4	9	36
Contractual problems	Weak contract enforcement	2	1	3
	Contractual disputes	1	1	
Project team issues	Poor teamwork	1	1	3
	Poor team collaboration	1	1	
	Team fragmentation	1	1	
Contractor Issues	Contractor's Poor PM Capacity	2	1	4
	Poor workmanship	1	1	
	Skill shortages	1	1	
Administration & Process related problems	Excessive bureaucracy	1	1	6
	Cost of contractor selection process	1	1	
	Rushed pre-contract	1	1	
	Late Contractor involvement	1	1	
	Excessive documentation burden	1	1	
	Lack of external PPA (2007) compliance monitoring	1	1	
Reworks	Cost of reworks	1	1	2
	Cost of remedial works	1	1	
Design related problems	Insufficient design information	1	1	2
	Changes in technology	1	1	
Variations	Scope Variations	1	4	8
Facility management problems	Poor facility management considerations	1	1	1

From the Pareto chart of Figure 10.3, root-cause factors under the themes of ‘Time over-run’, ‘Variations’ and ‘Administration & process related problems’ appear to be responsible for the majority of the effect of limited scope of value for money achieved on public construction projects. Therefore, a solution that is focused on these has the chance to make a greater impact on improving the scope of value for money achieved on public construction project. This is however, not discounting the importance of the root-cause factors that fall under the rest of the themes, focus on the top-three themes only improves the efficiency of the efforts applied. The causal factors within the top-three themes are summarised in Table 10.5 below

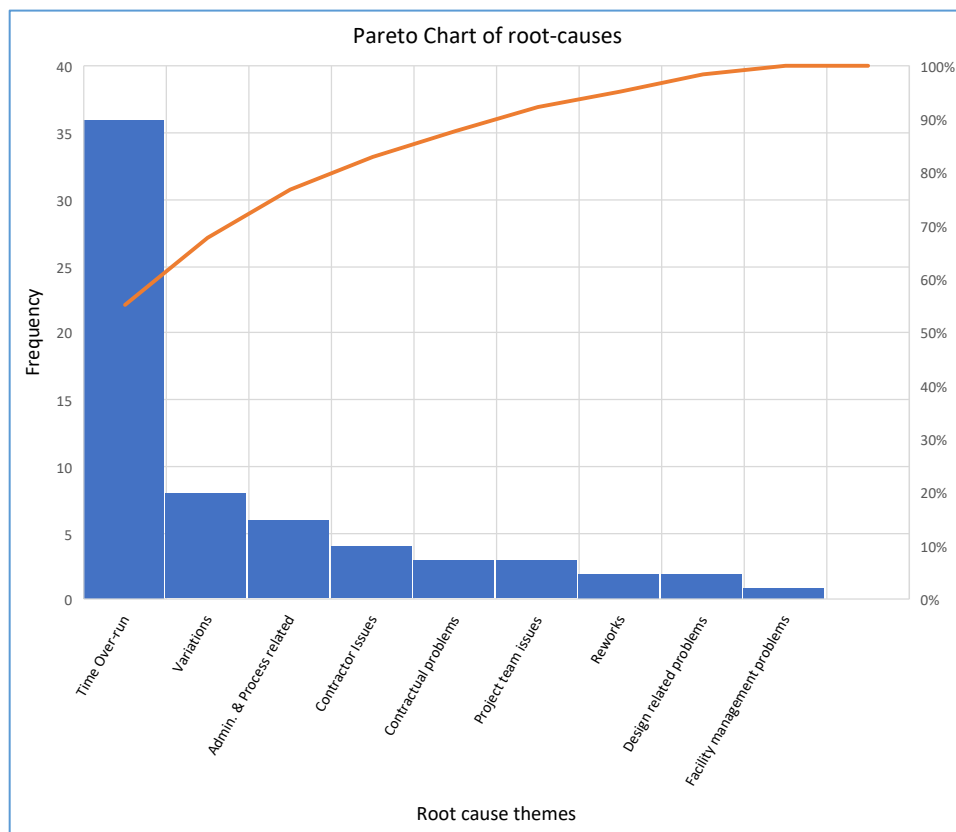


Figure 10.3 – Pareto chart of frequency of root-cause items

Table 10.5 - Causal items of top-three themes

S/N	Theme		Causal item	
1	Time Over-run		Weak contract enforcement	
2			Contractors' poor Project Management capacity	
3			Excessive Bureaucracy	
4			Contractual disputes	
5			Poor teamwork	
6		Variations		Rushed pre-contract
7				Changes in technology
8				Insufficient design information
9			Admin. & Process related	Late contractor involvement
10				High cost of contractor selection process
11				Excessive documentation burden during tendering process
12				Lack of Public procurement (2007) compliance monitoring during project implementation phase

10.5.2 Hypothetical Scenario of solution

Using the fishbone diagram in Figure 10.2, it is possible to test the efficiency of focussing problem mitigation efforts progressively on the root-cause items under the first three themes suggested on the Pareto Chart on a hypothetical case study project akin to Case Projects A, B, and C. If the mitigation efforts were to be fully successful, and root-cause factor listed in Table 10.5 were completely eliminated, the resulting fishbone diagram that could result from a similar research would potentially look like the one in Figure 10.4 below.

As can be observed, the approach appears to have eliminated two identified barriers to achievement of wider scope of value for money, and substantially reduced the chance of others from occurring, considering that not all root-cause items were manifest on each individual project, as the study have shown. Therefore, this could be an approach to the solution that is worth pursuing.

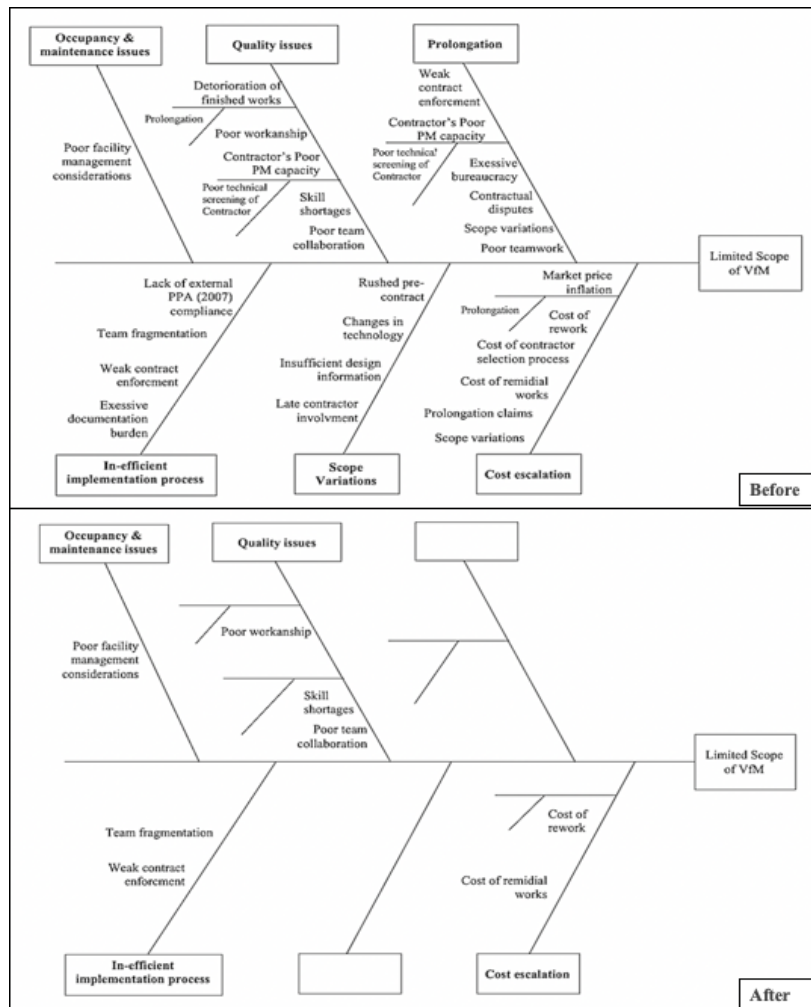


Figure 10.4 - Scenario check of suggested approach to solution

10.6 Chapter Summary

To summarise, this chapter presented the collation and comparison of findings from analyses of data on the implementation of the Nigerian Public procurement act (2007) on procurement of three case study selected for the study, with the aim of synthesising for improved future practice. The aggregation of findings from the three case projects offers rich and valuable insight on the realities of public construction procurement in Nigeria, under the heading of the achievement of value for money. The lessons that can be learnt therefrom, is a valuable feedback to guide future implementation of the Law for improved value for money outcomes.

Comparison of the findings from the case projects show that the criteria used by the project participants sampled for the study to assess achievement of value for money was found to

be multi-dimensional in nature, consistent with opinions in existing literature. However, their focus is on the core business of building a physical facility and the services it supports, and not necessarily on creating additional value as a by-product. When compared with opinions in existing body of knowledge, this perspective of achievement of value for money by the project participants was found to be limited in scope. Measures for improving future practice would have to include strategies for clearly defining and expanding value for money objectives for construction projects with expected outcomes and making them explicit to the practitioners operationally responsible for procuring the projects.

Again, it could be observed that the value for money assessments made by respondents on the case projects appear to be fixated or benchmarked with ills that were thought to be prevalent during the days before the PPA (2007). There may be need for a broader perspective, to benchmark the impacts of the procurement act with international best practices for construction procurement for a more consistent assessment.

It was found also, that value for money achieved on the three case projects were limited in scope, based on the value for money criteria considered by the study sample. Reasons for their judgement was mainly due to the projects' prolongation, cost escalation, variations in scope, facility management difficulties, inefficient project implementation process and poor-quality of construction. These were in-turn caused by 21 root-cause factors discovered from collation of findings from the case projects. Measures that can mitigate these causal factors would be a good guide for improvements in the scope of value for money achievable on future projects.

Further categorisation and analyses of the root-cause factors show that improvement efforts focused on the root-cause factors that relate to prolongation, scope variations and project administration and process elements, stand the chance for the greatest impact. It would appear that the PPA (2007) had paid more attention to the front-end procurement matters and largely presumed that the often-lengthy implementation stage of construction would go on to achieve value for money. Clearly, the PPA (2007) is the general law for all government procurement, and perhaps not gone into particular details necessary for construction activities. Therefore, there may be the need, to develop a project governance charter for public sector construction procurements to help steer projects towards the value for money objectives of the PPA (2007). In the interim, a practice guide on how to prevent

the identified causal factors from future projects would assist practitioners and help improve the achievement of value for money on future projects.

In conclusion, study participants were generally of the view that the PPA (2007) had a positive influence on the case projects outcome and optimistic that more was possible than was achieved on the case projects. Three features of the PPA (2007) was found to be viewed by the study sample as major strength areas which could be focus areas for continuous improvement. These are: the compulsory requirement for conduct of Needs Assessment, the structured contractor selection process, and the rule for price competition. Findings from the reflections and recount of experience by the study participants revealed problematic implementation areas where lessons could be learnt, including pitfalls that must be avoided.

Chapter 11

Development of measures for improved Practice

11.1 Introduction

In the previous chapter, findings from analyses of data on the implementation of the Nigerian Public procurement act (2007) on procurement of three case projects selected for the study was collated and used to synthesis how improvements could be made on the implementation of PPA (2007) for the achievement of a wider scope of value for money. Further to this, and following the research objectives, this chapter presents the development of guidance for improving the achievement of value for money on public sector construction projects under the regulatory framework of the PPA (2007) based on the findings from the three case projects. The aim is to develop a checklist for good practice that can help project managers improve the performance of their public sector projects in terms of achievement of value for money.

Analyses and findings from the case study projects identified 21 causal factors responsible for barriers to achievement of a wider scope of value for money. Mitigating these factors successfully in future public sector procurement would improve the scope of value for money achievable from the project. Additionally, the results of Pareto analysis on the identified causal items revealed that mitigation efforts focused on the 12 items listed in Table 11.1 below, out of the 21 causal items discovered, has the chance for a greater impact on improving the scope of value for money achieved on a public construction project. This is, however, not discounting the importance of the balance 10 root-cause factors, focus on the 12 items only improves the efficiency of the efforts applied.

To develop guidance for improved practice, measures for preventing these causal factors were recommended by drawing lessons from the reflections and the experiences recounted by the case study sample and from good practice examples discovered from literature reviews. These recommendations for preventing the causal factors on future projects were presented to a panel of Experts, comprising senior practitioners in the Nigerian construction industry, for review and ratification based on their considerable experience. The paragraphs that follow present the outcome of the review by the consulted Experts.

Table 11.1 - Focus of Preventive measures

S/N	Causal item
1	Weak contract enforcement
2	Contractors' poor Project Management capacity
3	Excessive Bureaucracy
4	Contractual disputes
5	Poor teamwork
6	Rushed pre-contract
7	Changes in technology
8	Insufficient design information
9	Late contractor involvement
10	High cost of contractor selection process
11	Excessive documentation burden during tendering process
12	Lack of Public procurement (2007) compliance monitoring during project implementation phase

11.2 Recommended preventive measures

Measures for mitigating the selected causal factors are drawn from the success factors for improving the achievement of value for money discussed for each of the Case Projects in paragraph 7.3.5, 8.3.5 and 9.3.5 of this report. These are mainly front-end measures aimed and preventing the barriers to the achievement of wider scope of value for money as discovered on the Case Projects. Summary of these initial propositions are provided in Table 11.2 below.

These recommendations were subjected to review and adoption by a panel of senior figures in the Nigerian construction industry. Using the Delphi technique, the study sought the opinions of these industry experts on the recommended measures and to probe for additional recommendations based on their considerable practice experience. The Delphi approach was favoured over alternative techniques, for example, focus group interview, because it was considered most effective and convenient means of arriving at consensus amongst the various Experts, all of whom were geographically dispersed.

Table 11.2 - Initial recommended preventive measures for selected causal factors

Item No.	Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
1	Weak contract enforcement	<p>Unwillingness of the Contract administrators to implement contractual remedies for defaults. For example:</p> <ul style="list-style-type: none"> • the unwillingness to determine contractor’s employment, nor make deductions for liquidated damages by the Client encouraged continued delays that led to excessive time over-run. • The non-settlement of certificates within the contractual payment period, thereby affecting contractors’ cashflow and slowed down progress. 	<ol style="list-style-type: none"> 1. Contract administrators to rigorously and consistently implement contractual agreements 2. Practitioners to focus on the longer-term implications of their contract implementation decision and action on future government procurement contracts generally
2	Poor Project Management Capacity of Contractors	<p>Poor planning & scheduling, poor scope management, poor workmanship, excessive reworks and poor project finance negatively impacting on quality of construction and completion time.</p>	<ol style="list-style-type: none"> 1. More robust technical screening of contractors during pre-qualification stage based on proposed project’s characteristics rather than generic prequalification criteria. 2. Adoption of formal project management methodology by Contractors to help improve their management performance (e.g. PRINCE2™, PMBOK®, etc) 3. The government to drive skills development through Apprenticeship program in partnership with Construction companies, whereby it will be part of pre-requisites for contractors bidding for government projects

Table 11.2 (cont'd) - Initial recommended preventive measures for selected causal factors

Item No.	Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
3	Excessive government bureaucracy	Delayed approvals and/or payment as a result of government bureaucracy causing delays that contributed to time over-run	<ol style="list-style-type: none"> 1. Greater autonomy to be given to the project team with clear delineated powers to make and implement changes at the project team level during construction stage. 2. Employers' representative on project teams to be senior responsible personnel able to make final decisions. 3. Stage review of project team decisions by the Employer at agreed project milestones for corrections, re-alignments and sanction of abuse where necessary
4	Contractual disputes	Disputes caused by existence of many versions of the contract and unavailability of any signed true copy caused disagreements which led to delays that contributed to time over-run.	<ol style="list-style-type: none"> 1. Project team to ensure and confirm that final contract documents are signed by all parties and a copy is deposited with the project team leader. 2. Contracts should be based on appropriate standard forms with minimal alterations.
5	Poor teamwork	Lack of team cooperation between the contractor and consultant teams and within the consulting team contributed to delays that lead to time over-runs	<ol style="list-style-type: none"> 1. Regular tool box talks on Teamwork and Leadership during project implementation. 2. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc
6	Rushed pre-contract, and Insufficient design information	In-sufficient time allocated to the pre-contract stage of the works resulted to incomplete designs, inaccurate estimates, etc that contributed to variations, cost escalation and delays that led to time over-run	<ol style="list-style-type: none"> 1. Stage gate review prior to tendering process to determine the level of design development and recommend on further improvement or appropriate contract strategy to transfer additional design responsibility and risks to the construction team.

Table 11.2 (cont'd) - Initial recommended preventive measures for selected causal factors

Item No.	Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
7	Changes in technology	Changes in technology experienced on ICT scope resulted to variations, and contributed to cost escalation and delays	1. Detailing of ICT and similar fast changing scope nearer to their implementation
8	Late Contractor involvement	Non utilisation of the contractor's experience on the design and specifications resulting to buildability problems that contributed to delays and variations	<ol style="list-style-type: none"> 1. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc. 2. Specification documents to focus on outputs and performance criteria to allow Contractor's experience to help with innovation where contract strategy with separate design and construction roles are employed.
9	High cost of contractor selection process and Excessive documentation burden during tendering process	High cost of contractor pre-qualification process and excessive documentation resulting from the pre-qualification and tendering made analyses very cumbersome and expensive, thereby making the procurement process inefficient and uneconomic	1. Use of a single national pre-qualification database by all government departments and procuring entities. The database would be a central repository of current, accurate, core data of registered bidders, including workforce skills, project experience, etc
10	Lack of Public Procurement Act (2007) compliance monitoring during project implementation phase.	Lack of external monitoring of the procurement process encouraged in-efficiencies.	1. The introduction of Peer review process similar to the UK's OGC Gateway™ Process, whereby independent external practitioners use their experience and expertise to provide timely, independent and confidential advice to the project team at key decision points or milestones regarding progress and likelihood of delivery success in terms of achievement of value for money as envisaged by the Public Procurement Act. External practitioners could be members of professional organisations such as NIA, NSE, NIQS, etc.

11.3 Experts' review

11.3.1 Background of Experts

Experts sampled for review of recommendations were construction industry practitioners with at least 15 years of practice experience and certified members of professional organisations. A total of 6 experts participated in the review process, and are in this report anonymised as Expert 1, Expert 2, ..., Expert 6. Table 11.3 is a summary of their professional background and industry experience of sampled experts.

Table 11.3 - Background of sampled Experts

Expert	Professional Background	Years of Experience	Sector of Practice	Professional Membership/ Designation
Expert 1	Architect and Project Manager	36	Public and Private	<ul style="list-style-type: none"> • Member, Nigerian Institute of Architects (MNIA)
Expert 2	Quantity Surveyor	30	Public and Private	<ul style="list-style-type: none"> • Fellow, Nigerian Institute of Quantity Surveyors (FNIQS)
Expert 3	Quantity Surveyor	19	Public and Private	<ul style="list-style-type: none"> • Member, Nigerian Institute of Quantity Surveyors (MNIQS) • Member, Chartered Institute of Arbitrators (MCI Arb) • Member, Nigerian Institute of Management (MNIM)
Expert 4	Quantity Surveyor and Project Manager	31	Public and Private	<ul style="list-style-type: none"> • Fellow, Royal Institute of Chartered Surveyors (FRICS) • Fellow, Nigerian Institute of Quantity Surveyors (FNIQS)
Expert 5	Architect and Project Manager	18	Public	<ul style="list-style-type: none"> • Fellow, Nigerian Institute of Architects (MNIA) • Project Management Practitioner (PMP) • PRINCE2 Practitioner
Expert 6	Quantity Surveyor and Project Manager	19	Public and Private	<ul style="list-style-type: none"> • Fellow, Nigerian Institute of Quantity Surveyors (FNIQS) • Member, Royal Institute of Chartered Surveyors (MRICS) • Member Chartered Institute of Arbitrators (MCI Arb)

11.3.2 Delphi Round 1 feedback

In the Round 1 of the Delphi process, the experts were presented with a questionnaire containing the measures recommended for mitigating each of the causal factors, with a short description as in Table 11.2 and subsequently asked to comment on the adequacy of those measures at preventing the problems associated with the causal factors, and to suggest additional or alternative preventive measures based on their experience. A sample of Delphi Round 1 questionnaire can be seen at Appendix II. Analyses and results of responses to the 10 open-ended questions by the experts consulted are presented in the paragraphs the follow.

11.3.2.1 Results of Round 1 Question No. 1

The Experts generally agreed that the suggested measures were adequate for preventing the problems associated with weak contract enforcement. Expert 5 further opined that there are various underlying reasons why contract administrators are unwilling to enforce contracts and preventive measures should in addition focus on those underlying reasons.

“... several reasons, including but not limited to, corruption, ignorance, interference, [collusion] and compromise, all of which require diverse preventive measures”. (Expert 5, June 2019)

The Experts also suggested the need for adequate support and empowerment of contract administrators by the government client to encourage stronger contract implementation through a reward and sanctioning scheme. Expert 1 further suggested that, contracts used for government project should be modified to match the internal decision-making process of the Employer organisation. This appears to imply that the decision process and its inherent risks could be envisaged and as such, not seen as causing delays, and the Employer themselves will be committed to it.

“Employers should modify the contract documentation to suit their internal processes, so as not to delay decisions in the project” (Expert 1, June 2019)

Use of contracts that responds to the government Employer needs was also echoed by Expert 3. Expert 4 suggested the inclusion in government contracts, a system of “Notices for Defaults” to flag defaults and encourage compliance.

“There may be notices that needed to be given before the final enforcement of contract remedies. Experience has shown that compliance with the timing of these notices has the ability to make the final enforcement of remedies easier or at times not even necessary. When these notices are not made as at when due, it naturally affects the ability to enforce contract remedies”. (Expert 4, May 2019)

Summary of findings:

The consulted Experts appear to adopt the recommended preventive measures for problems associated with weak contract enforcement, and in addition, suggests the inclusion of the following:

- Government Employer to adequately support and empower Contract administrators
- Introduction of a scheme of sanctions and rewards to incentivize Contract Administrators
- Inclusion of system of “Notices for Defaults” in contracts to encourage performance
- Use of Contracts appropriate for the government Client’s internal process needs.

11.3.2.2 Results of Round 1 Question No. 2

The recommended measures for preventing problems related to poor Project Management capacity of Contractors were unanimously agreed by the experts to be adequate. However, comments of the Experts appear to focus on the contractor pre-qualification process which they suggested was at the root of the problem. Some of the Experts commented as follows:

“Incompetent contractor selection, lack of knowledge, skills and abilities (KSA) of project management, non-ability to readily see the financial benefit of adopting the PM methodology, ignorance and lack of identification of one project management methodology are some of the reasons for the poor project management capability of contractors”. (Expert 5, June 2019)

“To achieve value for money, contractors must be selected depending upon their resource capability to handle construction work and past projects executed which was excellently executed”. (Expert 2, June 2019)

Findings from the Case Projects also support these comments. Additional measures suggested by the experts therefore focused on improving contractor prequalification process and the need for the government to drive the adoption of some of the recommended preventive measures.

Summary of findings:

In addition to the recommended preventive measures for problems associated with poor Project Management capacity of Contractors, the Experts appear to suggest the following additional measures:

- Pre-qualification of Contractor to be done in a transparent manner and assessment should go beyond documentation to physical verification and evaluation of experience
- Pre-qualification criteria to include evidence of proven Project Management knowledge and management plan for the proposed project.
- Public sector to drive adoption of Project Management methodology
- Involvement of expert consultants in the prequalification process

11.3.2.3 Results of Round 1 Question no 3

While some Experts appear to outrightly agree with the preventive measures recommended for mitigating “Excessive government Bureaucracy”, others expressed concern on the autonomy of the Project Team suggested by the recommended preventive measures. Concerns were mainly on the risks such autonomy to make and implement changes at the project level could result to. One Expert commented as follows:

“The autonomy of the Project Team is important, but this can lead to cost overruns which will require approval from Employers representative. The stage review of the project team decision [recommended] will make the process elongated ...” (Expert 6, June 2019)

Another Expert suggested that the recommended Project Team autonomy could be regulated with appropriate professional code of conducts and “policies” of value for money in project procurement.

Furthermore, one Expert's comment appears to suggest that the problem of bureaucracy is inevitable for public sector projects and impliedly should be expected:

“Government bureaucracy exists for a reason, Red-tape enables submission[s] [to] go through several layers of approval to achieve transparency and value for money. Given this the first two recommendations may be inadequate”. (Expert 5, June 2019)

In apparent recognition of this, another Expert emphasised on the need for the Employers internal process to be explicitly made part of the contract.

“The internal process of the Employer must be included in the conditions of contract. This would improve the decision making and approval [process] during construction stage”. Expert 1, June 2019).

Summary of findings:

Amendment to the recommended preventive measures for problems associated with “Excessive government Bureaucracy” were suggested as follows:

- Project team autonomy to make and implement changes to be limited to an identified cost threshold.
- The creation of a “Change Control Board” to meet frequently to review Project changes above identified threshold. Each project to have high level sponsor that interacts with the Change Board to secure prompt approvals from top management

Also, the Experts appeared to suggest the following additional measures as appropriate for mitigating the problems associated with excess bureaucracy:

- Inclusion of the Internal process of the Client in the Contract to make it more predictable
- Front-end resolution of all potential implementation issues prior to commencement of works
- Inclusion and enforcements of contractual remedies for delays on the Employer when they arise

11.3.2.4 Results of Round 1 Question no 4

The recommended preventive measures for problems associated with Contractual Disputes was agreed to by most of the panel, the rest however, expressed concerns. One Expert was concerned that the measures suggested were not sufficient for mitigating all sources of contractual disputes and suggested additional preventive measures mostly aimed at preventing disputes that arise due to “disparities” that sometimes arise from the different contract documents: Drawings, Bills of Quantities, etc.

Some Experts again, opined that there are often other internal policies of the Employer Organisation which makes it difficult for the Employers to comply with conditions in the standard forms of contract, and stressed the need for the contracts to be aligned with these internal policies.

“Operation of the Contract even where appropriate standard forms are used is still not the supreme document guiding the contract Organisations still provide an LOI (Letter of Intent) or Agreement which tend to be [regarded as] higher in hierarchy to the standard form There should be a marriage of the terms in the Agreement or LOI with the conditions in the Standard Forms of Contract”. (Expert 1, June 2019).

“The Agreement within most forms of contracts are not usually signed because of the standard legal documents prepared by most Legal departments [of the Public Sector Organisations]”. (Expert 6, June 20)

The early involvement of the Employer’s Legal Department in the project team was therefore recommended to fast-track the early review and sign-off of the contract before commencement of the construction work.

Another additional measure suggested by the panel to mitigate the delays that arise due to contractual dispute is the use of Adjudication as an alternative dispute resolution method in addition to the traditional Arbitration clause.

Summary of findings:

Amendment to the recommended preventive measures for problems associated with “Contractual disputes” were suggested as follows:

- Standard Forms of Contracts to be harmonized and aligned with other internal policy documents of Client

Also, the following additional measures were suggested:

- Resolution of all contentious project issues prior to contract execution
- Use of Adjudication in disputes resolution to prevent delays to progress in addition to the traditional Arbitration clause
- Early integration of Clients' Legal department into the Project Team

11.3.2.5 Results of Round 1 Question 5

The Expert unanimously agreed that the recommended measures were appropriate for preventing the problems related to Poor Teamwork. They went on to suggest additional measures to help foster the implementation of preventive measures recommended.

“A period of integration should be allowed between the project management team on the Consultants' side and the Contractors' side. This would foster camaraderie and understanding amongst the whole Project Team”. (Expert 1, June 2019).

Summary of findings:

The Experts suggested the following additional preventive measures for problems associated with Poor Teamwork as follows

- Creation of team building activities and collaboration assignments to help foster cooperation amongst team members
- Reward and motivation of cooperative and knowledge sharing team members
- Front-end development of effective communication strategy and framework for partnership amongst project team

11.3.2.6 Results of Round 1 Question no 6

Most of the Panel agreed with the recommended measures for preventing the problems associated with “Rushed pre-contract and insufficient design information”. One Expert however, expressed concern with proceeding with procurement process when precontract period is insufficient for the project activities at that stage, and advocated for sufficient time and requisite information to be given to early project activities.

“Inadequate design information leads to administrative challenges on a project which leads to delays, [contractual] claims, cost overrun”.

(Expert 6, June 2019)

Additional measures suggested by the Panel relate with the promotion of a project culture of allowing sufficient time for proper project planning.

There should be standard Procurement Plan or Pre-award Phase taking into account the complexity, characteristic, the risks and constraints. [That is], standard acceptable timetable or time limit for specific size and complexity of a project. (Expert 3, June 2019)

Each Consulting team should be allocated with enough information on the project and there should be consistent project review meetings at an early stage, including information sharing mechanism put in place for quick response to queries. BIM should be employed. (Expert 6, June 2019)

Expert 4 comments also supports the suggested the adoption, by Practitioners, of BIM and other innovative and process improvement methods to help fast-track project planning.

Summary of findings:

The Experts suggested the following additional preventive measures for problems associated with “Rushed pre-contract and insufficient design information” as follows:

- Government promotion of project culture of allocating sufficient time for project planning by standardizing acceptable time schedule based on project characteristics
- Adoption of BIM and other innovation and process improvement methods by Practitioners

11.3.2.7 Results of Round 1 Question no 7

The Expert unanimously agreed that the recommended measures were appropriate for preventing problems associated with “Changes in technology” but cautioned that additional measures are necessary to mitigate the uncertainty that late detailing of ICT and similar fast changing scope may pose to the project budget.

“The preventive measure suggested here appear to be adequate However, detailing ICT component late in the project may make them susceptible to changes in price So a consideration of the effect of late detailing on price needs to be taken into account”. (Expert 4, May 2019)

“Delayed procurement of ICT, Just-in-time (JIT) would prevent the risk of obsolesce and items getting to ‘end of life’.

To prevent cost escalation, items prices maybe hedged for future purchase when specifications are firmed up” (Expert 5, June 2019)

Summary of findings:

The Experts unanimously adopted the recommended preventive measures and suggested the additional measures as follows:

- Early involvement of ICT experts in the procurement team
- Improvement of budget certainty for ICT and similar fast changing scope by appropriately hedging current prices for inflation and other pricing risks

11.3.2.8 Results of Round 1 Question no 8

Again, the Panel unanimously adopted the preventive measures recommended for problems associated with “Late Contractor involvement”. One Expert further suggested that bid documents should be structured in a way Contractors could include alternative base on their construction experience.

“Allow Contractor during bidding process to offer alternative commercial offer that would result from the study of the tender drawings and specifications”. (Expert 1, June 2019)

Summary of findings:

The panel appear satisfied with the recommendations made, and in addition suggested the provision in Tender documents for additional alternative offer by Contractors to improve the utilization of Contractor experience.

11.3.2.9 Results of Round 1 Question no 9

The recommended preventive measure for problems associated with high cost of contractor selection process and excessive documentation burden during tendering process was unanimously accepted by the Panel. One Expert commented as follows:

“The preventive method of using a database of experienced Contractors into various class will aid the cumbersome method presently used” (Expert 6, June 2019)

Some of the Experts further suggested the selective invitation of only bidders with the required skill to reduce the burden of excessive documentation.

“Application of selective tendering process to major contracts would reduce the spurt and lessen documentation required” (Expert 1, 2019).

Summary of findings:

The Experts agreed the recommended measures for preventing problems associated with high cost of contractor selection process and excessive documentation burden during tendering process was appropriate. Also, the adoption of Selective Tendering process for major Projects which will only involve bidders with the required skill and competence was suggested as an additional measure that could help prevent the problem.

11.3.2.10 Results of Round 1 Question no 10

All the Experts agreed that the recommended measures were appropriate for preventing problems associated with Lack of compliance monitoring of the procurement process during the construction phase. One Expert further advocated a stronger enforcement of the procurement law by rewarding compliance and sanctioning non-compliant organisations. Some Experts commented as follows:

“External monitor[s] and assessors are necessary most especially in Nigeria to enable compliance to standard and discipline”. (Expert 3, June 2019)

“Enforce compliance by introducing sanctions and rewarding compliance”. (Expert 5, June 2019)

Summary of findings:

The Experts generally agreed to the recommended measures were appropriate for preventing the problems associated with lack of compliance monitoring of public procurement process, especially during the construction stage. In addition, stronger enforcement of the procurement rules was suggested as an additional measure.

11.3.2.11 Results of Round 1 Question no 11

Question no. 11 of Delphi round 1 requested general comments from the Panel on how achievement of value for money could be improved in government procurement of construction. Most of the comments received were reiteration of suggestions previously provided by the experts while addressing the causal items presented to them in the earlier questions. There were, however, some comments which attempted to address other perceived implementation problems with public sector construction procurement which the Experts view as limiting the achievement of value for money. Some of these are social and/or ethical matters, while others appear to be procedural challenges or inefficiencies.

Experts advocated for elimination of some social “ills”, common with the multi-ethnic Nigeria society, from the government procurement process. Some of the Experts commented as follows:

“Nepotism, tribalism, and other socio-cultural ills should be discouraged in projects”. Expert 6, June 2019)

“Honesty and transparency [should be ensured] in the prequalification and selection of vendors”. (Expert 5, 2019)

Furthermore, Experts advocated for better and early alignment of strategic objectives of procuring public sector organisations with projects being procured. They advised as follows:

“Vigorous participation of user departments or end users in the design process would mitigate introduction of user requirement which hitherto were not considered and thereby reduce variations”. (Expert 1, June 2019)

“Selection and alignment of projects with strategic objectives of the organisation.

Ensure end-user acceptance by proper requirement solicitation, and continuous engagement”. (Expert 5, June 2019)

Another Expert advocated for a formal clarification of a key contractor selection criteria contained in the PPA (2007), suggesting that lack of its proper understanding is hindering the way to achievement of value for money.

“I think that there is need to be clearer on the definition and interpretation of the phrase, ‘Lowest Responsive Evaluated Bid’ in PPA 2007. Its understanding and proper application is a key factor in achieving value for money”. (Expert 4, May 2019)

Summary of findings:

In addition to suggestions provided while addressing the various causal items presented from the research, the Experts were also of the opinion that the following recommendation could also improve achievement of value for money on government procurement of construction:

- Elimination of nepotism, tribalism, and other similar socio-cultural ills from government procurement process.
- The early engagement and participation of end-users in the design and procurement process of projects
- Official clarification of the bidder selection criteria of “Lowest Responsive Evaluated Bid” in the public procurement Act (2007)

11.3.3 Summary results for Delphi Round 1

A summary of findings from Delphi round 1 is presented in Table 11.4 below. These are the views of members of the consulted Experts on how the identified factors that limit the achievement of value for money could be mitigated in future public sector procurement of construction and thereby improving the opportunity for achievement of a wider scope of value for money. The table comprises of preventive measures recommended by the study and adopted unanimously by the panel of Experts as appropriate, amendments suggested by some members of the Panel on some recommended measures, and additional preventive measures also suggested by members of the Panel.

Table 11.4 - Summary of findings for Delphi Round 1

SN.	Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
	Weak contract enforcement	<ol style="list-style-type: none"> 1. Contract administrators to rigorously and consistently implement contractual agreements 2. Practitioners to focus on the longer-term implications of their contract implementation decision and action on future government procurement contracts generally 	-None-	<ol style="list-style-type: none"> i. Government Employer to adequately empower Contract administrators ii. Introduction of a scheme of sanctions and rewards to incentivise contract administrators iii. Inclusion of system of “Notices for Defaults” in contracts to encourage performance iv. Use of Contracts appropriate for the government Client needs
2	Poor Project Management Capacity of Contractors	<ol style="list-style-type: none"> 1. More robust technical screening of contractors during pre-qualification stage based on proposed project’s characteristics rather than generic prequalification criteria. 2. Adoption of formal project management methodology by Contractors to help improve their management performance (e.g. PRINCE2™, PMBOK®, etc) 3. The government to drive skills development through Apprenticeship program in partnership with Construction companies, whereby it will be part of pre-requisites for contractors bidding for government projects 	-None-	<ol style="list-style-type: none"> i. Pre-qualification of Contractor to be done in a transparent manner and assessment should go beyond documentation to physical verification and evaluation of experience ii. Pre-qualification criteria to include evidence of proven Project Management knowledge and management plan for the proposed project. iii. Public sector to drive adoption of Project Management methodology iv. Involvement of expert consultants in the prequalification process

Table 11.4 (Cont'd) - Summary of findings for Delphi Round 1

SN.	Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
3	Excessive government bureaucracy	<ol style="list-style-type: none"> 1. Greater autonomy to be given to the project team with clear delineated powers to make and implement changes at the project team level during construction stage. 2. Employers' representative on project teams to be senior responsible personnel able to make final decisions. 3. Stage review of project team decisions by the Employer at agreed project milestones for corrections, re-alignments and sanction of abuse where necessary 	<ol style="list-style-type: none"> a. Project team autonomy to make and implement changes to be limited to an identified cost threshold b. Creation of a "Change Control Board" to meet frequently to review Project changes above identified threshold. Each project to have high level sponsor that interacts with the Change Board to secure prompt approvals 	<ol style="list-style-type: none"> i. Inclusion of Internal process of the Client in the Contract ii. Front-end resolution of all potential implementation issues prior to commencement of works ii. Inclusion and enforcements of contractual remedies for delays
4	Contractual disputes	<ol style="list-style-type: none"> 1. Project team to ensure and confirm that final contract documents are signed by all parties and a copy is deposited with the project team leader. 2. Contracts should be based on appropriate standard forms with minimal alterations. 	<ol style="list-style-type: none"> a. Suggested Standard forms of Contracts to be harmonised with other internal policy documents of Client 	<ol style="list-style-type: none"> i. Resolution of all contentious project issues prior to contract execution ii. Use of Adjudication in disputes resolution to prevent delays to progress in addition to the traditional Arbitration clause ii. Early integration of Clients' Legal department into the Project Team

Table 11.4 (Cont'd) - Summary of findings for Delphi Round 1

SN.	Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
5	Poor teamwork	<ol style="list-style-type: none"> 1. Regular tool box talks on Teamwork and Leadership during project implementation. 2. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc 	-None-	<ol style="list-style-type: none"> i. Creation of team building activities and collaboration assignments to help foster cooperation amongst team members ii. Reward and motivation of cooperative and knowledge sharing team members ii. Front-end development of effective communication strategy and framework for partnership amongst project team
6	Rushed pre-contract, and Insufficient design information	<ol style="list-style-type: none"> 1. Stage gate review prior to tendering process to determine the level of design development and recommend on further improvement or appropriate contract strategy to transfer additional design responsibility and risks to the construction team. 	-None-	<ol style="list-style-type: none"> i. Government promotion of project culture of allocating sufficient time for project planning by standardising acceptable time schedule based on project characteristics ii. Adoption of BIM and other innovation and process improvement methods by Practitioners
7	Changes in technology	<ol style="list-style-type: none"> 1. Detailing of ICT and similar fast changing scope nearer to their implementation 	-None-	<ol style="list-style-type: none"> i. Early involvement of ICT experts in the procurement team ii. Improvement of accuracy of budget for ICT scope by appropriately hedging current prices for inflation and other pricing risks

Table 11.4 (Cont'd) - Summary of findings for Delphi Round 1

SN.	Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
8	Late Contractor involvement	<ol style="list-style-type: none"> 1. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc. 2. Specification documents to focus on outputs and performance criteria to allow Contractor's experience to help with innovation where contract strategy with separate design and construction roles are employed. 	-None-	<ol style="list-style-type: none"> i. Provision in Tender documents for additional alternative offer by Contractors to improve the utilization of Contractor experience
9	High cost of contractor selection process and Excessive documentation burden during tendering process	<ol style="list-style-type: none"> 1. Use of a single national pre-qualification database by all government departments and procuring entities. The database would be a central repository of current, accurate, core data of registered bidders, including workforce skills, project experience, etc 	-None-	<ol style="list-style-type: none"> i. Adoption of Selective Tendering process for major Projects which will only involve bidders with the required skill and competence

Table 11.4 (Cont'd) - Summary of findings for Delphi Round 1

SN.	Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
10	Lack of Public Procurement Act (2007) compliance monitoring during project implementation phase.	1. The introduction of Peer review process similar to the UK's OGC Gateway™ Process, whereby independent external practitioners use their experience and expertise to provide timely, independent and confidential advice to the project team at key decision points or milestones regarding progress and likelihood of delivery success in terms of achievement of value for money as envisaged by the Public Procurement Act. External practitioners could be members of professional organisations such as NIA, NSE, NIQS, etc.	-None-	i. Enforcement of compliance by applying legal sanctions and reward of compliance

11.3.4 Delphi Round 2

The summary of findings for Delphi Round 1 was presented to all members of the panel of Experts for concurrence in the Round 2 of the Delphi process. A sample of the questionnaire used for Delphi Round 2 can be found in Appendix III of this report. Using a seven-point bipolar rating scale, Round 2 questionnaire was designed to collect data that can be used to test if the Panel collectively agree or disagree with the proposed measures for preventing the causal factors which limit achievement of value for money as summarised in Table 11.4, and to test the level of consensus reached on the combination of measures proposed for preventing each causal factor. Using simple descriptive statistics, the study evaluated the consensus reached by the Panel by computing the Mean rank of the responses received for each question, using a 7-point ordinal rank scale. A Mean rank of 1 imply a perfect strong disagreement with the preventive measures proposed from the Round 1 of the process, whereas, a mean rank of 7 would imply perfect strong agreement. A Mean rank of 4 would imply a consensus level that neither disagree nor agree with the propositions provided. Mean ranks below or above 4 respectively denotes disagreement or agreement with the propositions, and the distance of the Mean rank from 4 indicates the intensity of the consensus reached, whether weak or strong.

The following paragraphs sets out the analyses and discussions of results of the Round 2 of the Delphi process.

11.3.4.1 Results of Round 2 Question No. 1

Q1. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with weak contract enforcement?

The analysis and results of the Panel's response to Round 2 Question No.1 are shown in Figure 11.1. As could be seen, the panel unanimously agreed that the preventive measures resulting from Round 1 of the Delphi process, are collectively appropriate for mitigating the problems associated with weak contract enforcement in public sector construction procurement. With a Mean rank of 6.83 on the 7-point ordinal scale used for analyses, the Panel had a strong agreement.

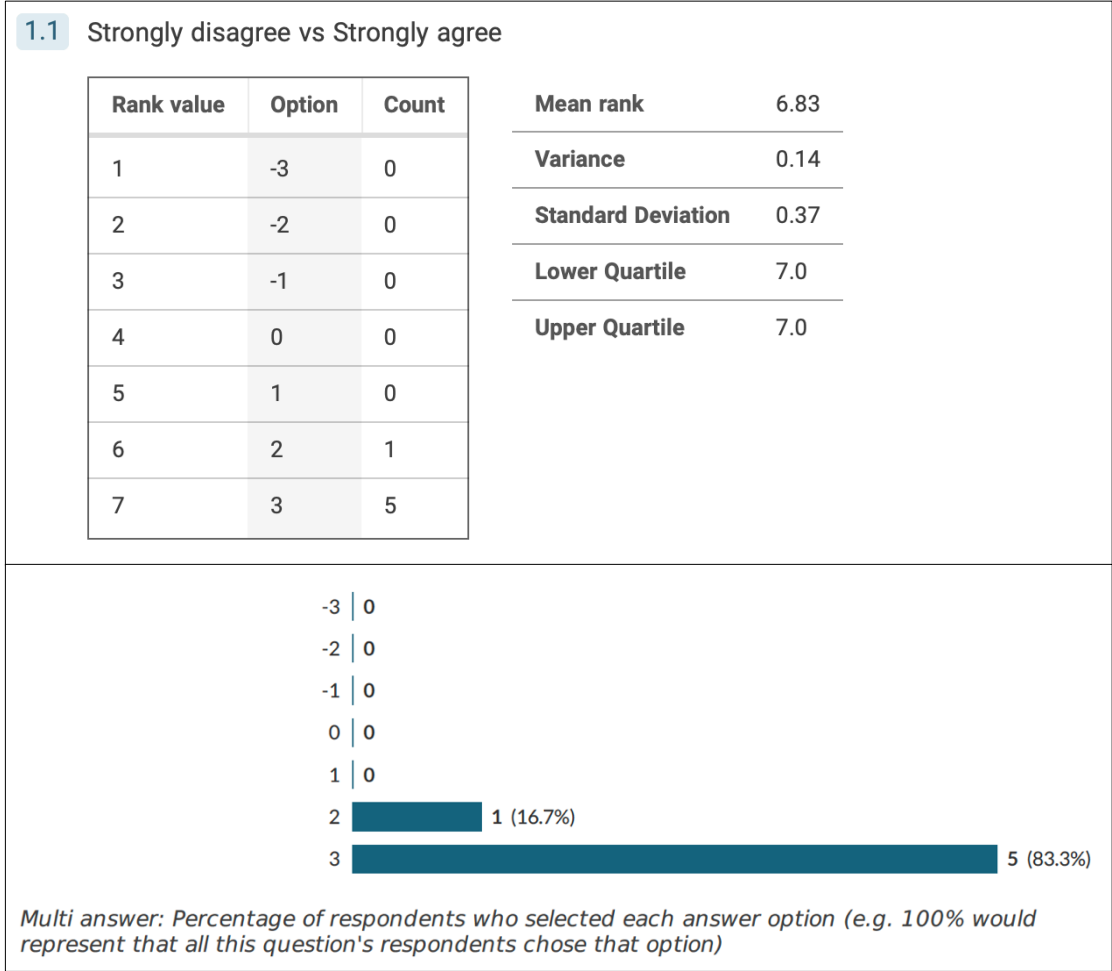


Figure 11.1 - Analyses of responses to Delphi Round 2 Question No.1. (Generated with Jisc Online survey tool)

11.3.4.2 Results of Round 2 Question No. 2

Q2. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with poor Project Management Capacity of Contractors?

The analysis and results of the Panel’s response to Round 2 Question No.2 are shown in Figure 11.2. The panel again, unanimously agreed that the preventive measures resulting from Round 1, are collectively appropriate for mitigating the problems associated with poor Project Management Capacity of Contractors. With a Mean rank of 6.5 on the 7-point ordinal scale used for analyses, the Panel’s level of agreement with the proposition is strong.

2.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	3
7	3	3

Mean rank	6.5
Variance	0.25
Standard Deviation	0.5
Lower Quartile	6.0
Upper Quartile	7.0



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.2 - Analyses of responses to Delphi Round 2 Question No.2. (Generated with Jisc Online survey tool)

11.3.4.3 Results of Round 2 Question No. 3

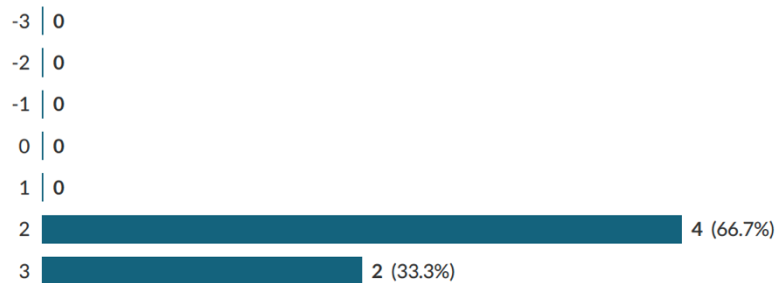
Q3. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with excessive government bureaucracy?

The analysis and results of the Panel’s response to Round 2 Question No.3 as shown are Figure 11.3 also reveal a strong level of agreement by the Panel of Experts, that the preventive measures suggested in Round 1, are collectively appropriate for mitigating the problems associated with excessive government bureaucracy in public sector construction procurement.

3.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	4
7	3	2

Mean rank	6.33
Variance	0.22
Standard Deviation	0.47
Lower Quartile	6.0
Upper Quartile	6.75



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.3 - Analyses of responses to Delphi Round 2 Question No.3. (Generated with Jisc Online survey tool)

11.3.4.4 Results of Round 2 Question No. 4

Q4. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Contract disputes?

Analysis and results of the Panel's response to Round 2 Question No.4 are shown in Figure 11.4. With a Mean rank of 6.5 on the 7-point ordinal scale used for analyses, the Panel unanimously and strongly agreed that the preventive measures resulting from Round 1 of the Delphi, are collectively appropriate for mitigating the problems associated with Contractual disputes in public sector construction procurement.

4.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	3
7	3	3

Mean rank	6.5
Variance	0.25
Standard Deviation	0.5
Lower Quartile	6.0
Upper Quartile	7.0



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.4 - Analyses of responses to Delphi Round 2 Question No. 4. (Generated with Jisc Online survey tool)

11.3.4.5 Results of Round 2 Question No. 5

Q5. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Poor teamwork?

The analysis and results of the Panel's response to Round 2 Question No.5 as shown in Figure 11.5 show the unanimous and strong level of agreement by the Panel of Experts, that the preventive measures suggested in Round 1, are collectively appropriate for mitigating the problems associated with Poor teamwork in public sector construction procurement. The consensus had a Mean rank of 6.5 on the 7-point ordinal scale used for analyses.

5.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	3
7	3	3

Mean rank	6.5
Variance	0.25
Standard Deviation	0.5
Lower Quartile	6.0
Upper Quartile	7.0



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.5 - Analyses of responses to Delphi Round 2 Question No. 5. (Generated with Jisc Online survey tool)

11.3.4.6 Results of Round 2 Question No. 6

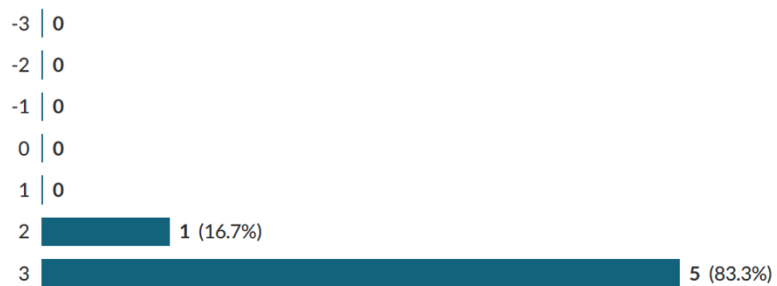
Q6. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Rushed pre-contract and Insufficient design information?

Analysis and results of the Panel's response to Round 2 Question No.6 as shown in Figure 11.6 indicates a Mean rank of 6.83, suggesting a strong level of agreement by the Panel of Experts. This imply that the Panel strongly view the preventive measures resulting from Round 1 of the Delphi process, as collectively appropriate for mitigating the problems associated with Rushed pre-contract and Insufficient design information, as discovered in the procurement of the Case projects.

6.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	1
7	3	5

Mean rank	6.83
Variance	0.14
Standard Deviation	0.37
Lower Quartile	7.0
Upper Quartile	7.0



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.6 - Analyses of responses to Delphi Round 2 Question No. 6. (Generated with Jisc Online survey tool)

11.3.4.7 Results of Round 2 Question No. 7

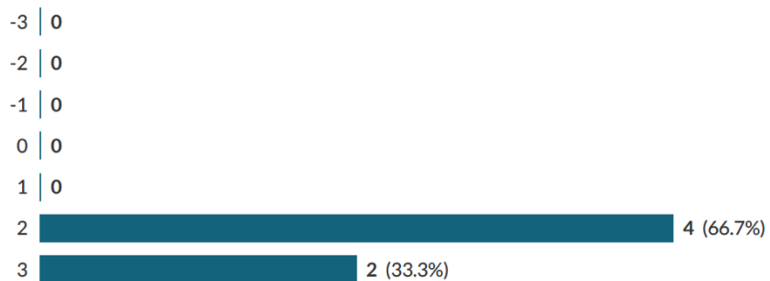
Q7. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Changes in technology?

Figure 11.7 shows the analyses and results of the Panel's response to Round 2 Question No.7. With a Mean rank of 6.33 on the 7-point ordinal scale used for analyses, the Panel again, strongly agreed that the preventive measures resulting from Round 1 of the Delphi process, are collectively appropriate for mitigating the problems associated with Changes in technology, as discovered in the procurement of the Case projects.

7.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	0
6	2	4
7	3	2

Mean rank	6.33
Variance	0.22
Standard Deviation	0.47
Lower Quartile	6.0
Upper Quartile	6.75



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.7 - Analyses of responses to Delphi Round 2 Question No. 7. (Generated with Jisc Online survey tool)

11.3.4.8 Results of Round 2 Question No. 8

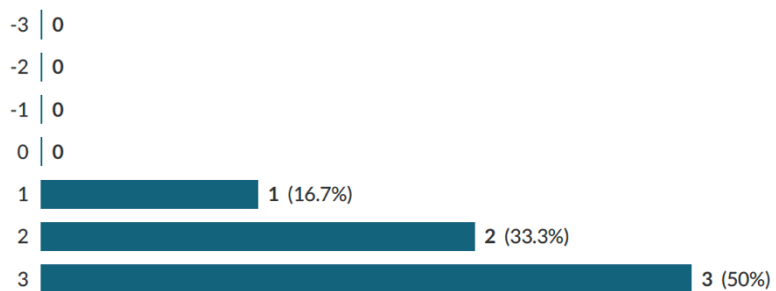
Q8. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Late Contractor involvement?

Analysis and results of the Panel's response to Round 2 Question No.8 as shown in Figure 11.8 indicates a Mean rank of 6.33, suggesting a strong level of agreement by the Panel of Experts with the propositions resulting from Round 1 of the process. This imply that the Panel strongly view the proposed preventive measures as collectively appropriate for mitigating the problems associated with Late Contractor involvement, as discovered in the procurement of the Case projects.

8.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	1
6	2	2
7	3	3

Mean rank	6.33
Variance	0.56
Standard Deviation	0.75
Lower Quartile	6.0
Upper Quartile	7.0



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.8 - Analyses of responses to Delphi Round 2 Question No. 8. (Generated with Jisc Online survey tool)

11.3.4.9 Results of Round 2 Question No. 9

Q9. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with the High cost of the contractor selection process and Excessive documentation burden during the tendering process?

The analysis and results of the Panel's response to Round 2 Question No.9 as shown in Figure 11.9 indicates a unanimous and strong level of agreement by the Panel of Experts, that the preventive measures resulting from Round 1, are collectively appropriate for mitigating the problems associated with the High cost of the contractor selection process and Excessive documentation burden during the tendering process, as discovered from the Case projects. The consensus had a Mean rank of 6.67 on the 7-point ordinal scale used for analyses.

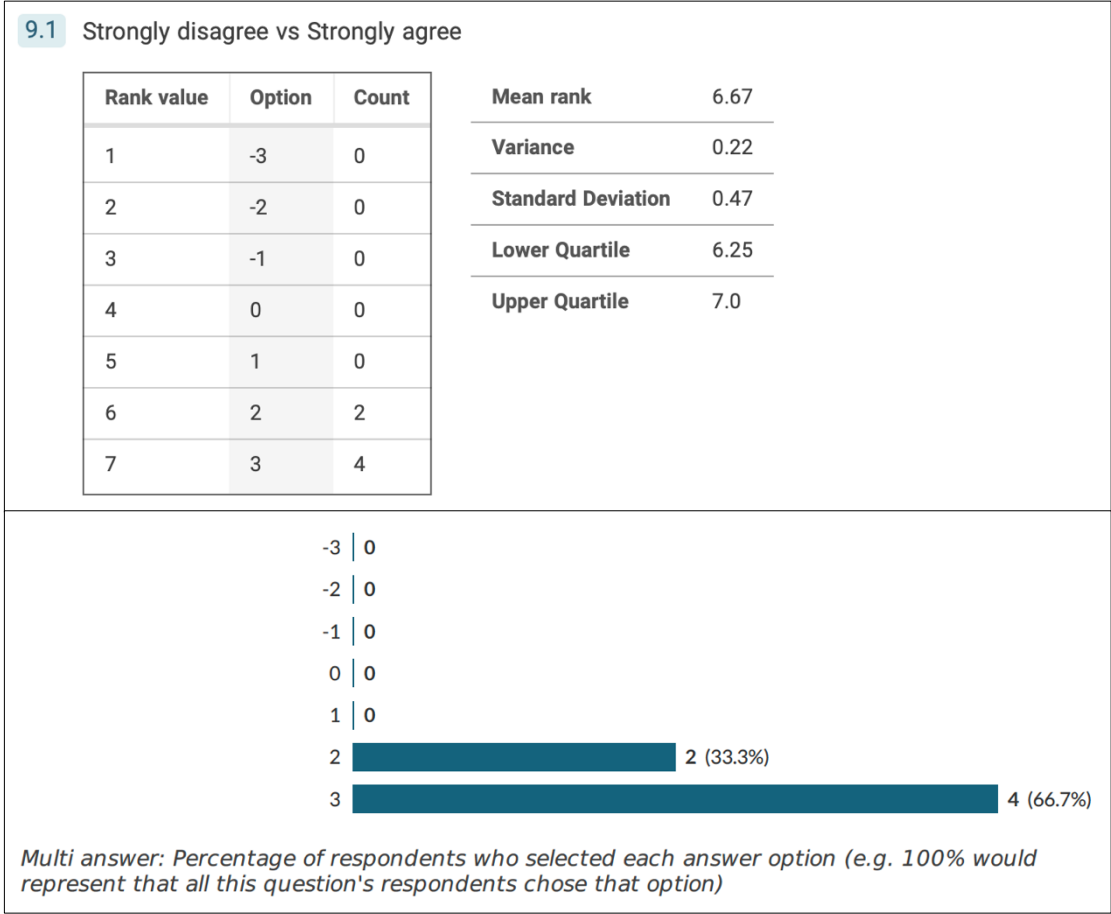


Figure 11.9 - Analyses of responses to Delphi Round 2 Question No. 9. (Generated with Jisc Online survey tool)

11.3.4.10 Results of Round 2 Question No. 10

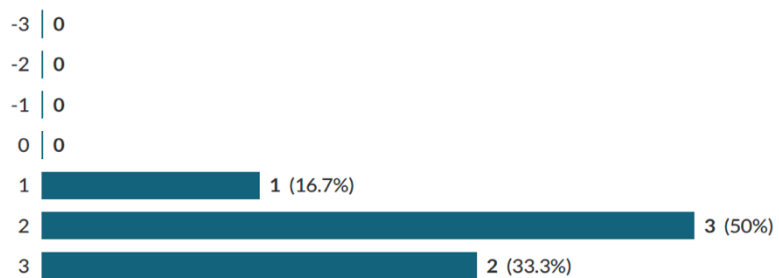
Q10. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Lack of Public Procurement Act (2007) compliance monitoring during the project implementation phase?

Analysis and results of the Panel’s response to Round 2 Question No.10 as shown in Figure 11.10 indicates a Mean rank of 6.17, suggesting a strong level of agreement by the Panel of Experts with the propositions resulting from Round 1 of the process. This imply that the Panel strongly view the proposed preventive measures as collectively appropriate for mitigating the problems associated with Lack of Public Procurement Act (2007) compliance monitoring during the project implementation phase, as discovered in the procurement of the Case projects.

10.1 Strongly disagree vs Strongly agree

Rank value	Option	Count
1	-3	0
2	-2	0
3	-1	0
4	0	0
5	1	1
6	2	3
7	3	2

Mean rank	6.17
Variance	0.47
Standard Deviation	0.69
Lower Quartile	6.0
Upper Quartile	6.75



Multi answer: Percentage of respondents who selected each answer option (e.g. 100% would represent that all this question's respondents chose that option)

Figure 11.10 - Analyses of responses to Delphi Round 2 Question No. 10. (Generated with Jisc Online survey tool)

11.3.5 Summary results for Delphi Round 2

In Round 2 of the Delphi process, the Experts were presented with the results of analyses of Round 1 feedback to seek their concurrence with each other, or otherwise. Each Expert was presented with a questionnaire comprising the summary of preventive measures collated from Round 1 for each causal factor being investigated and requested to state the level of their agreement by making a selection from a 7-point bipolar rating scale provided.

Analysis of responses by the Panel of six Experts indicated a strong level of agreement with the preventive measures that resulted from Round 1 for all 12 causal factors being investigated. The considerable experience of the sampled Experts does mean that these preventive measures, when implemented on future public sector construction procurement would improve the achievement of value for money on those projects. As a result, these

measures are collated and put forward in Appendix IV of this report, as a checklist for good practice, to guide practitioners involved in public sector construction procurement.

11.4 Chapter Summary

To summarise, this chapter presented the development of guidance for improving the achievement of value for money on public sector construction projects under the regulatory framework of the PPA (2007) based on the findings from the three case projects. Findings from the case projects had identified causal factors which limit the achievement of value for money on public sector construction procurement.

By drawing on lessons learnt from the case projects and consulting with a panel of six industry experts through the Delphi technique, the study developed preventive measures for mitigating key causal factors discovered from the case projects. These preventive measures, which are set out in Appendix IV of these report, could serve as a good practice guide, to help practitioners prevent similar barriers to achievement of value for money in future similar projects. The considerable experience of the consulted Experts does mean that these preventive measures, when implemented on future public sector construction procurement would improve the achievement of value for money on those projects.

Chapter 12

Conclusion and Recommendations

12.1 Introduction

This study set out to answer the research question:

Why is the implementation of PPA (2007) on public construction procurement achieving limited success, in terms of achievement of value for money and how can the achievement of value for money be improved under the regulatory framework of the PPA (2007)?

This chapter presents the summary of the research in pursuit of answers to the research question and demonstrates how the aim and objectives of the study were achieved. Also, the chapter presents a reflection on the main research findings, and its implications to theory and practice. Lastly, recommendations for further research are provided.

12.2 Summary of the research

As set out in section 1.5, the primary purpose of this research was to develop measures for improving the achievement of value for money on public construction procurement under the regulatory framework of the Nigerian Public Procurement Act (2007). To achieve this purpose and provide answers to the research question, the following specific objectives were identified:

1. to review existing literature on public procurement and its regulation, the value for money concept and construction procurement to develop deeper understanding of the subjects and their inter-relationships,
2. to review and understand the Nigerian Public Procurement Act (2007) in order to develop a conceptual understanding of its provisions and workability,
3. to conduct an in-depth investigation of the implementation of PPA (2007) rules on a real-life project context to identify how it supports the achievement of value for money
4. to identify the contemporary issues, barriers and challenges affecting the implementation of PPA (2007) and identify how they limit achievement of value for money, and

5. to propose measures for improving the achievement of value for money on public construction procurement by consulting with a panel of Experts in the public procurement field.

A summary of the tasks carried out to achieve the research objectives, and key outcomes are discussed in the paragraphs that follow.

12.2.1 Research objective no. 1:

To review existing literature on public procurement and its regulation, the value for money concept and construction procurement to develop deeper understanding of the subjects and their inter-relationships.

This objective was achieved through the review of literature from academic sources relevant to the research problem area. Scope of the review covered subject areas such as public procurement, value for money, public construction procurement and international perspectives on procurement best practices. This afforded the study some clarity of the research area and a guide on the research design appropriate for the research problem.

The Nigerian PPA (2007) was found to be a direct descent of the UNCITRAL model law on Procurement of Goods, Construction, and Services promoted by the World Bank. It was enacted into law at the backdrop of public sector procurement reforms which began years earlier aimed at fixing problems experienced with a previous procurement regime. This previous procurement regime, according to many authors, was marked with allegation of abuse and irregularities, loss and diversion of public fund, over invoicing, “white elephant” projects, award of contracts to friends and cronies, use of primordial considerations in procurement decisions, non-transparent and flawed processes that yielded incompetent contractors which were linked to project abandonment and failures. There appears a consensus of opinion that the public procurement expenses during this regime did not deliver expected value for money to the Nigerian public.

Therefore, the achievement of value for money is an important aim of the PPA (2007). This is also evident in Section 16 of the Act, which states in part (p. A216); “... *all public procurement shall be conducted ...; with the aim of achieving value for money and fitness for purpose; in a manner which promotes competition, economy and efficiency; ...*”. However, evidence from literature indicates that this aim is not being achieved as envisioned. Internationally, the achievement of value for money objective is considered

central to most public-sector procurement (Arrowsmith, et al, 2011 p.5). Especially so for Nigeria with its gaping need for physical infrastructure critical for her development. Her democratic government is expected to meet the peoples' developmental needs through public procurement processes while demonstrating good governance and accountability on the utilization of the common wealth and resources of the people.

Furthermore, opinions in literature indicate that the meaning of value for money is not consistent. Value is a subjective judgment, its meaning varies from one social entity to another, and could also vary with time. In addition, the generally accepted view of the achievement of value for money is multi-dimensional, beyond the intuitive economic rationalisation, but includes both tangible and intangible benefits. And so, the procurement of construction delivers value to the public both as an end product and also as a means-to-an-end. The interpretative nature of what constitutes value for money hints on the appropriateness of a qualitative line of inquiry for the study.

Additionally, the review of literature on construction procurement collated attributes of contemporary procurement strategies, which are also evident in some international best practice systems on public procurements, that could serve as good examples for the public procurement practice in Nigeria and the aim for the achievement of value for money. These includes:

- Shift from price/cost based to value-based decision criteria
- Shift towards integrated/collaborative project delivery methods and teams
- Longer-term, whole-life perspective, and
- In-built continuous improvement mechanism

12.2.2 Research objective no. 2:

To review and understand the Nigerian Public Procurement Act (2007) in order to develop a conceptual understanding of its provisions and workability.

Again, this objective was achieved through the review of the literature on the Nigerian Public Procurement Act (2007). The scope of review covered academic literature and government publications on the public procurement process in Nigeria based on the PPA (2007) rules, the issues and challenges with PPA (2007) implementation generally and the

impact on construction procurement. A critique of published academic papers related to the implementation of the PPA (2007) and identification of knowledge gaps that exist.

There are compelling literature evidence suggesting the existence of many challenges which affect the effective implementation of the PPA (2007). However, these were not empirically linked to as the causation factors responsible for the limited success of the PPA (2007) on its aim for the achievement of value for money. The general opinion in literature mainly point to the fact that this aim for the achievement of value for money is not being realised as envisioned. These implementation challenges, as reported in the existing body of knowledge, are numerous and could be categorised based on whether the driving force of these challenges were matters exogenous to the provision of the PPA (2007) or whether the driving force were endogenous to its provisions. Exogenous implementation challenges include procedural issues and institutional factors, and these again, could be grouped under social, legal, economic, political or technologically driven challenges. On the other hand, implementation challenges driven by matters endogenous to the provisions of the Act include issues bordering on correct interpretation of some provisions, apparent limitations imposed on some procedural matters and perceived distractive focus of the Act on fraud prevention.

Furthermore, literature evidence on the implementation challenges of the PPA (2007) on construction procurement mostly relied on quantitative assessment of data across projects, over a period of time. The extent of these challenges on a given project, in terms of the aim for the achievement of value for money, appears unknown. Therefore, there exists the need to fill this knowledge gap through an in-depth qualitative investigation of the implementation of the PPA (2007) on real-life projects, to understand why its value for money aim is not being achieved as envisioned and how improvements could be made. As a result, the study proceeded its inquiry through a qualitative case study design.

12.2.3 Research objective no. 3:

To conduct an in-depth investigation of the implementation of PPA (2007) rules on a real-life project context to identify how it supports the achievement of value for money.

This objective was achieved through an in-depth investigation of public construction procurement practices following the case study research strategy. The investigation targeted and obtained rich contextual evidence for answers to the research question,

through the lived experiences, reflections and opinions of individuals operationally tasked with the procurement of recently completed public construction projects. Three case projects were investigated, comprising a total of eighteen interviews, reconnaissance visits and viewing and extraction of information from project documents.

The interviews collect data on the following four key interest areas:

1. How the project participants view and assess the achievement of value for money.
2. The procurement process and practices adopted for the case projects. Views on how each process step made contribution towards the achievement of value for money or otherwise, lessons to learn and pit falls to avoid on future projects.
3. The study participant's opinions on the contributions of the PPA (2007) towards value for money achieved on the projects, as assessed by themselves, and;
4. The PPA (2007) implementation challenges experienced on the case projects, using common implementation challenges collated from literature as a prompt.

The Analysis of data was conducted inductively following the Thematic Content Analysis technique. Taking each case project at a time, the analysis found that the procurement process adopted for the case projects largely complied with PPA (2007) regulatory framework. However, the scope of value for money achieved on the projects were viewed to be limited in scope by the project participants. There was a general opinion that the achievement of a wider scope of value for money was possible on the projects but limited by the challenges faced during project implementation. The analysis identified barriers to the achievement of value for money from the views expressed by the interview participants.

12.2.4 Research objective no. 4:

To identify the contemporary issues, barriers and challenges affecting the implementation of PPA (2007) and identify how they limit achievement of value for money.

On its part, this objective was achieved through cross-case analyses and comparison of findings from the three Case projects. The first-hand experience of the case study sample with the procurement of the Case Projects, together with their experience in construction and knowledge of the PPA (2007), do mean that their opinions, reflections, and recount of experience constitute a rich account of the realities of implementing the PPA (2007) on a public construction project procurement.

The cross-case analysis was used to collate, categorize and evaluate the results of data analyses of all three-case projects, towards building a richer picture of realities of public sector construction procurement under the regulatory rule of the PPA (2007), and its aim for achievement of value for money. The combined result of analyses from three case projects has the potential of providing a more saturated in-depth understanding of the realities of a public construction procurement under the heading of achievement of value for money and more robust synthesis for improving practice in the future, unlike what is possible from a single case project.

The cross-case analysis found that value for money achieved on the three case projects were limited in scope, based on the value for money criteria considered by the study participants. Reasons for their judgement was mainly due to the projects' prolongation, cost escalation, variations in scope, facility management difficulties, inefficient project implementation process and poor-quality of construction. These were in-turn, found to be caused by a total of 21 factors discovered from the collation of findings from the case projects. Measures that can mitigate these causal factors would be a good guide for improvements in the scope of value for money achievable on future projects.

To improve on practicability and effectiveness of measures for mitigating the identified causal factors, the study prioritized the factors by applying the Pareto principle. The aim is to focus on a fewer factors that cause the greatest limiting impact on the achievement of value for money. Consequently, 12 causal factors out the 21 identified emerged as the recommended focus for future improvement. The solution that is focused on these have the chance to make a greater impact on improving the scope of value for money achieved on public construction project. This is however, not discounting the importance of the balance of causal factors, focus on the recommended 12 factors only improves the efficiency of the efforts applied.

12.2.5 Research objective no. 5:

To propose measures for improving the achievement of value for money on public construction procurement by consulting with a panel of public procurement.

This objective was achieved through the development of measures for preventing barriers to the achievement of value for money identified from the case projects in consultation with a panel of six Experts using the Delphi survey technique. By taking lessons from the case

project findings and good practice examples from literature, an initial set of preventive measures were developed and presented to the consulted Experts for review. Based on their considerable experience, the Experts adopted some of the proposed measures, adjusted and expanded others and subsequently reached a consensus, considered by the study as a strong agreement on appropriate measures for preventing the barriers to the achievement of value for money on public sector construction procurement. The Delphi process was concluded at the second round, unlike the three to four-stage classic Delphi process, because the research objective was achieved after the Round 2.

12.3 Main research findings

In addressing the research question, the study found that the achievement of value for money on public construction procurement under the regulatory framework of the PPA (2007) was limited in scope, based on the value for money criteria considered by the study sample. Reasons for their judgment was mainly due to the projects' prolongation, cost escalation, variations in scope, facility management difficulties, inefficient project implementation process and poor-quality of construction. These were in-turn caused by project implementation factors discovered from the collation of findings from the case projects. The study posits that the prevention of these causal factors on future public construction procurements would improve the scope of the achievement of value for money on those projects. Consequently, preventive measures were developed for identified key causal factors in consultation with Industry Experts. These are set out in Appendix IV alongside the challenges they mitigate to serve as a good practice guide to practitioners.

Furthermore, the research found that the criteria used by the project participants sampled for the study to assess the achievement of value for money, although multi-dimensional, was nevertheless deficient. Their focus was on the core business of building a physical facility and the services it supports, and not necessarily on also creating additional value as a by-product or as a means to an end. When compared with opinions in the existing body of knowledge, this perspective to the achievement of value for money on public procurement by the project participants, is limited in scope. It is also of concern, that these project participants were operationally responsible for procuring the projects. Therefore, measures for future improvements need to also include strategies for clearly defining and expanding value for money objectives for public construction projects with expected

outcomes and making them explicit to the practitioners responsible for procuring the projects.

Also, three features of the PPA (2007), according to the views expressed by the study participants, were found to be the major strength areas that support the achievement of value for money. These are the compulsory requirement for the conduct of Needs Assessment, the structured contractor selection process, and the rule for price competition. For future improvements, these strengths areas should be the focus of efforts for continuous improvement.

12.4 Contributions of the research

The study did achieve the aim it set out to, and thereby provided answer to the research question. But, in the larger perspective of the debate on the achievement of value for money on public construction procurement, its main contributions, in the Nigerian context, may however, be on the study's approach to the research and the research outcome. The implications to theory and practice is discussed in the sections that follow.

12.4.1 Contributions to theory

Previous studies on the research's subject area have been largely wide in breadth, but shallow in depth. Many, as discussed in Chapter 5 of this report, appear alarmist in nature with no real practical suggestions on how improvements could be made. This thesis, however, provides rich in-depth contextual evidence, with chains of events from real-life projects, why the implementation of the PPA (2007) is having limited success on its aim for the achievement of value for money. This demonstrated an alternative perspective and approach that broadens the debate and research on the problem area with prospects of finding solutions based on real project experiences. More so, the study provides a basis that can be developed further and extended to the study of other types of public construction procurement, e.g. roads and transportation, etc.

12.4.2 Contributions to practice

The research aimed to develop measures for improving the achievement of value for money on public construction procurement under the regulatory framework of the Nigerian PPA (2007). To this end, measures for preventing common barriers to the achievement of value for money on public construction procurement were developed (see Appendix IV). These measures could serve as a checklist for good practice to help public procurement

practitioners and government entities anticipate and avoid pitfalls that limit the achievement of value for money.

Also, findings from the study have highlighted from practice, the PPA (2007) deficiencies as a framework for the complex nature of construction procurement. This supports the views in the existing body of knowledge, especially as discussed in section 5.3.2 of this report. The implication for practice is that it draws attention to the need for the development of a holistic governance framework for public construction procurement in Nigeria. This framework should be such that cater to the spectrum of activities and varieties of procurement routes necessary for the achievement of value for money objectives of the PPA (2007) based on unique project characteristics, while also helping practitioners demonstrate compliance with the legal rules of the PPA (2007).

12.5 Research limitations and recommendations for further research

The study presumes that the Law is fit for its purpose, and therefore, the investigation was limited to its implementation to construction procurement. The study did not interrogate the appropriateness of the Law against the socio-cultural context of Nigeria. PPA (2007) is a direct descent of UNCITRAL model law on procurement of goods, construction, and services, and is thought to represent international best practices. However, there are also opinions in the existing body of literature with concern that the public procurement reforms in Nigeria did not recognise the socio-political context of Nigeria. This study, therefore, recommends further study on the appropriateness of PPA (2007) to the Nigerian context.

Furthermore, to make the study more manageable, the research focused only on building construction and associated external infrastructure. Consequently, a cautious generalisation of the research findings is recommended on other forms of public-sector construction, such as roads and transportation, power, water and sanitation, telecommunication, defence, etc.

Again, the recommendations put forward by the study for improving the achievement of value for money are mainly pre-emptive measures aimed at preventing the barriers to achievement of value for money. There may be the need also, for further studies aimed at providing Corrective measures on projects where these had already occurred and are ongoing, as well as Predictive actions that could be used to assess risks of these barriers occurring, to help better prepare procurement managers on important area of focus.

Similarly, there may be a need for Action Research, to pilot and refine the implementations of preventive measures put forward by the study.

Finally, it would appear that the PPA (2007) had paid more attention to the front-end procurement matters and largely presumed that the often-lengthy implementation stage of construction would go on to achieve value for money. The PPA (2007), as the general law for all government procurement, has not gone into particular details necessary for the spectrum of construction procurements. Therefore, there may be a need, to develop a project governance framework for public sector construction procurements to help steer projects towards the achievement of value for money objectives of the PPA (2007).

References

- Abdullahi, N. Z., Abdul, A. H., & Atasya, O. (2018). Mediating Effects of Enforcement on Public Procurement Guidelines' Compliance Barriers and Cost Performance of Construction Projects in Nigerian Federal Universities: A Process Macro Approach. *Journal of Construction in Developing Countries*, 23(1), 81–102.
- Achilike, N. I., & Akuwudike, H. C. (2016). The Impact of Due Process Policy on Construction Projects in South East Nigeria. *European Journal of Business and Management*, 8(22), 85-91.
- Adegboye, K. (2014, February 3). Experts decry high cost of construction in Nigeria. *Vanguard News*, p. [online]. Retrieved December 9, 2015, from <http://www.vanguardngr.com/2014/02/experts-decry-high-cost-construction-nigeria/>
- Ade-ojo, C. O., & Babalola, A. A. (2013). Cost and Time of Construction Projects under the Due Process Reforms in Nigeria. *Research Inventy: International Journal of Engineering And Science*, 3(6), 01-06.
- Adewole, A. (2014). Governance Reform and the Challenge of Implementing Public Procurement Law Regime across Nigeria State and Local Governments. *International Journal of Public Administration and Management Research (IJPAMR)*, 2(4), 25-32.
- Adewole, A. (2014). Governance Reform and the Challenges of Implementing Public Procurement Law Regime across Nigeria State and Local Governments. *International Journal of Public Administration and Management Research (IJPAMR)*, 2(4), 25-32.
- AfDB. (2013). *An Infrastructure Action Plan for Nigeria: Closing the Infrastructure Gap and Accelerating Economic Transformation*. TUNIS Belvedere (Tunisia): African Development Bank Group. Retrieved September 9, 2014, from <http://www.afdb.org/en/documents/document/an-infrastructure-action-plan-for->

nigeria-closing-the-infrastructure-gap-and-accelerating-economic-transformation-33031/

- African Development Bank Group (AfDB). (2018). *2018 African Economic Outlook Country Note - Nigeria*. Retrieved from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/country_notes/Nigeria_country_note.pdf
- Ahiakwo, O., Oloke, D., Suresh, S., & Khatib, J. (2013). A case study of Last Planner System implementation in Nigeria. *Proceedings IGLC* (pp. 699-707). Fortaleza, Brazil: IGLC.
- Aibunu, A. A., & Jagboro, G. O. (2002). The effects of construction delays on project delivery in Nigerian construction industry. *International Journal of Project Management*, 20, 593-599.
- Ajayi, O., & Oyeyipo, O. (2015). Effect of Rework on Project Performance in Building Projects in Nigeria. *International Journal of Engineering Research & Technology (IJERT)*, 4(02), 294-300.
- Aje, I. (2012). The impact of contractors' prequalification on construction project delivery in Nigeria. *Engineering, Construction and Architectural Management*, 19(2), 159-172.
- Akinyemi, P. A., Dare, G. M., Anthony, A. I., & Dabara, D. I. (2016). Building Collapse in Nigeria: Issues and Challenges. *Conference of the International Journal of Arts & Sciences*, 09(01), 99-108.
- Akinyosoye, M. (2010). *Infrastructure Development in Nigeria; Road Mao to Sustainable Development*. Retrieved July 19, 2015, from [greenhillts.com: http://greenhillts.com/yahoo_site_admin/assets/docs/Nigeria_Infrastructure_Development_in_Nigeria.317154506.pdf](http://greenhillts.com/yahoo_site_admin/assets/docs/Nigeria_Infrastructure_Development_in_Nigeria.317154506.pdf)
- Aladeloba, A. S. (2012). Effectiveness of Due Process Unit of Nigeria - Construction Professionals' View. *COBRA*. London: RICS.

- Ameh, O. J., & Ogundare, O. (2013). Impact of Due Process Policy on Construction Projects Delivery in Nigeria. *Journal of Building Performance*, 4(1), 13-23.
- Amemba, C. S., Nyabokeye, P. G., Osoro, A., & Mburu, N. (2015). Challenges Affecting Public Procurement Performance Process in Kenya. *European Journal of Business and Management*, 7(7), 271-280.
- Anago, I. T. (2011). Public Procurement Act: A Vehicle for Accountability and Value-for-Money in Building and Construction. *Proceedings of the 1st Building & Construction Economic Round-Table [BCERT 1]* (pp. 165-180). Abuja: Quantity Surveyors Registration Board of Nigeria.
- Anvuur, A., Kumaraswamy, S., & Male, S. (2006). Taking Forward Public Procurement Reforms in Ghana. *CIB W107 Construction in Developing Countries International Symposium "Construction in Developing Economies: New Issues and Challenges"*. Santiago, Chile.
- Arrowsmith, S., Treumer, S., Fejø, J., & Jiang, L. (2011). *Public Procurement Regulation: An Introduction*. (S. Arrowsmith, Ed.) Retrieved March 15, 2015, from University of Nottingham: <https://www.nottingham.ac.uk/pprg/documentsarchive/asialinkmaterials/publicprocurementregulationintroduction.pdf>
- Asare, E. N., & Prempeh, K. B. (2016). Measures of Ensuring Value for Money in Public Procurement: A Case of Selected Polytechnics in Ghana. *Journal of Logistics Management*, 5(1), 22-31.
- Ashworth, A., & Hogg, K. (2007). *Willis's Practice and Procedure for Quantity Surveyor*. Oxford, UK: Blackwell Publishing.
- Atagboro, E. (2015). Due Process Mechanism and Fraudulent Practices in Nigeria Public Sector. *Acta Universitatis Danubius. Administratio*, 7(1), retrieved online: <http://journals.univ-danubius.ro/index.php/administratio/article/view/2878/2912>.
- Awodele, O., Ogunlana, S., & Akinradewo, O. (2012). Evaluation of Public Private Partnership (PPP) as Alternative Procurement Route for Infrastructure Development: Case of Nigeria Mega City. *Proceedings of the West Africa Built*

Environment Research (WABER) Conference (pp. 329-344). Abuja: West Africa Built Environment Research (WABER) Conference.

Awuzie, B. O. (2014). *A viable infrastructure delivery system for achieving socio-economic benefits in the Nigerian oil and gas industry*. PhD thesis, University of Salford.

Awuzie, B. O., & McDermott. (2012). Developing Viable Means of Delivering Infrastructure Projects in Nigeria. *Joint CIB W070, W092 & TG72 International Conference: Delivering Value To the Community* (pp. 284-292). Cape Town, South Africa: Department of Construction Economics and Management, University of Cape Town.

Awuzie, B., & McDermott, P. (2012b). Using a System Viability Approach to Investigate The Social and Economic Impact of Energy Infrastructure Investments on Local Construction Supply Chain Development - A Case of Nigeria Niger Delta Region. In A. Javernick-Will, & A. Mahalingam (Ed.), *Working Paper Proceedings of Engineering Project Organisation Conference July 10 -12, 2012*. Rheden, The Netherlands. Retrieved August 1, 2015, from http://www.epossociety.org/epoc2012/Papers/Awuzie_Mcdermott.pdf

Ayangade, J. A., Wahab, A. B., & Alake, O. (2009). An Investigation of the Performance of Due Process Mechanism in the Execution of Construction Projects in Nigeria. *Civil Engineering Dimension, Vol 11(1)*, 1-7.

Babatunde, M. A., & Adefabi, R. A. (2005). Long Run Relationship between Education and Economic Growth in Nigeria: Evidence from the Johansen's Cointegration Approach. *Regional Conference on Education in West Africa: Constraints and Opportunities* (pp. 1-22). Dakar, Senegal: Cornell University/CREA/Ministerede l'Education du Senegal.

Babatunde, S. O., Opawole, A., & Akinsiku, O. E. (2012). Critical success factors in public-private partnership (PPP) on infrastructure delivery in Nigeria. *Journal of Facilities Management, 10(3)*, 212-225.

- Babatunde, S. O., Opawole, A., & Ujaddughe, I. C. (2010). An Appraisal of Project Procurement Methods in Nigerian Construction Industry. *Civil Engineering Dimension, Vol. 12(1)*, 1-7.
- Barnett, C., Barr, J., Christie, A., Duff, B., & Hext, S. (2010). *Measuring the Impact and Value for money of Governance and Conflict Programme*. DFID.
- Basheka, B. (2009). Public Procurement Reforms in Africa: A Tool for Effective Governance of the Public Sector and Poverty Reduction. In K. V. Thai (Ed.), *International Handbook of Public Procurement* (pp. 131 - 151). Boca Raton, FL 33487-2742: Taylor & Francis Group, LLC.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report, 13(4)*, 544-559.
- Bello, F. M., Doko, A. I., & Kolo, B. A. (2013). Whole Life Costing in Procurement of Public Buildings in Nigeria. In S. Laryea, & S. Agyepong (Ed.), *Procs 5th West Afria Built Enviroment Research (WABER) Conference*, (pp. 1191-1201). Accra, Ghana.
- Bima, A. M., Tafida, A., & Baba, D. L. (2015). Appraisal of Construction Project Procurement Policies in Nigeria. *American Journal of Engineering Research, 4(3)*, 19-24.
- BMPIU. (2005). *A Manual on Procurement Reform Programme in Nigeria*. Abuja: State House.
- Bodurin, A. K. (2016). Emperical Review and Analysis of Public Procurement Practices in Nigeria: Challenges and Prospects. *Public Policy and Administration Research, 6(3)*, 128-135.
- BPP. (2011). *Procurement Procedure Manual for Public Procurement in Nigeria* (Second ed.). Abuja: Bureau of Public Procurement. Retrieved November 25, 2015, from http://www.bpp.gov.ng/index.php?option=com_joomdoc&view=documents&path=procurement-procedure-manual-final-version-doc&Itemid=781

- Braun, V., & Clarke, V. (2008). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bryman, A. (2008). *Social Research Methods*. Oxford: Oxford University Press.
- Burke, C., & A, K. (2015). Generating social value through public sector construction procurement: A study of local authorities and SMEs. In A. B. Raidén, & E. Aboagye-Nimo (Ed.), *Proceedings of 31st Annual ARCOM Conference, 7- 9 September 2015* (pp. 387-396). Lincoln, UK: Association of Researchers in Construction Management.
- Burnard, P., Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Analysing and presenting qualitative data. *British Dental Journal*, 204(8), 429-432.
- Caborn, E., & Arrowsmith, S. (2013). Procurement methods in public procurement systems of Africa. In G. Quinot, & S. Arrowsmith, *Public Procurement Regulations in Africa* (pp. 261-307). Cambridge: Cambridge University Press.
- Centre for Construction Innovation (CCI). (2015). *Key performance indicators (KPI's) for the construction industry*. Retrieved June 30, 2015, from BRE: <https://www.bre.co.uk/page.jsp?id=1478>
- Ceric, A. (2014). Application of New Institutional Economics to construction management: literature analysis using keywords. *Proceedings of International Conference on Construction in the Changing World*. Kandalama, Sri Lanka: CIB.
- Connaughton, J., & Green, S. D. (1996). *Value management in construction : a client's guide*. London: Construction Industry Research and Information Association.
- CoST. (2013, December 9). *What is CoST?* Retrieved June 30, 2015, from Construction Sector Transparency Initiative: <http://www.constructiontransparency.org/the-initiative?forumboardid=1&forumtopicid=1>
- Creswell, J. (2008). *Educational research*. Boston: Pearson.
- Creswell, J. (2009). *Research design*. Los Angeles: Sage.

- Curry, L. (2015, June 23). *Fundamentals of Qualitative Research Methods: What is Qualitative Research (Module 1) [Video file]*. Retrieved from Yale University: https://youtu.be/wbdN_sLWl88?list=PLqHnHG5X2PXCcCMYn3_EzugAF7GKN2poQ
- Dada, M. (2013, January). Expected Success Factors in Procurement of Public Sector Projects in Nigeria; A Stakeholder Analysis. *Built Environment Journal Universiti Teknologi MARA*, 10(1), 41-59.
- Dada, M. O. (2012). Predictors of Procurement Selection: An Investigation of Traditional and Integrated Methods in Nigeria. *Journal of Construction in Developing Countries*, 17(1), 69-83.
- Dada, M. O. (2013). Expected Success Factors for Public Sector Projects in Nigeria: A Stakeholder Analysis. *Organisation, Technology and Management in Construction: An International Journal*, 5(2), 852-859.
- Dainty, A. (2008). Methodological pluralism in construction management. In A. Knight, & L. Ruddock, *Advanced Research Methods in the Built Environment* (pp. 1-13). West Sussex: Wiley-Blackwell.
- Dallas, M. (2007). *Value and Risk Management: A guide to best Practice*. Wiley-Blackwell.
- Denscombe, M. (2007). *The Good Research Guide for small-scale social research projects*. Open University Press.
- Dewulf, G., Blanken, A., & Bult-Spiering, M. (2012). *Strategic issues in Public-Private Partnerships* (2nd ed.). John Wiley & sons, Ltd.
- DFID. (2011). *Department for International Development's Approach to Value for Money*.
- Dimitri, N. (2012). *Best Value for Money in Procurement*. NL: Maastricht School of Management.
- Dimitri, N. (2013). "Best Value for Money" in Procurement. *Journal of Public Procurement*, 13(2), 149-175.

- Duren, J., & Doree, A. (2008). An Evaluation of Performance Information Procurement System (PIPS). *3rd International IPPC conference* (pp. 1-22). Amsterdam: IPPC.
- Dza, M., Fisher, R., & Gapp, R. (2013). Procurement Reforms in Africa: The Strides, Challenges, and Improvement Opportunities. *Public Administration Research*, 2(2), 49-57.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. (2015). *Management & Business Research* (5th Edition ed.). London: SAGE.
- Easton, D., & Akbiyikli, R. (2005). *Quantifying quality: A report on PFI and the delivery of public services*. RICS.
- Eaton, D., Akbiyikli, R., Lemos, T., Gunnigan, L., Kutanis, R., Casensky, M., . . . EL Sawalhi, N. (2007). An examination of the suitability of a UK PFI model within the Czech Republic, the Republic of Ireland, Palestine (Gaza-West Bank), Portugal and Turkey. *Construction Innovation: Information Process Management*, 7(1), 122-142.
- Education Sector National Technical Working Group. (2009). *Report of the Vision 2020 National Technical Working Group on Education*. Abuja, Nigeria: National Planning Commission. Retrieved October 27, 2015, from <http://www.nationalplanning.gov.ng/images/docs/NationalPlans/EducationNTWG Report.pdf>
- Ehigiamusoe, K. (2013). Education, Economic Growth & Poverty Rate in Nigeria. *Journal of Social and Development Sciences*, 4(12), 544-553.
- Ekung, S., Lashinde, A., & Amuda, O. (2015). Assessment of Procedural Parameters for Improving Public Procurement Practice in Nigeria. *International Journal of Construction Engineering and Management*, 4(5), 201-209.
- Ekung, S., Siriwardena, M., & Adeniran, L. (2013). Optimised Selection and Use of Project Procurement Strategy in Nigeria: A Practical Case Study. *Ethiopian Journal of Environmental Studies and Management*, 6(6), 661-669.

- Ekwekwuo, C. C. (2017). *A case study of the Nigerian procurement monitoring program and its portal and observatory*. Retrieved April 30, 2017, from Commentary.com: http://www.commentary.com/procurement_monitoring.htm
- Ezeh, E. (2011). The Public Procurement Act 2007 as an Anti-Corruption Tool. *Proceedings of the 2011 Quantity Surveying Assembly and Colloquium* (pp. 51-56). Abuja: Quantity Surveyors Registration Board of Nigeria.
- Ezeh, E. (2012). Achieving Value for Money in Building and Construction Projects. *Proceedings of the 2nd Annual Building & Construction Economic Round-Table [BCERT2]* (pp. 77-81). Abuja: Quantity Surveyors Registration Board of Nigeria.
- Familoye, O., Ogunsemi, D. R., & Awodele, O. A. (2015, November). Assessment of the challenges facing the effective operation of the Nigeria Public Procurement Act 2007. *International Journal of Economics, Commerce and Management, III*(11), 957-968.
- Fasoranti, M. M. (2012). The Effect of Government Expenditure on Infrastructure on the Growth of the Nigerian Economy, 1977-2009. *International Journal of Economics and Financial Issues, 5*13-518.
- Fayomi, I. O. (2013). Public procurement and due process in Nigeria: Thrust, prospects and challenges. *Peak Journal of Social Sciences and Humanities, 1*(4), 39-45.
- Fellow, R., & Liu, A. (2008). *Research Methods for Construction*. Oxford: Wiley-Blackwell.
- Gbadegesin, J. T., & Aluko, B. T. (2014). Public private partnership/private finance initiatives for financing infrastructure in public tertiary institutions in Nigeria. *Built Environment Project and Asset Management, 4*(2), 199-215.
- Glendinning, R. (1988). The Concept of Value for Money. *International Journal of Public Sector Management, 1*(1), 42-50.
- Greve, H. .. (2015). Behavioral Theories of Organization. *International Encyclopedia of the Social & Behavioral Sciences, 4*81-486.

- Hamma-adama, M., & Kouider, T. (2017). Causes of Building Failure And Collapse In Nigeria: Professionals' View. *American Journal of Engineering Research*, 6(12), 289-300.
- Henjewe, C., Sun, M., & Fewings, P. (2012). Analysis of factors affecting value for money in UK PFI projects. *Journal of Financial Management of Property and Construction*, 17(1), 9-28.
- HM Treasury. (2006). *Value for Money Assessment Guide*. Norwich: Her Majesty Stationery Office. Retrieved June 30, 2015, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252858/vfm_assessmentguidance061006opt.pdf
- Howes, R., & Robinson, H. (2005). *Infrastructure for the Built Environment Global Procurement Strategies*. Oxford: Butterworth-Heinemann.
- Ibrahim, A. D. (2007). *The development of a procurement strategy for primary health care facilities in Nigeria*. unpublished Doctoral Thesis submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy of Loughborough University.
- Ibrahim, A. D., & Musa-Haddary, Y. G. (2010). Concept of Value for Money in Public Infrastructure Development. *Paper Presented at the International Workshop organised by NIQS at Abuja, July 13-15, 2010*.
- Inuwa, I. I., Wanyona, G., & Diang'a, S. (2014, April). Construction Procurement Systems: Influencing Factors for Nigerian Indigenous Contractors' Project Planning. *International Journal of Engineering Research & Technology*, 3(4), 1043-1050.
- Inuwa, I. I., Wanyona, G., & Diang'a, S. (2015). Identifying Building Contractors' Project Planning Success Indicators: The Case Of Nigerian Indigenous Contractors. *African Journal of Applied Research (AJAR)*, 1(1), 58-71.
- Ismail, W. N., Isa, S. S., & Yusop, N. (2018). Ideal Construction Procurement System based on Transaction Cost Approach. *International Journal of Academic Research in Business and Social Sciences*, 8(1), 807-814.

- Jibrin, M. S., Ejura, S. B., & Augustine, N. I. (2014, October). The Public Procurement Reform in Nigeria: Implimentation and Compliance Challenges. *Journal of Asian Business Strategy*, 149-162.
- Kashim, B. B. (2016). Public Procurement Reform and Good Governance in Nigeria. *Developing Country Studies*, 6(8), 117-126.
- Kashiwagi, .. T. (2010). "Root of all evil" misunderstanding of construction industry structure. (Ghafoori, Ed.) *Challenges, Opportunities and Solutions in Structural Engineering and Construction*.
- Kashiwagi, D., Kashiwagi, J., & Savicky, J. (2009). Industry Structure: Misuderstood by Industry and Researchers. *Performance Based Studies Research Group*.
- Kelly, J., & Male, S. (2002). Value management. In J. Kelly, R. Morledge, & S. Wilkinson, *Best Value in construction* (pp. 77-99). Oxford: Blackwell Publishing.
- Li, H., Arditi, D., & Wang, Z. (2014). Transaction costs incurred by construction owners. *Engineering, Construction and Architectural Management*, 21(4), 444-458.
- Lingard, H., Hughes, W., & Chinyio, E. (1998). The Impact of Contractor Selection Method on Transaction Costs: A Review. *Journal of Construction Procurement*, 4(2), 89-102.
- Love, P. D., Holt, G., & Li, H. (2002). Triangulation in construction management research. *Engineering, Construction and Architectural Management*, 9(4), 294-303.
- Love, P., Davis, P., Baccharini, D., Wilson, G., & Lopez, R. (2008). Procurement selection in the public sector; a tale of two states. In: *Client Driving Innovaation: Benefiting from Innovation Conference, 12-14 March, 2008*. Gold Coast, Australia.
- MacDonald, C. C. (2011). *Value for Money in Project Alliances*. Unpublished thesis submitted in (partial) fulfilment of requirement for the degree of Doctor of Project management, RMIT University, Australia. Retrieved from <http://reasearchbank.rmit.edu.au/veiw/fmit:13154>
- MacDonald, C., Walker, D. H., & Moussa, N. (2012). Value for money in project alliances. *International Journal of Managing Projects in Business*, 5(2), 311-324.

- Mansfield, N. R., Ugwu, O. O., & Doran, T. (1994). Causes of delay and cost overruns in Nigerian construction projects. *International Journal of Project Management*, 12(4), 254-260.
- Manu, P., Mahamadu, A.-M., Booth, C., Olomolaiye, P. O., Akinwale, C., Ibrahim, A., & Lamond, J. (2018). Assessment of procurement capacity challenges inhibiting public infrastructure procurement - A Nigerian inquiry. *Built Environment Project and Asset Management*, 8(4), 386-402.
- Manu, P., Mahamadu, A.-M., Booth, C., Olomolaiye, P. O., Akinwale, C., Ibrahim, A., & Lamond, J. (2019). Infrastructure procurement capacity gaps in Nigeria public sector institutions. *Engineering, Construction and Architectural Management*, 26(9), 1962-1985.
- McDermott, P. (1999). Strategic and emergent issues in construction procurement. In S. Rowlison, & P. McDermott, *Procurement Systems: A guide to best practice in construction* (pp. 2-22). London: E&F Spon.
- Mohammed, I. Y., & Dahiru, A. (2012, June). Exploring Opportunities of Design and Build Procurement Approach for Infrastructure Projects Development in Nigeria. *Journal of Environmental Science and Resource Management*, 4, 18-28. Retrieved from <http://www.cenresinpub.org/pub2/Exploring%20Opportunities%20of%20Design%20and%20Build%20Procurement%20Approach.pdf>
- Moore, M. H. (2013). *Recognising Public Value*. Harvard University Press.
- Naoum, S. (2013). *Dissertation research & writing for construction students*. New York: Routledge.
- Naoum, S., & Egbu, C. (2015). Critical review of procurement method research in construction journals. *Procedia Economics and Finance*, 21, 6-13.
- National Audit Office. (2013). *Getting Value for Money from Procurement*. Retrieved June 30, 2015, from National Audit Office: <http://www.nao.org.uk/wp-content/uploads/2013/02/vfmprocurementguide.pdf>

- National Planning Commission. (2015). *Press Briefing on the Partnership for implementation of the National Integrated Infrastructure Master Plan (NIIMP)*. Retrieved November 1, 2015, from Federal Ministry of Budget and National Planning: <http://www.nationalplanning.gov.ng/index.php/news-media/news/current-news/256-press-briefing-on-the-partnership-for-implementation-of-the-national-infrastructure-master-plan-niimp>
- Ogunbiyi, O., Oladapo, A., & Goulding, J. (2012). Lean Procurement: The use of Lean Construction techniques in project value enhancement . *Joint CIB W070, W092 & TG72 International Conference: Delivering Value to the community*, (pp. 143-149).
- Ogunsanmi, O. E. (2013). Effects of Procurement Related Factors on Construction Project Performance in Nigeria. *Ethiopian Journal of Environmental Studies and Management*, 6(2), 215-222.
- Oladinrin, O. T., Olatunji, S. O., & Hamza, B. T. (2013). Effect of Selected Procurement Systems on Building Project Performance in Nigeria. *International Journal of Sustainable Construction Engineering & technology*, 4(1), 48-62.
- Olatunji, O. A. (2008). Due Process and Contractor Selection for Public works in Nigeria. *Building Abroad: Procurement of Construction and Reconstruction Projects in the International Context*, 385-395.
- Olatunji, S. O., Olawumi, T. O., & Odeyinka, H. A. (2016). Nigeria's Public Procurement Law - Puissant Issues and Projected Amendments. *Public Policy and Administrative Research*, 6(6), 73-85.
- Olawale, Y., & Sun, M. (2010). Cost and time control of construction projects; Inhibiting factors and mitigating measures in practice. *Construction Management and Economics*, 28(5), 509-526.
- Olufemi, E. A., Olatunbosun, A. J., Olasode, O. S., & Adeniran, I. G. (2013, November). Infrastructural Development and its Effect on Economic Growth: The Nigerian Perspective. *European Scientific Journal*, 9(31), 431-452.
- Oluwole, J. O. (2015). Accelerating Sustainable Construction in Nigeria: The Professionals Perspective. *Civil and Environmental Research*, 7(10), 61-67.

- Onyema, E. (2011, September 2011). Challenges and prospects of public procurement practice in Nigeria: An analysis. *Nigeriaworld*, p. (online).
- Osundina, C. K., Ebere, C., & Osundina, O. A. (2014). Disaggregated Government Spending on Infrastructure and Poverty Reduction in Nigeria. *Global Journal of Human-Social Science: (E)*, 12(5).
- Oyebamiji, F. F. (2018). Implementation of Public Procurement Act and Government Performance: Evidence from Nigeria. *South Asian Journal of Social Studies and Economics*, 1(4), 1-9.
- Oyegoke, A. S., Dickinson, M., Khalfan, M. M., McDermott, P., & Rowlinson, S. (2009). Construction project procurement routes: an indepth critique. *International Journal of Managing Projects in Business*, 2(3), 338-354.
- PPA. (2007). *Public Procurement Act*. Abuja: Federal Republic of Nigeria.
- Proverbs, D., & Gameson, R. (2008). Case study research. In A. Knight, & L. Ruddock (Eds.), *Advanced Research Methods in the Built Environment* (pp. 99-110). Chichester, UK,: Wiley-Blackwel.
- Quinot, G., & Arrowsmith, S. (2013). Introduction. In G. Quinot, & S. Arrowsmith, *Public Procurement Regulation in Africa* (pp. 1-21). Cambridge: Cambridge University Press.
- Ramus, J., Birchall, S., & Griffiths, P. (2006). *Contract Practice for Surveyors*. Burlington, MA: Buttherorth-Heinemann.
- Robson, C., & McCartan, K. (2016). *Real World Research* (4th Edition ed.). Chichester, West Sussex: John Wiley & Sons Ltd.
- Rowlinson, S. (1999). A definition of procurement systems. In S. Rowlinson, & P. McDermott, *Procurement Systems; a guide to best practice* (pp. 23-47). London: E & FN Spon.
- Ruparathna, R., & Hewage, K. (2015). Review of Conteporary Construction Procurement Practices. *Journal of Management in Engineering*, 31(3), 04014038. doi:10.1061/(ASCE)ME.1943-5479.0000279

- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Method for Business Students, fifth edition*. Essex: Pearson Education Limited.
- Schwab, K. (2018). *The Global Competitiveness Report 2018*. Geneva Switzerland: World Economic Forum.
- Semiatycki, M., & Farooqi, N. (2012). Value for Money and Risk in Public-Private Partnership. *Journal of American Planning Association, Vol 78*(No. 3), 286-299.
- Shittu, A. A., Adamu, A. D., Mohammed, A., Suleiman, B., Isa, R. B., Ibrahim, K., & Shehu, M. A. (2013). Appraisal of Building Defects Due To Poor Workmanship In Public Building Projects In Minna, Nigeria. *IOSR Journal of Engineering (IOSRJEN), 3*(9), 30-38.
- Shwarka, S. M., & Anigbogu, N. A. (2012). Impact of the Public Procurement Reform on public building projects delivery in Nigeria. In S. D. Smith (Ed.), *Procs 28th Annual ARCOM Conference* (pp. 969-977). Edinburgh, UK: Association of Researchers in Construction Management.
- Soludo, C. C. (2019, October 1). *Economic and Institutional Restructuring for the Next Nigeria*. Retrieved from Proshare: <https://www.proshareng.com/news/Nigeria%20Economy/Economic-and-Institutional-Restructuring-for-the-Next-Nigeria---Soludo/47274>
- Staples, W. J. (2010). *Public Value in Public Sector Infrastructure Procurement*. PhD Thesis, RMIT University, School of Management, College of Business.
- Tookey, J. E., Murray, M., Hardcastel, C., & Langford, D. (2001). Construction procurement routes: re-defining the contours of construction procurement. *Engineering, Construction and Architectural Management, 8*(1), 20-30.
- Tracy, S. J. (2013). *Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact*. West Sussex, UK: Wiley-Blackwell.
- Udeh, K. T., & Ahmadu, M. L. (2013). The Regulatory Framework for Public Procurement in Nigeria. In G. Quinot, & S. Arrowsmith (Eds.), *Public Procurement Regulation in Africa* (pp. 141 - 161). Cambridge: Cambridge University.

- UK Government. (2018, November 28). *Policy paper: Private Finance 2 (PF2)*. Retrieved November 2019, from GOV.UK: <https://www.gov.uk/government/publications/private-finance-2-pf2#history>
- US Embassy in Nigeria. (2012). *Nigerian Education Fact Sheet*. Abuja: Economic Section, United States Embassy in Nigeria.
- Usman, S. (2013). Financing Infrastructure through the Capital Market. *Presentation at the Infrastructure Roundtable Organised by Securities and Exchange Commission (SEC) in collaboration with the National Planning Commission (NPC)*.
- Vanguard. (2015, October 12). Revenues from Nigeria oil sales decline sharply: official. *Vanguard Newspaper*, p. online. Retrieved December 5, 2015, from <http://www.vanguardngr.com/2015/10/revenues-from-nigeria-oil-sales-decline-sharpy-official/>
- Visconti, R. M. (2014). Improving Value for Money in Italian Project Finance. *Managing Finance*, 40(11), 1058-1077.
- Walker, D. H., Stark, J., & Rowlinson, S. (2008). Introduction and procurement fundamentals. In D. H. Walker, & S. Rowlinson, *Procurement Systems: a cross-industry project management perspective* (pp. 1-31). New York: Taylor & Francis.
- Walliman, N. (2006). *Social research methods*. London: SAGE.
- Watermeyer, R. (2013). Value for Money in the Delivery of Public Infrastructure. In S. Laryea, & S. Agyepong (Ed.), *Proceedings of 5th West African Built Environment Research (WABER) Conference*, (pp. 3-19). Accra - Ghana.
- Wedawatta, G., Ingirige, B., & Amaratunga, D. (2011). Case Study as a research strategy: Investigating extreme weather resilience of construction SMEs in the UK. *ARCOM doctoral workshop*. Kandalama, Sri Lanka: International Conference on building resilience.
- Weththasinghe, K., Gajendra, T., & Brewer, G. (2016). Barriers in Proper Implementation of Public Private Partnership (PPP) in Sri Lanka. *Proceedings of 40th AUBEA*

- 2016; *Radical Innovation in the Built Environment* (pp. 858-869). Cairns, Australia: Australasian Universities Building Education Association (AUBEA).
- Williams, T., Klakegg, O. J., Magnussen, O. M., & Glasspool, H. (2010). An investigation of governance frameworks for public projects in Norway and the UK. *International Journal of Project Management*, 28, 40-50.
- Williams-Elegbe, S. (2012). A Comparative analysis of the Nigerian Public Procurement Act against International Best Practice. *5th International Public Procurement Conference*, (pp. 832-848). Seattle, Washington.
- Williams-Elegbe, S. (2012). The Reform and Regulation of Public Procurement in Nigeria. *Public Contract Law Journal*, 41(2), 339-366.
- Williams-Elegbe, S. (2013). The World Bank's Influence on Procurement Reform in Africa. *African Journal of International and Comparative Law*, 21(1), 95-119.
- Williams-Elegbe, S. (2014). Beyond UNCITRAL: The Challenges of Procurement Implementation in Africa. *Stellenbosch Law Review*(1), pp. 209-224.
- Winch, G. (1989). The construction firm and the construction project: a transaction cost approach. *Construction Management and Economics*, 331-345.
- Wood, G. (2005, April). Partnering practice in the relationship between client and main contractors. *RICS Research Series*.
- World Bank Group. (2015, September 30). *Nigeria Overview*. Retrieved November 30, 2015, from The World Bank: <http://www.worldbank.org/en/country/nigeria/overview>
- World Economic Forum. (2014). *The Global Competitiveness Report 2014 - 2015*. Geneva: World Economic Forum (WEF). Retrieved from www.weforum.org/gcr
- Yin, R. K. (2014). *Case Study Research; Designs and Methods* (5th Edition ed.). Los Angeles: SAGE Publications Inc.

Interview Guide

Introduction and formalities

I want to thank you for taking time to meet with me today. My name is Ifeanyi Obieje. I am a PhD researcher at the School of the Built Environment, University of Salford Manchester. In partial fulfilment for the award of my degree, I am undertaking a research into developing a framework for improving the achievement of value for money on public sector procurement of construction under the regulatory framework of the Nigerian Public Procurement ACT (PPA) of 2007.

Today I would like to discuss with you about your experience participating in the procurement of Central Bank of Nigeria Centre of Excellence project at University of Ibadan. Information from our discussion will help me understand the procurement practice employed in your project and how value for money was achieved. Our discussion should last about 45 minutes.

Here is a participant's information sheet, containing all information concerning your participation in this research. I would like to give you a moment to study it so we can discuss whatever concern you may have.

Can I emphasize again that participating in this research is entirely voluntary and you are free to withdraw at any time. All information provided will be kept confidential and full anonymity of participants will be ensured during the collection, storage and publication of research material in accordance with University of Salford Research Ethics Guide.

If you would like us to continue, please review the Consent form and kindly sign to formally give your consent for this interview.

Section A –Background Information

Can you please describe your professional background?

How long have you been involved in the construction?

Can you describe the business nature of your organization?

How long have you been involved with your organization?

Who are the main Clients of your organization?

How long have you been on your current role?

What is your specific role on this project?

Section B – Implementation of Nigerian Public Procurement Act (PPA 2007) rules on the Case Project

Following the steps for public procurement recommended by the Bureau of Public Procurement, the discussion in this section aims to help the researcher gain understanding of the practices adopted based on your experience of the various procurement stages of the case project in-terms of how it created the opportunities for achievement of value for money.

With reference to step 1 to step 9 of the recommended essential steps in public procurement (copy presented to the interviewee) and reflecting on the case project, could you walk me through your experience with reference to how value for money was achieved or how the opportunities for achievement of value for money was created.

Step 1 - Efficient Procurement Plan driven by needs assessment

Why do you think this step is important?

How did it contribute to achievement of Value for money?

(Repeat for Steps 2 to 9 as applicable to the interviewee)

Where additional steps taken during the procurement of this project that were not listed?

What were these steps?

Why were the additional steps taken?

How did it contribute to achievement of Value for money?

Section C – Case Project Outcome

Discussion in this section aims to ascertain your opinion of the case project's outcome in terms of achievement of value for money and how you think the implementation of PPA (2007) facilitated this achievement or otherwise. This will be centered around your general impression and on some key Value for Money metrics.

What is your general impression of the project outcome, do you think it has achieved value for money spent on it?

Why do you think so?

How did it achieve (or not achieve) value for money

Can you tell me more?

Based on the following, what is your assessment of the project performance and how do you think PPA (2007) played a role?

How did the project meet (or not meet) expectation? If it did not meet project expectation, why do you think it did not meet expectation.

- a. Quality of finished works*
- b. Cost performance*
- c. Time performance*
- d. Project delivery process/strategy*
- e. Getting things right the first time*
- f. More kpis*

Section D – Implementation Challenges of PPA (2007)

This section aims to ascertain your experience on the challenges and barriers affecting the implementation of PPA (2007) in Public sector's procurement of Construction. The discussion here will help the researcher identify common implementation challenges, how they affected the achievement of value for money, why the project was vulnerable to these challenges and how they were managed.

Existing literature document various challenges often faced during implementation of PPA (2007) (copy of summary presented to the interviewee). Reflecting on the case project, which of these challenges did you experience?

How did it affect achievement of value for money?

How did you manage them?

Why do you think this project is vulnerable to those challenges?

What other implementation challenges (not listed) did you experience on this Project?

How did it affect achievement of value for money?

How did you manage them?

Why do you think this project is vulnerable to those challenges?

Section E – Closing Section

What other information on this project would you like to share?

Closing formality

Thank you for your time. Your contribution to this research is very much appreciated. If you would you like me to share the outcome of this research with you, please do let me know.

Nine Essential Steps in Public Procurement



	Issues, Challenges and Barriers often experienced while implementing PPA (2007) provisions in Construction
1	Lack of widespread knowledge of the processes of the Act by procurement stakeholders
2	Lack of centralized Data and Excessive documentation burden on bidders due to lack of use of ICT
3	Procurement personnel issues such as inefficient and ineffective structure of public sector procurement cadre and unclear qualification criteria for procurement cadre
4	Poor budgeting and funding issues resulting to poor financing and payment of completed works
5	Skill shortages, lack of professional capacity and unprofessionalism of government procurement officials
6	Delays caused by Bureaucratic bottle necks
7	Non-inclusion of Architecture, Engineering and Construction professionals in procurement decision making Boards
8	Political interference on the Contractor selection process
9	Low level use of negotiated procedure with viable economic Contractor due to strict requirement for open and restricted procedure
10	Excessive focus on curbing financial corruption at the expense of other procurement issues such as quality and timely completion
11	Poor screening of the technical and financial capabilities of works Contractors
12	Lowest bid selection criteria leading to unrealistic bid amounts
13	Limitations imposed by the Act on methods of procurement. E.g. Procurement by default to be by open competitive tendering method
14	Contracting malpractices; such as proxy contracting, collusion, bid rigging, etc.
15	Limited transparency of the procurement process and inadequate information disclosure by government procuring entities
16	Financial Corruption
17	Poor ethical and moral standards of procurement stakeholders
18	Lack of political will of the government to prosecute violators of the Act/ Inability to successfully prosecute offenders
19	Lack of compliance monitoring by public stakeholders, eg. Civil society groups, NGOs, Professional bodies; general public
20	Poor project execution and supervision
21	Refusal to comply/Institutional resistance to the provisions of the Act
22	Deliberate act of Sabotage by procuring entities who exploit loopholes in the rules
23	Size or Scope of Procurement
24	Complexity of Procurement; Complexity: Organizational and Technological



Delphi Survey

Expert views on measures for improving achievement of value for money on public sector construction procurement

Introduction and formalities

Thank you for agreeing to participate in this Delphi survey. This survey is part of a research study in partial fulfilment of the award of the Doctor of philosophy degree at the School of the Built Environment, University of Salford, United Kingdom.

The research is aimed at developing a framework for improving the achievement of value for money on public sector construction procurement under the regulatory framework of the Nigerian Public Procurement Act (PPA) of 2007. Your expert opinion is vital to realizing this aim.

Please see the enclosed participant's information sheet, containing all information concerning your participation in this research, and take a moment to review it. Also, I would like to emphasize that participating in this research is entirely voluntary and you are free to withdraw at any time. All information provided will be kept confidential and full anonymity of participants will be ensured during the collection, storage and publication of research material in accordance with University of Salford Research Ethics Guide.

Guidance Note

Definitions:

The term Value for Money as used in this study means:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value”

Instructions on completing the questionnaire

1. This is a two stage Delphi Survey. The Delphi approach is selected as a convenient and most effective means of arriving at consensus amongst the various experts participating in the survey, all of whom are geographically dispersed.
2. In this first stage, you will be provided with research findings from three case study projects on factors that are root-causes of barrier to achievement of wider scope of value for money on government construction projects with recommendations for their mitigation. You are kindly requested to comment on the adequacy of these recommendations on the spaces provided. Please use additional sheets where required.
3. On a future second stage, you will be provided with the summary of views from other experts for your concurrence or otherwise.
4. Please contact the researcher on [mobile] if you have need for further clarifications.

Section A – Expert views on recommended measures for improving achievement of value for money

Item no 1

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Weak contract enforcement	<p>Unwillingness of the Contract administrators to implement contractual remedies for defaults. For example:</p> <ul style="list-style-type: none"> • the unwillingness to determine contractor’s employment, nor make deductions for liquidated damages by the Client encouraged continued delays that led to excessive time over-run. • The non-settlement of certificates within the contractual payment period, thereby affecting contractors’ cashflow and slowed down progress. 	<ol style="list-style-type: none"> 1. Contract administrators to rigorously and consistently implement contractual agreements 2. Practitioners to focus on the longer-term implications of their contract implementation decision and action on future government procurement contracts generally

Q 1.1 Please comment on the adequacy of the preventive measures recommended

Q 1.2 Kindly suggest additional or alternative measures (if any)

Item no 2

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
<p>Poor Project Management Capacity of Contractors</p>	<p>Poor planning & scheduling, poor scope management, poor workmanship, excessive reworks and poor project finance negatively impacting on quality of construction and completion time.</p>	<ol style="list-style-type: none"> 1. More robust technical screening of contractors during pre-qualification stage based on proposed project's characteristics rather than generic prequalification criteria. 2. Adoption of formal project management methodology by Contractors to help improve their management performance (e.g. PRINCE2™, PMBOK®, etc) 3. The government to drive skills development through Apprenticeship program in partnership with Construction companies, whereby it will be part of pre-requisites for contractors bidding for government projects

Q 2.1 Please comment on the adequacy of the preventive measures recommended

Q 3.2 Kindly suggest additional or alternative measures (if any)

Item no 3

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Excessive government bureaucracy	Delayed approvals and/or payment as a result of government bureaucracy causing delays that contributed to time over-run	<ol style="list-style-type: none"> 1. Greater autonomy to be given to the project team with clear delineated powers to make and implement changes at the project team level during construction stage. 2. Employers' representative on project teams to be senior responsible personnel able to make final decisions. 3. Stage review of project team decisions by the Employer at agreed project milestones for corrections, re-alignments and sanction of abuse where necessary

Q 3.1 Please comment on the adequacy of the preventive measures recommended

Q 3.2 Kindly suggest additional or alternative measures (if any)

Item no 4

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Contractual disputes	Disputes caused by existence of many versions of the contract and unavailability of any signed true copy caused disagreements which led to delays that contributed to time over-run.	<ol style="list-style-type: none">1. Project team to ensure and confirm that final contract documents are signed by all parties and a copy is deposited with the project team leader.2. Contracts should be based on appropriate standard forms with minimal alterations.

Q 4.1 Please comment on the adequacy of the preventive measures recommended

Q 4.2 Kindly suggest additional or alternative measures (if any)

Item no 5

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Poor teamwork	Lack of team cooperation between the contractor and consultant teams and within the consulting team contributed to delays that lead to time over-runs	<ol style="list-style-type: none">1. Regular tool box talks on Teamwork and Leadership during project implementation.2. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc

Q 5.1 Please comment on the adequacy of the preventive measures recommended

Q 5.2 Kindly suggest additional or alternative measures (if any)

Item no 6

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Rushed pre-contract, and Insufficient design information	In-sufficient time allocated to the pre-contract stage of the works resulted to incomplete designs, inaccurate estimates, etc that contributed to variations, cost escalation and delays that led to time over-run	1. Stage gate review prior to tendering process to determine the level of design development and recommend on further improvement or appropriate contract strategy to transfer additional design responsibility and risks to the construction team.

Q 6.1 Please comment on the adequacy of the preventive measure recommended

Q 6.2 Kindly suggest additional or alternative measures (if any)

Item no 7

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Changes in technology	Changes in technology experienced on ICT scope resulted to variations, and contributed to cost escalation and delays	1. Detailing of ICT and similar fast changing scope nearer to their implementation

Q 7.1 Please comment on the adequacy of the preventive measure recommended

Q 7.2 Kindly suggest additional or alternative measures (if any)

Item no 8

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Late Contractor involvement	Non utilisation of the contractor's experience on the design and specifications resulting to buildability problems that contributed to delays and variations	<ol style="list-style-type: none">1. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc.2. Specification documents to focus on outputs and performance criteria to allow Contractor's experience to help with innovation where contract strategy with separate design and construction roles are employed.

Q 8.1 Please comment on the adequacy of the preventive measures recommended

Q 8.2 Kindly suggest additional or alternative measures (if any)

Item no 9

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
High cost of contractor selection process and Excessive documentation burden during tendering process	High cost of contractor pre-qualification process and excessive documentation resulting from the pre-qualification and tendering made analyses very cumbersome and expensive, thereby making the procurement process inefficient and uneconomic	1. Use of a single national pre-qualification database by all government departments and procuring entities. The database would be a central repository of current, accurate, core data of registered bidders, including workforce skills, project experience, etc

Q 9.1 Please comment on the adequacy of the preventive measure recommended

Q 9.2 Kindly suggest additional or alternative measures (if any)

Item no 10

Root-Cause item	Description and effects on Case Study Projects	Recommended Preventive measures
Lack of Public Procurement Act (2007) compliance monitoring during project implementation phase.	Lack of external monitoring of the procurement process encouraged in-efficiencies.	<ol style="list-style-type: none"> <li>1. The introduction of Peer review process similar to the UK's OGC Gateway™ Process, whereby independent external practitioners use their experience and expertise to provide timely, independent and confidential advice to the project team at key decision points or milestones regarding progress and likelihood of delivery success in terms of achievement of value for money as envisaged by the Public Procurement Act. External practitioners could be members of professional organisations such as NIA, NSE, NIQS, etc.

Q 10.1 Please comment on the adequacy of the preventive measure recommended

Q 10.2 Kindly suggest additional or alternative measures (if any)

Section C – Additional Expert views and recommendations based on experience measures for improving achievement of value for money

Q 11.0 Please state below any other comment or suggestions based on your experience on how achievement of value for money may be improved in government procurement of construction under the regulation of the Nigerian Public procurement Act (2007)

Appendix III – Delphi Round 2 Questionnaire

Delphi Round 2

Page 1: Introduction

Delphi Survey – Round 2

Expert views on measures for improving the achievement of value for money on public sector construction procurement

Introduction and guidance

Thank you for your participation in the Delphi Round 1 survey of this study. Your valuable contribution has enriched the research in many ways. Kindly spare a moment to complete this concluding Round 2 of the process.

In this round, you are presented with the summary of contributions by all the Experts who participated in Round 1, including yourself. Kindly review this summary and indicate to what extent you agree the suggested preventive measures are able to mitigate the procurement problems stated.

This questionnaire is estimated to take about one-third of the time it took to complete Round 1.

Thank you for your kind support.

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additions preventive measures suggested by Experts
Weak contract enforcement	<ol style="list-style-type: none"> Contract administrators to rigorously and consistently implement contractual agreements Practitioners to focus on the longer-term implications of their contract implementation decision and action on future government procurement contracts generally 	-None-	<ol style="list-style-type: none"> Government Employer to adequately empower Contract administrators Introduction of a scheme of sanctions and rewards to incentivize contract administrators Inclusion of the system of "Notices for Defaults" in contracts to encourage performance Use of Contracts appropriate for the government Client needs

1. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with weak contract enforcement?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 3: Item No 2 - Poor Project Management Capacity of Contractors

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additions preventive measures suggested by Experts
Poor Project Management Capacity of Contractors	<ol style="list-style-type: none"> 1. More robust technical screening of contractors during the pre-qualification stage based on the proposed project's characteristics rather than generic prequalification criteria. 2. Adoption of formal project management methodology by Contractors to help improve their management performance (e.g. PRINCE2™, PMBOK®, etc) 3. The government to drive skills development through the Apprenticeship program in partnership with Construction companies, whereby it will be part of pre-requisites for contractors bidding for government projects 	-None-	<ol style="list-style-type: none"> 1. Pre-qualification of Contractor to be done in a transparent manner and assessment should go beyond documentation to physical verification and evaluation of the experience 2. Pre-qualification criteria to include evidence of proven Project Management knowledge and management plan for the proposed project. 3. Public sector to drive adoption of Project Management methodology 4. Involvement of expert consultants in the prequalification process

2. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with poor Project Management Capacity of Contractors?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Excessive government bureaucracy	<ol style="list-style-type: none"> Greater autonomy to be given to the project team with clear delineated powers to make and implement changes at the project team level during the construction stage. Employers' representative on project teams to be senior responsible personnel able to make final decisions. Stage review of project team decisions by the Employer at agreed project milestones for corrections, re-alignments, and sanction of abuse where necessary 	<ul style="list-style-type: none"> Project team autonomy to make and implement changes to be limited to an identified cost threshold Creation of a "Change Control Board" to meet frequently to review Project changes above the identified threshold. Each project to have a high-level sponsor that interacts with the Change Board to secure prompt approvals 	<ol style="list-style-type: none"> Inclusion of Internal process of the Client in the Contract Front-end resolution of all potential implementation issues prior to commencement of works Inclusion and enforcement of contractual remedies for delays

3. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with excessive government bureaucracy?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 5: Item No 4 - Contractual disputes

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Contractual disputes	<ol style="list-style-type: none"> Project team to ensure and confirm that final contract documents are signed by all parties and a copy is deposited with the project team leader. Contracts should be based on appropriate standard forms with minimal alterations. 	<ol style="list-style-type: none"> Suggested Standard forms of Contracts to be harmonized with other internal policy documents of Client 	<ol style="list-style-type: none"> Resolution of all contentious project issues prior to contract execution. Use of Adjudication in disputes resolution to prevent delays to progress in addition to the traditional Arbitration clause Early integration of Clients' Legal department into the Project Team

4. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Contract disputes?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Poor teamwork	<ol style="list-style-type: none"> Regular toolbox talks on Teamwork and Leadership during project implementation. Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc 	-None-	<ol style="list-style-type: none"> Creation of team building activities and collaboration assignments to help foster cooperation amongst team members Reward and motivation of cooperative and knowledge sharing team members Front-end development of effective communication strategy and framework for partnership amongst the project team

5. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Poor teamwork?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 7: Item No 6 - Rushed pre-contract & Insufficient design information

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Rushed pre-contract, and Insufficient design information	1. Stage gate review prior to tendering process to determine the level of design development and recommend further improvement or appropriate contract strategy to transfer additional design responsibility and risks to the construction team.	-None-	1. Government promotion of project culture of allocating sufficient time for project planning by standardizing acceptable time schedule based on project characteristics 2. Adoption of BIM and other innovation and process improvement methods by Practitioners

6. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Rushed pre-contract and Insufficient design information?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 8: Item No 7 - Changes in technology

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Changes in technology	1. Detailing of ICT and similar fast changing scope nearer to their implementation	-None-	1. Early involvement of ICT experts in the procurement team 2. Improvement of accuracy of the budget for ICT scope by appropriately hedging current prices for inflation and other pricing risks

7. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Changes in technology?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Late Contractor involvement	<ol style="list-style-type: none"> Contract strategy to lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc. Specification documents to focus on outputs and performance criteria to allow the Contractor's experience to help with innovation where contract strategy with separate design and construction roles are employed. 	-None-	<ol style="list-style-type: none"> Provision in Tender documents for an additional alternative offer by Contractors to improve the utilization of Contractor experience

8. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Late Contractor involvement?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 10: Item No 9 - High cost of the contractor selection process and Excessive documentation burden during the tendering process

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
The high cost of the contractor selection process and Excessive documentation burden during the tendering process	1. Use of a single national pre-qualification database by all government departments and procuring entities. The database would be a central repository of current, accurate, core data of registered bidders, including workforce skills, project experience, etc	-None-	1. Adoption of Selective Tendering process for major Projects which will only involve bidders with the required skill and competence

9. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with the High cost of the contractor selection process and Excessive documentation burden during the tendering process?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 11: Item No 10 - Lack of Public Procurement Act (2007) compliance monitoring during the project implementation phase

Round 1 contributions:

Root-Cause item	Recommended Preventive measures	Amendments suggested by Experts	Additional preventive measures suggested by Experts
Lack of Public Procurement Act (2007) compliance monitoring during the project implementation phase.	1. The introduction of Peer review process similar to the UK's OGC Gateway™ Process, whereby independent external practitioners use their experience and expertise to provide timely, independent and confidential advice to the project team at key decision points or milestones regarding progress and likelihood of delivery success in terms of achievement of value for money as envisaged by the Public Procurement Act. External practitioners could be members of professional organizations such as NIA, NSE, NIQS, etc.	-None-	1. Enforcement of compliance by applying legal sanctions and reward of compliance

10. To what extent do you agree the recommended, amended and additional preventive measures are collectively appropriate for mitigating the problems associated with Lack of Public Procurement Act (2007) compliance monitoring during the project implementation phase?

Please don't select more than 1 answer(s) per row.

	-3	-2	-1	0	1	2	3	
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly agree

Page 12

Thank you for your expert contributions

Appendix IV – Guidance for improving the achievement of value for money on public construction procurement

Preamble

This guidance originated from the results of a research aimed at developing measures for improving the achievement of value for money on public construction procurement in Nigeria, under the regulatory framework of the Nigerian Public Procurement Act of 2007 (PPA (2007)). The achievement of value for money is among the cardinal aims of the PPA (2007), however, previous studies have shown that this aim is not being achieved as envisioned.

Therefore, this guidance is proposed to assist public procurement practitioners to anticipate and overcome common risk factors to the achievement of value for money, while implementing the provisions of the PPA (2007) on public construction procurement. Although this is not exhaustive of all risk factors possible, it is intended to serve as a foundation for continuous improvement.

The measures proposed in this guidance is supported and agreed to by Experts in the industry, nonetheless, come from a real-life experience on a mainly public building construction projects. Care should be taken while applying it to other forms of construction procurement.

Definitions:

The term Value for Money as used in this guidance means:

“the term used to gauge whether or not an entity has derived maximum benefit from the goods, works and services it acquired and/or provides, within the resources available to it. Not only a measure of cost of goods and services, but also taking into account the combination of Quality, Cost, Resource utilization, Fitness for Purpose, Timeliness and Convenience to judge whether or not, when taken together, they constitute good value”

Measures for improving the achievement of value for money

Table A5.1 – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
1	Weak contract enforcement	<p>Unwillingness of the Contract administrators to implement contractual remedies for defaults encourages continued defaults which leads to excessive time overrun</p> <p>For example:</p> <ul style="list-style-type: none"> • the unwillingness to determine contractor’s employment, nor make deductions for liquidated damages by the Client encourage continued delays that lead to time over-runs. • The non-settlement of certificates within the contractual payment period, thereby affecting contractors’ cashflow and slows down progress. 	<ol style="list-style-type: none"> 1. Contract administrators to rigorously and consistently implement contractual agreements 2. Practitioners to focus on the longer-term implications of their contract implementation decision and action on future government procurement contracts generally 3. Government Employer to adequately empower Contract administrators 4. Introduction of a scheme of sanctions and rewards to incentivize contract administrators 5. Inclusion of the system of “Notices for Defaults” in contracts to encourage performance 6. Use of Contracts forms appropriate for the government Client needs

Table A5.1 (Cont'd) – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
2	Poor Project Management Capacity of Contractors	Poor planning & scheduling, poor scope management, poor workmanship, excessive reworks and poor project finance which negatively impacts on quality of construction and completion time.	<ol style="list-style-type: none"> 1. Robust technical screening of contractors during the pre-qualification stages based on the proposed project's characteristics rather than generic prequalification criteria. 2. Pre-qualification of Contractor to be done in a transparent manner and assessment should go beyond documentation to physical verification and evaluation of the experience 3. Pre-qualification criteria to include evidence of proven Project Management knowledge and management plan for the proposed project 4. The adoption of formal project management methodology by Contractors to help improve their management performance (e.g. PRINCE2™, PMBOK®, etc) 5. The government to drive skills development through the Apprenticeship program in partnership with Construction companies, whereby it will be part of pre-requisites for contractors bidding for government projects 6. Public sector to drive adoption of Project Management methodology 7. Involvement of expert consultants in the prequalification process.

Table A5.1 (Cont'd) – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
3	Excessive government bureaucracy	Delayed approvals and/or payment as a result of government bureaucracy causes delays that contribute to time over-runs.	<ol style="list-style-type: none"> 1. Autonomy to be given to the project team with clear delineated powers to make and implement changes at the project team level during the construction stage within an identified cost threshold. 2. Creation of a “Change Control Board” to meet frequently to review Project changes above the identified threshold. Each project to have a high-level sponsor that interacts with the Change Board to secure prompt approvals. 3. Inclusion of Internal process of the Client in the Contract 4. Front-end resolution of all potential implementation issues prior to commencement of works 5. Inclusion and enforcement of contractual remedies for delays
4	Contractual disputes	Disputes sometimes caused by existence of many versions of the contract and unavailability of any signed true copy resulting to disagreements that leads to delays and contribute to time over-run.	<ol style="list-style-type: none"> 1. Project team to ensure and confirm that final contract documents are signed by all parties and a copy is deposited with the project team leader. 2. Contracts should be based on appropriate standard forms with minimal alterations. However, selected standard form should be harmonized and reconciled with other internal policy documents of the public Client organisation. 3. Ensure resolution of all contentious project issues prior to contract execution. 4. The use of Adjudication in disputes resolution to prevent delays to progress in addition to the traditional Arbitration clause 5. Early integration of Clients’ Legal department into the Project Team

Table A5.1 (Cont'd) – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
5	Poor teamwork	Lack of team cooperation between the contractor and consultant teams and within the consulting team contribute to delays that lead to time over-runs	<ol style="list-style-type: none"> 1. Regular toolbox talks on Teamwork and Leadership during project implementation. 2. Creation of team building activities and collaboration assignments to help foster cooperation amongst team members. 3. Reward and motivation of cooperative and knowledge sharing team members 4. Front-end development of effective communication strategy and framework for partnership amongst the project team 5. Consideration of Contract strategies that lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc
6	Rushed pre-contract, and Insufficient design information	In-sufficient time allocation to the pre-contract stage of the works resulting to incomplete designs, inaccurate estimates, etc that contributes to variations, cost escalation and delays that lead to time over-run	<ol style="list-style-type: none"> 1. Stage gate review prior to tendering process to determine the level of design development and recommend further improvement or appropriate contract strategy to transfer additional design responsibility and risks to the construction team. 2. Government promotion of project culture of allocating sufficient time for project planning by standardizing acceptable time schedule based on project characteristics 3. Adoption of BIM and other innovation and process improvement methods by Practitioners

Table A5.1 (Cont'd) – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
7	Changes in technology	Changes in technology commonly experienced on ICT scope results to variations, and contributes to cost escalation and delays to completion	<ol style="list-style-type: none"> 1. Detailing of ICT and similar fast changing scope nearer to their implementation. 2. Early involvement of ICT experts in the procurement team. 3. Improvement of accuracy of the budget for ICT scope by appropriately hedging current prices for inflation and other pricing risks.
8	Late Contractor involvement	Non utilisation of the contractor's experience on the design and specifications results to buildability problems that contributed to delays and variations	<ol style="list-style-type: none"> 1. Consideration of Contract strategies that lean more towards integrated forms of procurement, E.g. Design and Build, Partnering, PPP, etc. 2. Specification documents to focus on outputs and performance criteria to allow the Contractor's experience to help with innovation where contract strategy with separate design and construction roles are employed. 3. Provision in Tender documents for an additional alternative offer by Contractors to improve the utilization of Contractor experience
9	High cost of contractor selection process and Excessive documentation burden during tendering process	High cost of contractor pre-qualification process and excessive documentation resulting from the pre-qualification and tendering make analyses very cumbersome and expensive, thereby making the procurement process inefficient and uneconomic	<ol style="list-style-type: none"> 1. Use of a single national pre-qualification database by all government departments and procuring entities. The database would be a central repository of current, accurate, core data of registered bidders, including workforce skills, project experience, etc. 2. Adoption of Selective Tendering process for major Projects which will only involve bidders with the required skill and competence.

Table A5.1 (Cont'd) – Recommended mitigation measures for common risk factors

Item No.	Risk Factor	Common effects on Projects	Recommended Preventive Measures
10	Lack of Public Procurement Act (2007) compliance monitoring during project implementation phase.	Lack of external monitoring of the procurement process encourages inefficiencies and cover-ups.	<ol style="list-style-type: none"> 1. The introduction of Peer review process similar to the UK's OGC Gateway™ Process, whereby independent external practitioners use their experience and expertise to provide timely, independent and confidential advice to the project team at key decision points or milestones regarding progress and likelihood of delivery success in terms of achievement of value for money as envisaged by the Public Procurement Act. External practitioners could be members of professional organizations such as NIA, NSE, NIQS, etc. 2. Enforcement of compliance by applying legal sanctions and reward of compliance

Appendix V - Ethical Approval Letter



Research, Innovation and Academic
Engagement Ethical Approval Panel

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3 April 2017

Dear Obieje,

RE: ETHICS APPLICATION ST1617-42 - Framework for improving achievement of value for money in Construction procurement under the Nigerian public procurement Act (2007)

Based on the information you provided, I am pleased to inform you that your application ST1617-42 has been approved.

If there are any changes to the project and/ or its methodology, please inform the Panel as soon as possible by contacting S&T-ResearchEthics@salford.ac.uk

Yours sincerely,

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