PUBLIC-PRIVATE COLLABORATION: A PANACEA TO ROAD ASSETS MANAGEMENT IN NIGERIA

Alaba Adetola, Department of Building, School of Environmental Studies, Yaba College of Technology, P. M. B. 2011, Yaba - Lagos, Nigeria

ABSTRACT

The globalisation of trade and rise in national income has resulted in increased demand for transport infrastructure and services. Given its high and diverse functionality and wide range of beneficiaries, road infrastructure and services have become essential components of national transport systems. However, lack of access to basic all-weather, reliable and safe road infrastructure is a major challenge in developing countries. Therefore, this study focused on public-private collaborative management of road infrastructure in Nigeria. The research methodological approach adopted an extensive review of relevant literature and questionnaire survey. A critical evaluation of secondary data helped to articulate the characteristics of various models of public-private collaboration. The study population comprised public, private sectors and end-user stakeholders purposively selected from the geo-political zones of Nigeria. Primary data were analysed through SPSS version 20 along with inferential (Kruskal-Wallis Test) and descriptive (Relative Importance Index) statistical tools. The study uncovered new meaning and understanding in 'trust', and strongly advocated for an effective stakeholders' collaboration in financing, construction, operation, maintenance and management of viable road infrastructure and services.

KEYWORDS: Management, Nigeria, Public-Private Collaboration, Road Assets, Trust.

INTRODUCTION

The backbone for the development of any nation includes its physical infrastructure. These comprise roads and bridges, power generation plants, power transmission and distribution networks, water and sanitation networks, seaports, airports, and railways. Given this, Narayan and Petesch (2002) asserted that lack of basic infrastructure particularly roads, water, electricity, and health care are defining characteristics of poverty. The importance of delivering quality infrastructure has also been underlined by the United Nations declaration of the Millennium Development Goals (United Nations, 2006). However, these infrastructure projects are highly capital- intensive in nature and tend to exert a strain on public finances. Consequently, the public sector authorities in developing countries are usually constrained with limited resources, and are therefore constantly on the lookout for alternative financial, managerial and technical resources to deliver essential public infrastructure. This research paper gives a vivid account of the historical development of road infrastructure in Nigeria, articulates the characteristics of various models of public private collaboration, presents and discusses empirical survey results.

EVOLUTION OF ROAD ASSETS IN NIGERIA

The colonial period marked the evolution of modern transport system in Nigeria with the development of networks of road, rail and water geared essentially to meet the exportation of

cash crops such as cocoa, cotton, groundnuts and palm products; and the importation of cheap, mass produced consumption goods (Federal Government of Nigeria, 2010a). The road transport system in Nigeria began in the early 1900s essentially as feeder road networks, complementary to the railways which then formed the main travel routes. The first road for motorised vehicles in Nigeria was built in 1906 from Ibadan to Oyo (Odeleye, 2000). The early road network development resulted from the Post-First World War effort hence, the Road Board was established in 1925 by the then colonial administration. The mandate of the Board was to evolve blueprints for trunk road network, connecting major administrative centres in the colonial time (Federal Government of Nigeria, 2010a). These early transport systems were planned in the most economical way possible, as characterised in sub-standard road and rail alignments and a sub base, which later proved inadequate to accommodate heavy vehicles. Furthermore, with the re-orientation of goals after independence in 1960, road transport became one of the instruments of unification of Nigeria and an important tool for social and economic development. The development of petroleum resources from the 1950's also had significant impact on the nation's social and economic growth, exerting increasing demands on the road transport system (Federal Ministry of Works and Housing 2003).

As at 1951, about 1800 kilometres (km) out of the total 44,414km of roads built in Nigeria was surfaced. Granted that these roads served to open up Nigeria, they were in a single lane, lacking in standard designs, had sharp curves, poor drainage systems, and were constructed on weak sub-grades (Campbell, 2009; Oni & Okanlawon, 2006; Central Bank of Nigeria, 2003). The growth of economic activities due to population growth might have placed increasing demands for road network to make food and other essentials available for livelihood. As a result, the quality of road construction was improved as the length and network increased such that by 1952, about 15,785km of bituminous surface and 75,200km of earth/ gravel surface roads were in place in Nigeria (Federal Government of Nigeria, 2010). Furthermore, the discovery of crude oil in 1958 necessitated improved road infrastructure in order to gain access to and extract oil.

In 1978, the first interstate dual carriage way in Nigeria was constructed from Lagos to Ibadan, and a branch of this route was later extended east to Benin City. Another expressway also connected Port Harcourt with Enugu. In the 1980s, a massive rural road construction programme under the Directorate of Food, Roads, and Rural Infrastructure, DFRRI, resulted in increased feeder roads in rural areas in many states (Akinyemi, 1986). As at 1990, Nigeria had 108,000km of roads of which 30,000km were paved, 25,000km were gravel and the rest were unimproved earth. Of the current 196,000km road network in Nigeria, 34,341km (17%) are Federal roads, linking the state capitals and other major towns; 30,500km (16%) are state roads linking towns and major settlements; and the remaining 130,600km (67%) are Local Government/ Local Council Development Authority roads, linking local government headquarters and smaller communities to one another (Abiodun, 2013; Campbell, 2009; Oni & Okanlawon, 2006; Central Bank of Nigeria, 2003). These roads were constructed and managed through traditional procurement methods.

The vision of the Federal Republic of Nigeria to become one of the largest 20 economies in the World by the year 2020 (Federal Government of Nigeria, 2010) demands accelerated national development and adequate infrastructure services in order to support the full mobilisation of all economic sectors. In order to achieve this vision, there is a need to rehabilitate and re-construct most of the roads in the Southern and Northern Nigeria which are in very poor conditions (Central Bank of Nigeria, 2003; Abiodun, 2013). More specifically,

the country requires additional 100,000km networks of road between now and 2018 (Punch, 2013). This development requires a positive and dynamic collaboration between the public and private sectors, since government alone cannot muster sufficient resources to meet the country's road asset requirement.

Table 1: Characteristics of different Contracts

Nature of Contract	Asset Ownership	Design	Build	Operation & Maintenance	Financial Responsibility
Design-Bid-Build (Traditional)	Public	Private by fee contract	Private by fee contract	Public	Public
Design-Build (Traditional)	Public	Private by fee contract	Private by fee contract	Public	Public
Build-Operate-Transfer (BOT)	Public	Private by contract	Private by contract	Private by contract	Private/Public
Build-Own-Operate-Transfer (BOOT)	Private/Public	Private by contract	Private by contract	Private by contract	Private/Public
Design-Build-Finance-Operate (DBFO)	Public	Private by contract	Private by contract	Private by contract	Public, Public/ Private or Private
Build-Own-Operate (BOO)	Private	Private by contract	Private by contract	Private by contract	Private by contract

FORMS OF PUBLIC-PRIVATE COLLABORATION

Organisations may be described as a social unit of people that are structured and managed to meet a need or to pursue collective goals. All organisations have a management structure that determines relationships between the different activities and the members, and subdivides and assigns roles, responsibilities, and authority to carry out different tasks. Public-Private Collaboration (PPC) may cover a wide range of business structures and partnership arrangements in the delivery of policies, services and infrastructure. The limited or constrained financial capacity of government to deliver infrastructure prompted the exploration of alternative forms of governance in order to provide and maintain essential services. The desire for collaborative engagement between the public and private sectors in order to procure and modernise public infrastructure services, rests on the belief that partnerships between the two sectors would deliver greater efficiency and offer better 'value for money' relative to traditional methods of public procurement (Hood *et al*, 2006; Shaw, 2004).

In this respect, governments around the world have adopted a wide variety of approaches in engaging the private sector in the delivery of infrastructure services. The methods range from service contracts, in which relatively few responsibilities and risks are passed to the private sector, to concession contracts, where the private sector takes full responsibility for operating and investing in infrastructure services and therefore takes on significant commercial risks (Jerome, 2004). Some of the most common forms of collaboration in infrastructure procurement, where risks are shared between the public and private sectors include service contracts, management contracts, lease contracts and concessions (see Table 2). In a service contract arrangement, the public sector (government) hires a private entity to undertake one or

more specified activities or services for a period usually ranging from one to three years (see Table 2). Government remains the major provider of the infrastructure service and contracts out only part of its operation to the private partner. The private sector partner is expected to deliver the services at the agreed cost and also satisfy/meet the performance standards set by government. In this arrangement, the public sector pays the private partner a fixed fee for the service. Most times, there may be some financial incentives in the contract to reduce operating costs and improve operating performance. Government is responsible for funding any capital investments required to expand or improve the system (Akintoye & Beck, 2009; Deloitte, 2009).

Table 2: Characteristics of Public Private Collaboration Models

Contract Type (Duration)	Asset Ownership	Capital Investment	Commercial Risk	Operation & Maintenance	Service and Payment to Private Sector Contractor
Service Contract (1-3 years)	Public	Public	Public	Public and Private	A definitive, often technical service fee paid by government to private sector for specific services.
Management Contract (3-8 years)	Public	Public	Public	Private	Private sector manages the operation of a government service and receives fees paid directly by government.
Lease Contract (5-10 years)	Public	Public	Private	Private	Private sector manages, operates, repairs and /or maintains a public service to specified standards and outputs. Fees are charged to consumers/users and the service provider pays the government rent for the use of the facility.
Concession, BOT, BOO, BOOT, DBFO.	Private and Public	Private	Private	Private	Private sector manages, operates, repairs, maintains and/or invests in infrastructure to specified standards and outputs. Fees are charged to consumers/ users. The service provider may also pay a Concession fee to the government.

In management contracts, government pays a private operator to manage state-owned infrastructure for a fixed period. The state or public sector retains much of the operational risk, ownership and investment decisions on the facility (World Bank and Public Private Infrastructure Advisory Facility, 2003). Finally, in lease contracts, a private operator typically pays a fee to government for the right to manage the facility and takes on most of the operational risks which may include unpaid customers' debts. In this respect, the government grants a private entity a leasehold interest to operate and maintain an asset in accordance with the terms of the lease (Deloitte, 2009; RICS, 2011). Given the increased risk burden on the

private sector, the duration of a lease contract is typically longer than a service or management contract (see Table 2).

Concessions

In contracts involving concessions, the public sector (government) grants a private entity the exclusive rights to provide, operate and maintain an infrastructure over a long period in accordance with performance requirements set out by the government. Government retains ownership of the asset, but the private operator retains ownership over any improvements made during the concession period (RICS, 2011). Concession for new infrastructure is often referred to as greenfield-concession. In this respect, a private agent or public-private joint venture builds and operates a new facility for the concession period specified in a contract, at the end of which the infrastructure generally returns to public sector control. In the same vein, the public and private sectors can also collaborate to reconstruct, rehabilitate, maintain, operate and manage existing services and facilities. This is often referred to as brownfield concession, in which a private agent takes over the management of a state-owned undertaking for a given period, during which it also assumes significant investment risk. Concessions may include: rehabilitate, operate and transfer; rehabilitate, lease or rent, and transfer; build, rehabilitate, operate and transfer projects (Akintoye & Beck, 2009; Deloitte, 2009). The merits of concession (long term) contracts include transferring most project risks to the private sector (concessionaire); generating large up-front revenues for the public agency; transferring operations, maintenance and capital improvement responsibilities to the private sector; taking advantage of the private sector efficiencies in operations and maintenance activities; and transferring responsibility for increases in user fees to the private sector (AECOM, 2007). Table 1 shows the characteristics of different contracts.

Private Finance Initiative

The term Private Finance Initiative (PFI) has been defined as a subset of PPC (Quiggin, 2004; Li *et al.*, 2005; Singaravelloo, 2010). The PFI model evolved to become one of the most commonly applied collaborative frameworks amongst national and regional governments around the world. The framework covers a wide spectrum of private sector participation, including management contracts, lease contracts, concessions, and divestiture/privatisation (Ball & Maginn, 2005; HM Treasury, 2009). The United Kingdom is a leading and typical example of a developed country where the dominant PFI has been extensively used to manage infrastructure since 1992. Other countries which have adopted this approach include Australia, Canada, Finland, France, Ireland, Japan, Malaysia, the Netherlands, Norway, Portugal, Spain, the United States and Singapore (RICS, 2011). The aim of the PFI collaborative model is to control public sector expenditure and encourage greater levels of private sector investment in large/ complex key infrastructural delivery (Terry, 1996). This is in addition to reducing pressure on government budget, accelerating project completion, ensuring effective operation of facility, and also delivering 'value for money' (HM Treasury, 2009).

In PFI procurement, the public sector establishes a project team, and produces a business case or proposal which clearly specifies both the functional and performance or output requirements for the scheme (Deloitte, 2006). The private sector then translates this proposal into a service or project design that conforms with the performance requirements specified by the public client, builds/ constructs, finances, owns, and/ or operates the facility for a

specified time frame/ duration under a contract or franchise with the public sector client, and then transfers the infrastructure to the public agency at the expiration of the contract (Akintoye & Beck, 2009). A concessionaire is a consortium formed for a collaborative project, and is expected to operate, repair and maintain the asset throughout the contract period to an agreed quality standard, and ensure continuity and quality of service of the asset (Siemiatycki, 2010).

PFI is a legal framework for managing concession projects in the United Kingdom, in which the government (public sector) buys and regulates the services of the private sector in providing public infrastructure (Li & Akintoye, 2003). The goal of this framework is to increase the use of private sectors' money and management skills in procuring public projects at both central and local authority levels. In effect, the private sector earns more business profit on investment (Akintoye & Beck, 2009). Under PFI arrangement, the government no longer constructs roads, rather it buys kilometres of maintained expressway/motorway; it no longer develops and renovates schools, it purchases the services to manage schools; it no longer builds prisons, but purchases custodial services. In this respect, public efficiency is increased through the use of private sectors' capital assets, managerial expertise and services (Akbiyikli & Eaton, 2006).

Being the most frequently used form of PPC in the UK, PFI has become blemished with lack of transparency, inflexibility and resource wastage (HM Treasury, 2012). For example, there has been widespread concern that the public sector has not achieved value for money and tax payers have not secured a fair deal. Similarly, there has been a lack of transparency of the financial performance of projects and the returns made by investors, and insufficient transparency of the future liabilities to the tax payer created by PFI projects (HM Treasury, 2012). These are aside from the effects of recent global economic (financial markets) recession on PFI. These developments have led to an increasing tension in the relationship between PFI providers, the public sector and the wider public.

Consequently, the government recently initiated a fundamental reassessment of PFI. The Open Public Services White Paper sets out the government's new approach, PF2, for engaging private finance in the delivery of public infrastructure and services through long-term contractual arrangements. Under PF2, government seeks to become a minority co-investor in order to secure greater alignment; improve collaboration, provide more transparency and accountability; and improve value for money (HMT, 2013, Brown *et al*, 2013). Concession contract models include Build-Operate-Transfer, Build-Own-Operate-Transfer, Design-Build-Finance-Operate/Maintain, and Build-Own-Operate.

Build Operate Transfer (BOT)

Kumaraswamy and Zhang (2001) reported that TurgutOzal, a former Prime Minister of Turkey, first coined the term BOT and used the approach in Turkey in 1984 as a part of the Turkish privatization programme. The duo also described BOT as a project based on the granting of a concession by a client (usually a public or governmental agency) to a consortium or concessionaire (usually in the private sector) who is required to 'Build' (including financing, design, managing project implementation, carrying out project procurement, as well as construction), 'Operate' (including managing and operating the facility or plant, carrying out maintenance etc., delivering product/service, and receiving payments to repay the financing and investment costs, and to make a margin of profit), and to

'Transfer' the facility or plant in operational condition and at no cost to the public client at the end of the concession period, when the public sector now assumes operating responsibility.

BOT type schemes have been used in power, water supply, transport, telecommunications and process plant sectors (Tam, 1999). Examples of transportation projects which were procured through the BOT method include the Luba Port Terminal project in Equatorial Guinea executed in year 2000 at a cost of US$23million; the Abidjan Port Terminal Expansion in Cote d'Ivoire executed in year 2000 at a cost of US$140million; the Murtala Muhammed International Airport Terminal 2 project, Lagos Nigeria at a cost of US$250million; the Backwena Platinum Toll Highway, South Africa at a cost of US$450million; and Mpumalanga Airport Runway and Terminal, South Africa at a cost of US$34million, all executed in year 2001.

Build Own Operate Transfer

Under Build Own Operate Transfer **(**BOOT), the government grants a private partner a franchise to design, build, finance and operate a facility for a specified period of time. Ownership of the facility goes back to the public sector at the end of that period (RICS 2011).

Design Build Finance Operate/Maintain

Under the Design-Build-Finance-Operate/Maintain (DBFO, DBFOM), the private sector designs, builds, finances, operates and/ or maintains a new facility under a long-term lease. At the end of the lease term, the facility is transferred to the public sector. PPC in the UK have been predominantly Design-Build-Finance-Operate (DBFO) contracts financed by government-supported shadow tolls for highway projects and tolls for bridge/tunnel projects (AECOM, 2007). Table 3 shows the collaborative highway projects procured through the DBFO/M model and financed through shadow tolls in England.

Build Operate Schemes differ radically from the traditional way of financing, building and operating infrastructure facilities. Here, governments turn to the private sector to finance projects using the project's envisaged revenue as a guarantee for their investment and returns (non-recourse financing), rather than the need to provide sovereign guarantees (McCarthy & Tiong, 1991). The combined provision of construction, operation and maintenance enables BOT operators to design facilities with minimum life cycle costs and enhanced operational efficiency (Queiroz, 2005). In other words, the bundling/integration of design, construction, operation, and maintenance provides incentives for the private sector to optimise expenditure and maximise innovation to achieve the greatest level of cost efficiency over the life of the facility rather than minimising the cost of a specific part of the assets' lifecycle. Hence, the Build-Operate concession models have been the most extensively used collaborative engagement approaches in global road infrastructure project procurement (Federal Highway Administration, 2009). In this respect, Europe, Asia, and North America (Canada, Mexico and United States) have delivered large and significant highway assets through public-private collaborative arrangements over the last three decades.

Table 3: Collaborative Highway Projects (Financed through Shadow Tolls) in England

Project	Model of Public-Private Partnership
Motorway A1 (M)	DBFO
Motorway M1 – A1 Link	DBOM
Motorway A13 Upgrade	DBFO
Motorway A130 Bypass	DBFO
Motorway A19 Widen and Upgrade	DBFO
Motorway A30/ A35 Lane Improvement	DBFO
Motorway A4048/ A472 Upgrade	DBFO
Motorway A419/ A417 Bypass	DBFO
Motorway A50 Bypass	DBFO
Motorway A55 Extension	DBFO
Motorway A69 Bypass	DBFO
Motorway 40 Widening	DBFO
Isle of Sheppey Bridge	DBFO
M6 Bypass	DBFO
Second Severn River Crossing Toll Bridge	DBFO
Dartford River Crossing Toll Bridge	DBFO
London Road Maintenance	PPP/PFI
National Roads Telecommunications Services	PPP/PFI
Downtown London Congestion Pricing Programme	DBO
Channel Tunnel	FBO (debt restructured in 2005)
Skye Toll Bridge in Scotland	BOT (concession terminated)
Motorway A2 and A282 Widening	DBFO
Motorway A249 Upgrade	DBFO
Mercy River Crossing Toll Bridge	DBFO
Thames Gateway Toll Bridge	DBFO
Tyne River Crossing Toll Tunnel	BOT
Motorway 25 Rehabilitation and Partial Widening (orbital highway around Metropolitan area London)	DBFO

(Source: AECOM, 2007)

Build Own Operate

In Build-Own-Operate (BOO) model, the private sector finances, builds, owns, operates and maintains a facility or service in perpetuity. In other words, the private sector retains ownership of the facility. This model has been used to procure prisons in Victoria, Australia, where it has been deemed by Love *et al* (2000) to be more cost effective. In New South Wales, through the use of the BOO method, the Australian government was able to procure a 600 bed medium security prison at June for US$57million which was approximately half the cost that the State government itself would have expended. Operation costs in the Queensland

correctional system were reported to be 9.3% more economical in the private sector compared to the public sector (Love *et al*., 2000). Moreover, a purely private prison in Florida, United States (US), and a purely public prison in the US of the same specification and capacity were compared. The prison in Florida was constructed at a cost of US$69.9million whilst, the publicly procured prison cost US$85.7million. This highlights that the privately built facility was 23% more cost effective (Tabarrok, 2003) compared to the publicly built. This method of procurement is sometimes called Build-Operate-Own- Maintain (BOOM).

These collaborative approaches have been found to identify and transfer project risk to the partner best able to manage that risk, offer greater transparency, new forms of accountability, and evoke entrepreneurial government through the market-driven competition and performance contracting techniques of the private sector (Bloomfield, 2006; Shaoul, 2003; Mayo & Moore, 2001). This arrangement allows the public sector (government) to cultivate and imbibe the disciplines, incentives, skills and expertise which the private sector have developed in the course of normal business activities. The private sector on the other hand would benefit from the release of the full potential of people, knowledge and assets within the public sector (McQauid & Scherrer, 2010).

The choice of the form of collaboration to be adopted may be influenced by such issues as; the degree of control desired by the government; the government's capacity to provide the desired services; risk sharing between the public and private sector partners; the capacity of private partners to provide the required services; the legal and regulatory framework for monitoring and control; and the availability of financial resources from public and private sources (Gentry & Fernandez, 1998). In this respect, project sponsors can match specific models of PPC to individual projects based on the nature/characteristics of each project, the capabilities, interest, needs, and risk tolerance of the public and private sector partners.

RESEARCH METHODOLOGY

The aim of this research is to identify important drivers of collaborative management of public assets in Nigeria. The paper adopts an empirical science philosophical approach to capture the opinions of stakeholders of public infrastructure in Nigeria. Initially, a critical desktop analysis and evaluation (qualitative research) of public private partnerships studies spanning over two decades was carried out in order to identify the causal problems and key issues that impinge upon the effective delivery of collaborative infrastructure. The study identified 10 core themes which were the most commonly cited issues by seminal literature on public private collaboration (Adetola *et al*, 2011).

These issues were captured and embedded into a questionnaire survey that sought the views of relevant stakeholders. The research instrument collected primary data from relevant professionals and stakeholders in the public, private sectors and end-user stakeholders of Nigeria. The population of the study was made up of directors, engineers, accountants, legal practitioners, community leaders, transport operators, business administrators and entrepreneurs who were purposively selected from the six geo-political zones of Nigeria (see Table 4). Responses to the research instrument were measured on a five-point Likert scale, where all the subjects were allowed to place themselves on an attitude continuum for each question item. 60 questionnaires were administered, out of which 36 completed and useable questionnaires (representing 60% response rate) were retrieved. The academic qualifications of the respondents are shown in Table 5.

Secondary data were collected through a critical review of published journal articles and refereed conference papers. The study generated ordinal data which informed the use of the non-parametric statistics employed for data analysis. The Statistical Package for Social Sciences (SPSS version 20) was used along with the inferential (Kruskal-Wallis Test) and descriptive (Relative Importance Index) statistical tools for data analysis.

Table 4: Respondents' work designation

Designation	Frequency	Percentage
Director	10	28
Civil Engineer (Highway)	7	20
Accountant	5	14
Legal Practitioner	5	14
Community Leader	3	8
Transport Operator	3	8
Business Administrator	3	8
Total	**36**	**100**

Results from Table 4 show that the respondents cut across different fields of endeavour relevant to policy formulation, planning/design, construction/rehabilitation, operation and maintenance of public infrastructure.

Table 5: Respondents' educational qualifications

Academic qualifications	Frequency	Percentage
PG Qualification	16	44
UG Degree	14	39
Higher Diploma	3	8
Diploma	2	6
School Leaving Certificate	1	3
Total	**36**	**100**

Similarly Table 5 gives an indication of the educational qualifications of the respondents. 91% of the respondents have diploma and degree qualifications in different fields, while others have diploma and school leaving certificates. The demography of respondents displayed in Table 4 and 5 implies that the diverse range of respondents have a good level of academic knowledge in the areas of management, legal, finance, project planning and design, and highway construction and rehabilitation. The respondents were purposively selected for their direct involvement and insight into public infrastructure projects. This confirms that balanced and reliable views/opinions were obtained from all relevant stakeholders in public facilities for this study. The underlying assumption that these are competent, experienced and capable of exercising sound judgement is met. Thus the responses provided by them could be relied upon for this study.

RESULTS OF THE STUDY

Test of Hypothesis

The hypothesis postulated for the research investigation is as follows:

> H_o: There is no significant difference between the perception of the public, private and user stakeholders on the drivers of collaboration using a 5% level of significance ($p \leq 0.05$).

The result for the test of the hypothesis is presented in Table 6. It shows that the Kruskal-Wallis probability values for most of the variables tested for each driver exceeded the null hypothesis of $p \leq 0.05$. Therefore, there is indeed sufficient and satisfactory information to accept the null hypothesis and declare categorically that there is no significant difference between the perception of the public, private and end-user/community stakeholders on communication, trust, globalisation, market maturity, technology, relationships, finance, skills, legal and regulatory framework, and risk as drivers of collaboration. These results are also consistent with those obtained from seminal literature.

Results from Table 7 show that the average p value of all the variables under 'trust' is greater than the average p value of all the variables under any other driver. Therefore, the results identify 'trust' as the most important driver of collaboration. This is followed by 'relationships', 'legal and regulatory framework', and 'communication' as the second, third and fourth important drivers of collaboration respectively.

Results from Tables 7 and 8 clearly demonstrate a consensus of opinion by the public, private and end-user/community stakeholders about 'Trust' as the most important driver in collaborative road infrastructure management. This is closely followed by 'Relationships', 'Legal and Regulatory Framework', and 'Communication' in order of importance. The respondents unanimously agreed that stakeholders' consultation is paramount in a collaborative project in order to secure necessary support and cooperation for successful implementation. In particular, the public, private and end-user stakeholders strongly believe that project partners must develop and exhibit team building spirits (*espirit de corps*) and liaise with relevant authorities in order to obtain necessary approvals for the success of a project.

They also strongly agreed that the concession agreement for a road construction must be transparent, functional and enforceable in order to build confidence and protect the interest of project partners. The need for project information to be made available to all project stakeholders at the appropriate time was also emphasised. Similarly, all the respondents expressed and upheld the view that project partners must match their words with actions, and act consistently with established procedures. The respondents emphasised the fact that a transparent process is essential for confidence building between partners. Furthermore, all the respondents affirmed that interpersonal, inter-organisational and team building spirit enhance the success of collaborative projects. The expressed opinions of the public, private and end-user stakeholders further confirm that 'Trust' is a very important/significant/ fundamental/foundational ingredient for successful delivery of collaborative construction projects. This result resonates with the findings of Mayer *et al* (1995), Hosmer (1995), Kramer and Tyler (1996), Rousseau *et al* (1998) and Laan *et al* (2011).

Table 6: Kruskal-Wallis test results for the drivers of collaboration

Drivers	Kruskal-Wallis P Value	Significance	Decision
Communication			
Project information must be made available to all stakeholders	0.761	NS	Accept H_o
Alternative dispute resolution techniques enhance collaboration	0.468	NS	Accept H_o
Concession agreement must be transparent, functional and enforceable	0.598	NS	Accept H_o
Litigation encourages win-win position	0.723	NS	Accept H_o
Stakeholders' consultation is paramount in a collaborative project	0.346	NS	Accept H_o
Trust			
Trust is not a critical success factor in collaborative projects	0.717	NS	Accept H_o
The alignment of words and actions determines a partner's reliability	0.761	NS	Accept H_o
Trust is a hallmark of effective relationship	0.761	NS	Accept H_o
Collaborating partners must act consistently with established procedures	0.346	NS	Accept H_o
A transparent process is necessary for confidence building between project partners	0.598	NS	Accept H_o
Globalisation			
Project stakeholders operate within a local network	0.346	NS	Accept H_o
Activities in one part of the world have no consequences in distant parts of the globe	0.577	NS	Accept H_o
Project stakeholders operate within a national network	0.595	NS	Accept H_o
Road asset management requires no network	0.823	NS	Accept H_o
Project stakeholders operate within an international network	0.482	NS	Accept H_o
Market Maturity			
A market is a place where forces of demand and supply operate	0.842	NS	Accept H_o
The money-market fund is appropriate for concession projects	0.648	NS	Accept H_o
Countries are at different levels of market development	0.164	NS	Accept H_o
The capital-market fund is suitable for road concession projects	0.626	NS	Accept H_o
Local market capacity needs to be developed	0.164	NS	Accept H_o
Technology			
Modern technology uses innovative materials	0.522	NS	Accept H_o
Intelligent transport system does not improve mobility on road facility	0.527	NS	Accept H_o
Modern technology applies innovative (new) methods	0.370	NS	Accept H_o
Road infrastructure can be developed through indigenous technology	0.156	NS	Accept H_o
Technology must be accessible	0.370	NS	Accept H_o
Relationships			
Interpersonal interaction is a form of relationship	0.649	NS	Accept H_o
Relationships need not to be managed	0.896	NS	Accept H_o
The success of a collaborative project depends on the interaction between the organisations involved in the project	0.206	NS	Accept H_o
Adversarial relationships are desirable in collaborative projects	0.874	NS	Accept H_o
Project success requires team building spirit	0.346	NS	Accept H_o
Finance			
Complex projects may require innovative financial strategies	0.042	S	Reject H_o
Road projects do not require financial model	0.368	NS	Accept H_o
User-charges (tools) are essential sources of generating revenues on highways	0.241	NS	Accept H_o
A highway concessionaire needs no financial capacity to fulfil its contractual obligations	0.235	NS	Accept H_o
The operation and maintenance of highways cost money	0.065	NS	Accept H_o
Skills			
Technical know-how is essential in road construction	0.202	NS	Accept H_o
Public agencies can manage road asset better than the private sector	0.385	NS	Accept H_o
Entrepreneurial skills are essential in managing road infrastructure	0.118	NS	Accept H_o
Road project resources include manpower, money, machines, materials and time	0.468	NS	Accept H_o
Efficient management of resources is a key factor in project management	0.523	NS	Accept H_o
Legal and Regulatory Framework			
Institutional framework is required in road infrastructure management	0.557	NS	Accept H_o
A comprehensive concession law is not required for collaborative road projects	0.456	NS	Accept H_o
Extant financial model is fundamental in collaborative road infrastructure management	0.114	NS	Accept H_o
Road infrastructure management needs no framework	0.896	NS	Accept H_o
Regulatory framework aligns the interest of collaborating partners	0.880	NS	Accept H_o
Risk			
Road infrastructure management has design risks	0.557	NS	Accept H_o
Road facility is not prone to force majeure risk	0.827	NS	Accept H_o
Road asset management has political risks	0.273	NS	Accept H_o
Road facility management has construction risks	0.557	NS	Accept H_o
Road infrastructure management has operation and maintenance risks	0.063	NS	Accept H_o

Key: NS = Not Significant, S = Significant

Table 7: Average Kruskal-Wallis p value results

Drivers	Total Kruskal-Wallis p value	Average Kruskal-Wallis p value	Rank
Trust	3.183	0.636	1
Relationships	2.971	0.594	2
Legal and Regulatory Framework	2.903	0.580	3
Communication	2.896	0.579	4
Globalisation	2.823	0.564	5
Market Maturity	2.444	0.488	6
Risk	2.277	0.455	7
Technology	1.945	0.389	8
Skills	1.696	0.339	9
Finance	0.951	0.190	10

Table 8: Relative Importance Index results for the stakeholders' perception of the drivers of collaboration

Drivers	SA 4	A 3	D 2	SD 1	NO 0	RII	Rank
Communication							
Project information must be made available to all stakeholders	32	4	0	0	0	0.972	6
Alternative dispute resolution techniques enhance collaboration	17	19	0	0	0	0.868	11
Concession agreement must be transparent, functional and enforceable	34	2	0	0	0	0.986	1
Litigation encourages win-win position	0	1	17	18	0	0.381	47
Stakeholders' consultation is paramount in a collaborative project	33	3	0	0	0	0.979	3
Trust							
Trust is not a critical success factor in collaborative projects	0	0	21	15	0	0.395	43
The alignment of words and actions determines a partner's reliability	32	4	0	0	0	0.972	6
Trust is a hallmark of effective relationship	32	4	0	0	0	0.972	6
Collaborating partners must act consistently with established procedures	33	3	0	0	0	0.979	3
A transparent process is necessary for confidence building between project partners	34	2	0	0	0	0.986	1
Globalisation							
Project stakeholders operate within a local network	3	33	0	0	0	0.770	19
Activities in one part of the world have no consequences in distant parts of the globe	0	8	13	15	0	0.451	39
Project stakeholders operate within a national network	1	28	7	0	0	0.708	31
Road asset management requires no network	2	8	16	10	0	0.513	37
Project stakeholders operate within an international network	1	18	16	1	0	0.631	35
Market Maturity							
A market is a place where forces of demand and supply operate	7	29	0	0	0	0.798	17
The money-market fund is appropriate for concession projects	0	0	19	17	0	0.381	47
Countries are at different levels of market development	1	31	4	0	0	0.729	28
The capital-market fund is suitable for road concession projects	13	23	0	0	0	0.840	13
Local market capacity needs to be developed	3	29	4	0	0	0.743	23
Technology							
Modern technology uses innovative materials	1	30	5	0	0	0.722	29
Intelligent transport system does not improve mobility on road facility	7	4	15	10	0	0.555	36
Modern technology applies innovative (new) methods	1	25	8	2	0	0.812	15
Road infrastructure can be developed through indigenous technology	13	17	6	0	0	0.798	17
Technology must be accessible	0	25	10	1	0	0.666	33
Relationships							
Interpersonal interaction is a form of relationship	27	9	0	0	0	0.937	10
Relationships need not to be managed	0	0	20	16	0	0.388	46
The success of a collaborative project depends on the interaction	31	5	0	0	0	0.965	9

between the organisations involved in the project							
Adversarial relationships are desirable in collaborative projects	0	4	17	15	0	0.423	41
Project success requires team building spirit	33	3	0	0	0	0.979	3
Finance							
Complex projects may require innovative financial strategies	3	33	0	0	0	0.770	19
Road projects do not require financial model	0	0	15	21	0	0.354	50
User-charges (tools) are essential sources of generating revenues on highways	0	20	16	0	0	0.638	34
A highway concessionaire needs no financial capacity to fulfil its contractual obligations	0	4	17	15	0	0.423	40
The operation and maintenance of highways cost money	1	29	6	0	0	0.715	30
Skills							
Technical know-how is essential in road construction	12	21	3	0	0	0.812	15
Public (Government agencies) can manage road asset better than the private sector	1	7	18	10	0	0.493	38
Entrepreneurial skills are essential in managing road infrastructure	2	30	4	0	0	0.736	25
Road project resources include manpower, money, machines, materials and time	17	19	0	0	0	0.868	12
Efficient management of resources is a key factor in project management	2	30	4	0	0	0.736	26
Legal and Regulatory Framework							
Institutional framework is required in road infrastructure management	4	31	1	0	0	0.770	19
A comprehensive concession law is not required for collaborative road projects	0	6	12	18	0	0.416	42
Extant financial model is fundamental in collaborative road infrastructure management	2	30	4	0	0	0.736	25
Road infrastructure management needs no framework	0	0	20	16	0	0.388	45
Regulatory framework aligns the interest of collaborating partners	11	25	0	0	0	0.826	14
Risks							
Road infrastructure management has design risks	4	31	1	0	0	0.770	19
Road facility is not prone to force majeure risk	0	1	19	16	0	0.395	43
Road asset management has political risks	1	33	2	0	0	0.743	24
Road facility management has construction risks	4	31	1	0	0	0.770	19
Road infrastructure management has operation and maintenance risks	1	25	10	0	0	0.687	32

Key: RII = Relative Importance Index, NO = No Opinion, SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree.

$$\text{RII} = \frac{1}{4n}\left[\sum_{i=0}^{i=4} Wix\, fi\right]$$

Where W_i is weight given to the ith rating; i = 0, 1, 2, 3 or 4; f_i = response frequency of the i^{th} rating; and n = total number of responses.

DISCUSSION

This investigation identified important service element requirements of road infrastructure. These include free flowing and sustainable road asset equipped with functional modern accessories and features. The requirements also include intelligent road transport service, effective road drainage, traffic lights, street lights, transit park and rest area, bus shelter, visible road signs and lane marks, pedestrian bridges, crash-worthy road median, trash bin, pavement, pedestrian walk-way, guard railings, clear and visible road environment. The availability of these, the respondents claim, would considerably reduce the rate of accidents on Nigerian roads, ensure predictable and fast journey times, reduce vehicle maintenance cost, and improve productivity through productive use of man-hour. Given this, the respondents acknowledged the need for new relationships, collective understanding, shared responsibility, innovative capacity, new methods, accountability, value for money, and knowledge transfer between relevant public and private stakeholders. The respondents also expressed desire for regular road maintenance, electronic ticketing/tolling system, electronic traffic control and

management, up to date traffic information, breakdown assistance, armed police security patrol, and environmentally sensitive road asset.

This study uncovered new meaning and understanding of 'trust' as the most important driver of collaboration (see results of analysis presented in tables 6, 7 and 8). This important finding resonates with the discoveries of management science scholars in Organisational Settings. Hwang and Burgers (1997) perceived trust as the prospect that one partner attaches to cooperative behaviours by another partner. Furthermore, Zaghloul and Hartman (2003) acknowledged three categories of trust. These include competence trust, integrity trust and intuitive trust. They explained that competence trust might be established when there are observable proofs of the ability and capacity to perform a given or required task and achieve results. Integrity trust on the other hand involves the willingness of one person to protect the interest of others, while intuitive trust is based upon an individual's prejudice, sentiments or other personal feelings. Given these, Wong *et al* (2000) reported that trust serves as the glue that holds team members together and the lubricant that facilitates project delivery and completion. Therefore, trust might be a key component that needs to be earned in the interaction between two or more collaborating project partners. Thus, the willingness to extend trust and to signal trustworthiness at the earliest stage is critical to collaborative project success (Girmscheid & Brockmann, 2010).

Mutual trust can lead to good relationships (Macoby, 1997), enhance continued relationships (Selnes, 1998), produce better (new) relationships (Ndubisi *et al*, 2011), and can minimise adversarial relationships (Naoum, 2003). Additionally, trust saves time (on budget and project delivery), yields increased work output, and makes a high workload manageable (Doloi, 2009). Trust is synonymous with team building, reduced controls and easier conflict resolution (Girmscheid & Brockmann, 2010).

A sense of unity between collaborating partners would enable them to appreciate each other's requirements and difficulties, and handle conflict in a manner that would improve relationships and trust. In this regard, problem solving ability might be a key ingredient for building trust (Selnes, 1998; Wong, 2005). A sense of unity may include demonstrating positive attitude during negotiations, avoiding blame or finger pointing culture at partners, and amicable resolution of problems. In this respect, Munns (1995) argued that every dynamic relationship requires the reciprocity of trust. A transparent, functional and enforceable concessional agreement (contract document) might establish a congenial environment to nurture trust and build confidence and comfort in the sector partners. In the same vein, the alignment of efforts and rewards and compatible goals and objectives may develop trust between collaborating project partners. Furthermore, the desire for a win-win resolution through the adoption of alternative dispute resolution techniques rather than litigation suggests harmonious and integrated project partners (Wong *et al*, 2005).

According to Gill and Butler (1996), the success of collaborative construction projects often depend on the mutual interdependence of all the stakeholders or partners involved in the project management system. Mutual interdependence demands close interactions and confidence building relationships. The alignment of words and actions consistently determines a partner's reliability, predictability and good judgement in handling situations (Butler, 1991). A partner would be trusted when their word, promise, verbal or written statement could be relied upon. Chan *et al* (2004) postulated that effective and honest communication may open the frontiers of relationship by its ability to relieve stress, enhance

adaptability, smooth information exchange, encourage joint problem solving, and maintain transparency. Similarly, Wong and Cheung (2005) posited that the exchange and sharing of complete, unbiased and accurate information among project stakeholders would reduce project risk and uncertainty, and strengthen or reinforce mutual trust.

Given that road construction projects are resource (capital) intensive, the ability and financial capacity of a concessionaire to fulfil its contractual obligations and responsibilities is crucial to group or organisational level trust (Wong *et al*, 2000). In this regard, Hill (1990) observed that reputable individuals and organisations do not exhibit opportunistic behaviours that attract only short-term gains. Hence, they always guard jealously and protect their reputation, knowing fully well that they operate in a network through which they are connected to others. This might be a deliberate attempt to avoid alienation and eventual loss in business opportunities. Wong and Cheung (2005) observed that collaborating project partners' openness and integrity in communication is vital to building enduring trust. However, this feature may have no significant effect or contribution in a country where corruption is endemic, widespread and constitutes an integral part of the business culture. It is a common practice for financial difficulties to easily trigger sharp malpractices, untrustworthy behaviours, and destroy trust.

In developed economies, transparent, equitable and enforceable concession agreements often boost the development of trust since the perceived gains of collaborating project partners are secured (Bonet *et al*, 2000). Whereas, in developing and politically unstable countries, concessionaires are confronted with the risk of termination of public projects as a result of changes in government and complex bureaucratic administrative systems for approvals and permits (Ling & Hoang 2010). Furthermore, the reputation of project partners may be a dependent factor for trust in a society that is characterised with inadequate legal framework and ineffective legal system. Reputation being a product of a person's past behaviour has been acknowledged as a good predictor of an individual's future behaviour and ability to perform (Hogan *et al*, 1996). In this respect, Granovetter (1985) asserted that people may prefer to rely on the reputation of someone instead of some generalised morality or institutional arrangements to guard against legal risk or trouble.

CONCLUSIONS

Transport infrastructure and services are the cornerstone of civilisation and an access to unlock socio-economic growth and development potentials. Roads play a critical part in maintaining the social fabric of communities, as people often need to travel (sometimes long distances) to access basic services, meet work commitments and see friends, acquaintances and family. Road transport infrastructure encompasses passenger and freight operations, spans urban and rural areas, meets economic and social needs, and serves domestic and international demands. It facilitates economic growth and regional integration through international trade, creates economic opportunity, and provides access to facilities that deliver health, education and other essential services.

Throughout the world, PPC arrangements have been used to manage critical motorway/highway corridors. This study focussed on collaborative management of essential public assets in Nigeria. The Kruskal-Wallis test showed that there was no significant difference between the views of the public, private sectors and end-user stakeholders on the drivers of collaboration. The study identified 'Trust' as the most significant driver of

collaboration. A confidence-building relationship between stakeholders would allay fears about the perception and allocation of project risks and engender accountability. Similarly, it would provide a conducive-atmosphere for innovative capacities such as financial engineering; innovative materials; access to new technologies; and facilitate effective transfer of knowledge, skills, abilities and competencies. This would in effect result in innovative road infrastructure management approaches that will considerably reduce the cost and time required to implement sustainable road facility project.

Talking about relationship, the classification of roads under different tiers of government has serious implications for road ownership, funding, rehabilitation and maintenance in Nigeria where different political parties govern different arms of government. Empirical findings from this study reveal that federal road networks in the States controlled by political parties other than the party in power at the national level suffer neglect from the federal system of government. Similarly, the States in which these federal roads are located do not want to repair, rehabilitate or maintain the networks when there is no assurance that the federal government would refund such expenses. In the same vein, this investigation discovered that road infrastructure project initiation and prioritisation is more influenced by political considerations rather than economic importance in Nigeria.

A cordial relationship and shared responsibility would guarantee regular funding; routine, periodic and recurrent maintenance, and emergency repair that would translate into predictable/fast journey time; low fuel consumption; productive use of man-hour and reduced rate of accidents on Nigerian roads. Users of well managed road assets will be willing to pay toll on available road lanes that deliver value for money. A harmonious relationship will turn around the conditions of road infrastructure in Nigeria to a free-flowing, happy and environmentally friendly safe road networks with functional elements such as good pavement, culvert, traffic light, street light, road marks, traffic signs, bus shelter, zebra crossing, pedestrian bridge, road median, trash bin, walk way, effective road drainage, transit park and rest area.

This investigation has presented various models of public private collaboration. The success of each model in meeting national development objectives will depend majorly on structures that provide clear delineation of rights and obligations (including the allocation of risks), transparent competitive procedures for selecting private participants, institutional/legal /financial regulatory arrangements, and the rights of recourse in situations of alleged breach of contract.

The non-probability sampling approach employed in this study could be considered a limitation to the generalisability of findings beyond the research setting. Furthermore, the expansion of road transport without balanced investment in other modes of public transport (in developing countries) may lead to higher greenhouse gas emissions, increased urban congestion, and poor air quality. Above all, the findings of this research will be embedded in the development of a conceptual collaborative engagement framework for infrastructure management.

REFERENCES

Abiodun, I. (2013). Developing a decision model for PPP implementation towards a sustainable highway development and operation in Nigeria. In: Akintoye, A., Liyanage, C., & Goulding, J (Eds), *Proceedings of the International Conference on Public Private Partnerships Body of Knowledge*, 18th - 20th March 2013, University of Central Lancashire, United Kingdom, 31- 44.

Adetola, A., Goulding, J., & Liyanage, C. (2011). Collaborative engagement approaches for delivering sustainable infrastructure projects in the AEC sector: A review. *International Journal of Construction Supply Chain Management, 1*(1), 1-24

AECOM (2007). Case studies of transportation public-private partnerships around the world. Washington DC: Office of Policy and Governmental Affairs, US Department of Transportation, Federal Highway Administration

Akbiyikli, R., & Eaton, D (2006). Operation and maintenance management in PFI road projects in the UK, In: Boyd, D (Ed) *Proceedings 22nd Annual ARCOM Conference*, 4-6 September 2006, Birmingham, UK, *Association of Researchers in Construction Management*, 393-402

Akintoye, A., & Beck, M (2009). *Policy, finance, and management for public-private partnerships*, Wiley-Blackwell, West Sussex, United Kingdom

Akinyemi, K.E (1986). Problems with planning, implementation and evaluation of road traffic safety engineering programmes in Nigeria. In: Asalor, J. O (Ed) *Road traffic accidents in developing countries*, Joja Publisher, Benin, Nigeria

Ball, M., & Maginn, P (2005). Urban change and conflict: Evaluating the role of partnerships in urban regeneration in the UK, *Housing Studies, 20*(1), 9-28

Bloomfield, P (2006). The challenging business of long-term public-private partnerships: Reflections on local experience, *Public Administration Review*, *66*(3), 400-411

Bonet, I., Frey, B. S., & Huck, S (2000). More order and less law: On contract enforcement, trust and crowding, RWP00-009, *Research Paper Series*, John F. Kennedy School of Government, Harvard University, Cambridge, MA

Brown, M., Akintoye, A., & Goulding, J. S (2013). *Public private partnerships - Towards new innovative collaborations*, Centre for Sustainable Development, University of Central Lancashire UK,

Buttler, J. K (1991). Toward understanding and measuring conditions of trust: Evolution of a condition of trust inventory, *Journal of Management*, *17*(3), 643-663

Campbell, A. E (2009). Federal road management for Sub-Saharan African nations: A Nigerian case study, Unpublished M.Sc Thesis, University of Waterloo, Ontario, Canada

Central Bank of Nigeria, (2003). Highway maintenance in Nigeria: Lessons from other countries. *Research Department Occasional Paper Series 27*, Central Bank of Nigeria, Abuja, Nigeria

Chan, A. P. C., Chan, D. W. M., Chiang, Y. H., Tang, B. S., Chan, E. H. W., & Ho, K. S. K (2004). Exploring critical success factors for partnering in construction projects, *Journal of Construction Engineering and Management*, *130*(2), 188-198

Deloitte, R (2009). *Closing the infrastructure gap: The role of public-private partnerships*, A Deloitte research study (July 2009), London

Deloitte, R (2006). *Closing the infrastructure gap: The role of public-private partnerships*, Deloitte Development, London

Doloi, H (2009). Relational partnerships: The importance of communication, trust and confidence and joint risk management in achieving project success, *Construction Management and Economics*, 27, 1099-1109

Federal Government of Nigeria (2010a). *Nigerian vision 20: 2020: The 1st NV 20: 2020 medium term implementation plan (2010-2013) May*, Federal Government Press, Nigeria

Federal Government of Nigeria (2010). *Draft national transport policy*, Federal Government Press, Abuja, Nigeria

Federal Highway Administration (2009). Public-private partnerships for highway infrastructure: Capitalising on international experience, *United States Department of Transportation Technical Report*, Washington, DC

Federal Ministry of Works and Housing (2003). Quarterly report, Federal Ministry of Works and Housing, Abuja, Nigeria

Gentry, B., & Fernandez, L (1998). Evolving public-private partnerships: General themes and examples from the urban water sector. *OECD Proceedings, Globalisation and the Environment, Perspectives from OECD and Dynamic Non-Members Economies*, 99-125

Gill, J., & Butler, R (1996). Cycles of trust and distrust in joint ventures, *European Management Journal*, *14*(1), 81-89

Girmscheid, G., & Brockmann, C (2010). Inter-and intra-organisational trust in international construction joint ventures, *Journal of Construction Engineering and Management*, *136*(3), 353-360

Granovetter, M (1985). Economic action and social structure: The problems of embeddedness, *American Journal of Sociology*, *91*(3), 481-510

HM Treasury, (2009). Public-private partnerships signed project list. *Her Majesty Treasury*, *15* September. Retrieved from http://www.hm-treasury.gov.uk/ppp_pfi_stats.htm

HM Treasury (2012). A New Approach to Public Private Partnerships, December, Retrieved 19th December 2013 from http://www.hm-treasury.gov.uk

HM Treasury (2013). *A new approach to public private partnerships: Consultation on the terms of public sector equity participation in PF2 projects*, Her Majesty Treasury, London, UK

Hill, C. W. L (1990). Cooperation, opportunisim, and the invisible hand: Implications for transaction cost theory, *Academy of Management Review*, *15*, 500-513

Hogan, R., Hogan, J., & Roberts, B.W (1996). Personality measurement and employment decisions, *American Psychologist*, *51*(5), 469-477

Hood, J., Fraser, I., & McGarvey, N (2006). Transparency of risk and reward in UK public-private partnerships, *Public Budgeting and Finance* (Winter 2006)

Hosmer, L.T (1995). Trust: The connecting link between organisational theory and philosophical ethics. *Academic Management Review 20*, 379-403

Hwang, P., & Burgers, W. (1997). Properties of trust: An analytical view. *Organisational Behaviour and Human Decision Processes*, *69*(1), 67-73

Jerome, A. (2004). Infrastructure privatization and liberalization in Africa. *Centre on Regulation and Competition 3rd International Conference*, *Pro-poor regulation and competition: Issues, policies and practices*, Cape Town, South Africa, 7-9 September 2004.

Kramer, R. M., & Tyler, T. R (1996). *Trust in organisations: Frontiers of theory and research*. Sage Publications, Thousand Oaks, CA

Kumaraswamy, M. M., & Zhang, X. Q (2001). Governmental role in BOT-led infrastructure development, *International Journal of Project Management*, *19*(4), 195-205

Laan, A., Noorderhaven, N., Voordijk, H., and Dewulf, G (2011). Building trust in construction partnering projects: An exploratory case-study. *Journal of Purchasing and Supply Management*, *17*(2011), 98-108

Li, B., & Akintoye, A (2003). *An overview of public private partnership; Managing risks and opportunities*, Edited by Akintoye, A., Beck, M and Hardcastle, C. Blackwell Publishing Company, United Kingdom.

Li, B., Akintoye, A., Edwards, P. J., & Hardcastle, C., (2005). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management*, *23*(1), 25-35

Ling, F. Y. Y., & Hoang, V.T. P (2010). Political, economic and legal risks faced in international projects: Case study of Vietnam, *Journal of Professional Issues in Engineering Education and Practice*, *136*(3), 156-164

Love, P.E.D., Wood, B.M., Picken, D., & Confoy, B, (2000). The privatisation of correctional facilities in Australia, *Facilities*, *18*(1), 42-56

Macoby, M. (1997). Building trust is an art, *Research Technology Management*, *40*(5), 56-57

Mayer, R. C., Davis, J. H., & Schoorman, F. D (1995). An integrative model of organisational trust. *Academy of Management Review*, *20*(3), 709-734

Mayo, E and Moore, H (2001). *The mutual state: How local communities can run public services*, New Economics Foundation: London

McCarthy, S. C., & Tiong, R. K. L (1991). Financial and contractual aspects of build-operate-transfer projects, *International Journal of Project Management*, *9*(4), 222-227

McQuaid, R., & Scherrer, W (2010). Changing reasons for public-private partnerships, *Public Money and Management*, *30*(1), 27-34

Munns, A. K (1995). Potential influence of trust on the successful completion of a project, *International Journal of Project Management*, *13*(1), 19-24

Naoum, S. (2003). An overview into the concept of partnering, *International Journal of Project Management*, *21*(1), 71-76

Narayan, N., & Petesch, P (2002) eds. *Voices of the poor from many lands*, The World Bank, Oxford University Press

Ndubisi, N. O., Khoo-Lattimore, C., Yang, L., & Capel, C. M (2011). The antecedents of relationship quality in Malaysia and New Zealand, *International Journal of Quality and Reliability Management*, *28*(2), 233-248

Odeleye, J.A (2000). Towards financing and planning road safety audit operations in Nigeria, *International Association of Traffic Safety Systems Research*, *24*(2), 85-96

Oni, S. I., & Okanlawon, K (2006). Nigeria's transport infrastructure development: An integral part of the national economic empowerment and development strategy, *Journal of Social and Policy Issues*, *3*(2), 7-13

Punch (2013). New agency to manage road infrastructure nationwide, *Punch*, February 27th, Lagos, Nigeria, 8

Queiroz, C. (2005). Launching public private partnerships for highways in transition economies, *Transport Papers* TP-9, September 2005, World Bank Group, Washington, D.C

Quiggin, J. (2004). Risk, PPP and the public sector comparator, *Australian Accounting Review*, *14*(2), 51-61

Rousseau, D., Sitkin, S., Burt, R., & Camerer, C (1998). Not so different after all: A cross-discipline view of trust, *Academic Management Review 23*, 387-392

RICS, (2011) *RICS research: The future of private finance initiative and public private partnerships*. RICS, London UK, ISBN 978-1-84219-690-8

Selnes, F (1998). Antecedents and consequences of trust and satisfaction in buyer-seller relationships, *European Journal of Marketing*, *32*(3-4), 305-322

Shaoul, J. (2003). A financial analysis of the national air traffic services public-private partnerships, *Public Money and Management*, *23*(3), 185-194

Shaw, E (2004). What matters is what works: The third way and the private finance initiative. In: Hale, S., Leggertt, W., & Martell, L (Eds), *The third way and beyond*, Manchester University Press, Manchester

Siemiatycki, M (2010). Delivering transportation infrastructure through public-private partnerships, *Journal of the American Planning Association*, *76*(1) winter 2010, 43-58

Singaravelloo, K. (2010). PPP: The right marriage between local government and the private sector in Malaysia? *International Journal of Institutions and Economies*, *2*(2), 142-166

Tabarrok, A. (2003). *Changing the guard: Private prisons and the control of crime, Australia*, Independent Publishers Group.

Tam, C. M (1999). Build-operate-transfer model for infrastructure development in Asia: Reasons for successes and failures. *International Journal of Project Management 17*(6), 377-382

Terry, F (1996). The private finance initiative - Overdue reform or policy breakthrough? *Public Money and Management*, 9-16

United Nations (2006). *The Millennium Development Goals*, United Nations, New York

Wong, E. S., Then, D., & Skitmore, M (2000). Antecedents of trust in intra-organisational relationships within three Singapore public sector construction project management agencies, *Construction Management Economics*, *18*, 797-806

Wong, P. S. P., & Cheung, S. O (2005). Structural equation model of trust and partnering success, *Journal of Management in Engineering*, *21*(2), 70-80

Wong, P. S. P., Cheung, S. O., & Ho, P. K. M (2005). Contractor as trust initiator in construction partnering-prisoner's dilemma perspective, *Journal of Construction Engineering and Management*, *131*(10), 1045-1053

World Bank & Public Private Infrastructure Advisory Facility (2003). Appendix 1- Criteria and terminology of the private participation in infrastructure project database, *Private Participation in Infrastructure: Trends in developing countries in 1990-2001*. World Bank, Washington, DC

Zaghloul, R., & Hartman, F (2003). Construction contract: The cost of mistrust, *International Journal of Project Management*, *21*(4), 419-424