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Bus Rapid Transit Systems as a Governance Reform Project

Abstract

Bus Rapid Transit systems exist in over 206 cities and 45 countries around the world. They are seen to provide a much lower cost option of mass mobility than fixed rail or underground systems which developing countries struggle to afford. Whilst BRT systems have undoubtedly been seen to be successful from a transport system perspective, they are more than a transport system innovation. They are often introduced to replace what is seen to be a failing, unsafe and poorly regulated informal transit system. This paper therefore focuses on the process of BRT introduction as a governance reform. The paper draws on African experience where adoption of BRT has been slow relative to South America and South East Asia. Using an in-depth analysis of the introduction of a new system in Ghana and data on levels of governance maturity across the African sub-continent, the paper finds that to understand BRT implementation requires an understanding of how the incumbent transport regime could and will be able to be reorganized. The success of BRT systems that result will depend at least as much on how the reforms are achieved as it will on the usual design concerns which typically occupy transport planners.

Keywords: Reforms; Bus Rapid Transit; Governance; Regime

1. Introduction

Rapid urbanisation which has characterized developing countries, especially those in Africa, has led to several transport challenges such as:

- rising travel demand, especially in major cities (Rahman et al. 2012);
- increasing vehicle ownership (Cervero, 1996);
- safety issues (Obeng et al. 2016; Poku-Boansi & Adarkwa, 2013);
- congestion (Adarkwa & Poku-Boansi, 2011; Kwakye & Fouracre, 1998);
- unreliable public transport services (Adarkwa, 2003; Poku-Boansi, 2011);
- poor and inadequate pedestrian facilities (Amoako et al. 2014); and
- unscheduled services, indiscipline among public transport operators in terms of nonadherence to traffic regulations (Agyemang, 2015; Kwakye & Fouracre, 1998).

In response to these challenges, most governments in developing countries have initiated steps to reform their transport systems with support from multilateral organisations such as the World Bank and the African Development Bank (ADB). Within this, Bus Rapid Transit (BRT) has become pre-eminent as an affordable and effective mass transport system that can be implemented rapidly (Hidalgo & Gutierrez, 2013). BRT systems are now in place in 45 countries around the world with an estimated 5,542km of lanes in operation (Global BRT Data, 2017).

BRT systems are part of the response to continued rapid urbanization effects ongoing in most countries, but particularly, the larger cities in the developing world. Prior to BRT implementation, the provision of public transport service is often characterized by the dominance of the informal operators who operate minibuses which are individually owned but are highly organised at route level through Unions. The vast majority of the travelling public depend on these services to get around despite issues with safety, reliability and overcrowding. In examining the implementation of several BRT schemes internationally, Kumar et al. (2011: 6) observe that:

> "BRT systems have unique planning and implementation challenges which if not adequately addressed up-front, can lead to less than successful outcomes. The introduction of BRT systems often requires a need to migrate from a loosely organized public transport sector, to one that is regulated and controlled. There is also the need to coordinate activities of the multiple agencies involved in planning, financing, implementing, and operating or regulating various aspects of the public transport system. There is also often the need to undertake new functions no institution has been doing."

This is not a list of transportation issues but instead, a set of governance challenges. Lindau et al. (2013) usefully break down the list of challenges still further, under the two broad headings of planning and implementation as shown in Table 1. They conclude that for BRT implementation in developing countries, "most issues are related to institutional, financial, legal and political sectors" (Lindau et al. 2013; 9). Despite the apparent importance of governance issues to BRT implementation, the available literature pays comparatively little attention to governance. A review of the OVID Transport database from 2006 to 2017 for all articles with "Bus Rapid Transit' or BRT in Title" yielded 449 articles. From a review of titles and abstracts of potentially relevant papers, only seven had significant discussion of governance issues, which corresponds to less than two percent of

the articles reviewed. Hidalgo and Carrigan (2010) in studying BRT operations in 13 Latin American and Asian cities, have suggested the development of a comprehensive planning process which combines financial, legal, institutional and environmental concerns with engineering/ technical efforts. They also call for paying careful attention to regulatory/institutional issues, adapting the existing regulatory framework if required, and proceeding with special care where the bus improvement is to be integrated with an existing system. This is because the BRT system is complementary, not a competing element in transport supply. This position has been echoed by Cervero (2013), Weinstock et al. (2011) and Wright (2007) who argued that the barriers to planning and implementing BRT systems include the political economy, community support, institutional capacity and funding. The key areas of focus of research on BRT have been reporting case studies, performance (actual or modelled), impacts of design on operation or the impacts of the system on land value or other wider policy concerns such as the environment. These issues are clearly important but this overlooks the wider importance of governance challenges (see Rizvi & Sclar, 2013; Paget-Seekins, 2015; Dewey, 2013; Paget-Seekins & Tironi, 2016).

Insert Table 1 here

This paper explores the introduction of BRT as a governance reform process to open up new understandings into the ways in which governance matters to BRT reform and which, therefore, go beyond just acknowledging that governance questions matter. It does so by examining, in depth, the process of reform for the introduction of a BRT system in Accra in Ghana. It then broadens the analysis beyond Ghana to the wider African continent through an analysis of governance capacity. The paper is organised as follows. Section 2 expands further the literature on barriers and governance of BRT systems and discusses how the broader governance literature might interpret these issues. Section 3 introduces the methodology before Section 4 describes the evolution of Ghana's transport system to arrive at the current BRT reforms. We develop a hypothesis that, given the complexity of the governance reform undertaken, we would expect to see BRT implementation happening in other African countries where governance capacity is highest and the need for public transport capacity enhancement greatest. Section 5 explores this through data from the World Bank Worldwide Governance Indicators of 2016 and other African BRT implementation experience. In Section 6, we conclude that it is necessary to see BRT implementation as part of a longer-term governance reform process and that, whilst implementation is possible with more limited reforms, it

could be subject to longer-term risks and much greater potential for poor system performance. BRT implementation therefore requires a re-orientation of government as well as of the transport system if it is to be a success.

2. BRT and Governance Literature

Treib et al. (2007, p. 3) summarize governance as the "steering and co-ordination of interdependent (usually collective) actors based on institutionalized rule systems" (Benz, 2004: 25). This can be broken down into three distinct but inter-related areas. First, is the existence of a set of "laws, rules, judicial decisions and administrative practices that constrain, prescribe and enable the provision of publicly supported goods and services" (Lynn et al. 2001: 7). This is typically expanded to include informal norms or customs and practices which reflect the fact that not every aspect of how to govern is or could be formally codified. Second, is the network of actors involved in decision-making. It is widely accepted that, whilst state actors retain significant importance, "the boundaries between and within the public and private sectors have become blurred. The essence of governance is its focus on governance mechanisms that do not rest on recourse to the authority and sanctions of government", but instead, focusing on "the interactive relationship between and within governmental and non-governmental forces" (Stoker, 1998: 17). The final element is to see the development of policies as part of a "mode of political steering" (Heritier, 2002: 185). Here, the introduction of BRT is very much, therefore, part of political steering with the project driving or reinforcing the need for a set of complementary institutional reforms (see Finn (2013) for example on formalizing management). Paget-Seekins (2015: 116) describes BRT projects as being part of "entrepreneurial urban governance".

The literature on BRT implementation and governance provides some valuable insights into the challenges which need to be overcome. Kumar et al. (2012), for example, estimate that in Lagos, 15% of the population earns a living through the informal transport sector and, therefore, the political risk in amending the system is high. They also suggest that incumbents leverage influence over politicians and officials, sometimes through corruption. Venter (2013) further develops these arguments in highlighting that the informal sector exists as it does to deliberately circumvent labour laws and quality regulations. Whilst this is a major source of the supply problems BRT seeks to address, it also serves to provide low income groups with an affordable service. Lindau et al. (2013)

and Mfinanga (2012) suggest that special efforts need to be made to allow existing owners or owner operators to participate in the new BRT schemes as they rarely have the working capital or know how to form part of these new and larger enterprises.

However, despite the challenges of managing a transition from the informal to the formal sector, this has been achieved in different places in different ways. The literature looks at factors which support or hinder transition. Lindau et al. (2013: 10) point out that relative to rail "in which a single transit agency is usually designated and empowered to plan, implement and operate the full system, BRT touches on areas that fall under the purview of a range of city officials in different departments". Rizvi and Sclar (2013) also identify institutional arrangements as important to the success of implementation in comparing the Delhi and Ahmedabad BRT implementation. There, Delhi was more complex in the institutional arrangements and subject to more variable support for the project across agencies and over time. However, particularly important to Rizvi and Sclar was the process of implementation rather than just the institutional structures. Without labelling it as such, the different studies are examining governance, or the process of steering and co-ordination amongst actors.

One further, important, insight which can be gleaned from the current literature is the need to look at a longer timeline to study BRT adoption in the form it is adopted in any given place. Wood (2015), for example, identifies a cycle of discussion and even failed implementation (2003) in Johannesburg before the system was successfully launched in 2009. Venter (2013) makes a similar point about a history of previous attempts to reform taxi or public transport markets. BRT implementations happen in institutional settings which have a particular history, and this will influence whether and how they are implemented. These can be interpreted as the struggles of any new 'niche' innovation trying to establish itself within the existing network of actors and practices that provide mobility within a city (Geels, 2002; Geels & Schot, 2007). The pathway chosen for integrating the BRT system with the current informal network centres on the ability of government actors to influence and steer (or govern) the existing regime of actors and systems of provision.

3. Methodology

The approach adopted to understanding BRT as a governance reform in this paper is two-fold. The first part is an in-depth case study of the development of a new BRT system in Accra, Ghana. The case study research has been undertaken over the last quarter of 2016 and first quarter of 2017 with the BRT system launching in September 2016. The research was undertaken by an academic familiar with the implementation. The primary method was desk top review and analysis of key institutional reforms. This was augmented by discussion with five people whose institutions are involved in specific aspects of the implementation to clarify key uncertainties. The five were selected from Greater Accra Passenger Transport Executive (GAPTE), the Ministry of Local Government and Rural Development (MLGRD), and the Department of Urban Roads. The aim of the case study is to explore the history of the adoption process but also the extent of complementary institutional reform that has accompanied the implementation and the extent to which the BRT scheme has reconfigured the actors and actions of the existing regime of transport provision. This work adds to the existing, relatively small, body of work in this area.

The second stage in the methodology explored a further question about governance reform. If, as the literature suggests, the implementation of BRT is a significant governance reform, then our working hypothesis is that BRT should be more likely to happen in places with stronger governance capacity. However, the likelihood of implementation will also be a function of the perceived need for transport reform which would likely be caused by growing pressure on the existing service provision model. The second stage in the methodology therefore explores the relationship between strength of governance capacity and a measure of need for mass transit. The measurement of governance capacity is taken from the World Bank Worldwide Governance Indicator of 2016 described in Table 2. It is important to acknowledge that this is not a perfect index to deploy by any means as it operates at a national scale, whereas implementation may have strong local influence. Any index is also subject to criticism about the constructs that comprise it and the ability to measure quite different constructs on a common scale. It is however available for all African countries and any errors of measurement and constructs seem more likely to mask important nuances that matter to implementation than to amplify them. We therefore think that this is a defensible first attempt to use the index in this way. The index comprises six areas and for this study, we have simply totaled the scores for each area which can vary from -2.5 to +2.5. The respective min and max scores are

therefore ± 15. For need, we used the population of the largest city in a country (or the largest city which has implemented a BRT if this is smaller). Other measures such as GDP per capita were considered but dismissed as inferior to population. Income related measures, for example, do not adequately represent the very unequal distributions of wealth across people and regions within the countries concerned.

Insert Table 2 here

4. Ghana BRT implementation

The public transport system in Ghana is typical of that in developing countries in being dominated by the informal transport sector. The services provided in the two major cities of Accra and Kumasi are operated by individuals through Unions. The modal share in the Greater Accra Metropolitan Area (GAMA) is dominated by minibuses and taxis, carrying about 68% of the travelling public. As noted in the introduction, Ghana's informal sector is characterised by low quality of services, high rates of collision and accidents, increased congestion in cities, erratic scheduling and services, inadequate capacity, evasion of taxes and fees, weak control and non-adherence to regulation (Cervero & Golub, 2007).

To understand why BRT emerged as a solution, and why it has happened now, it is necessary to review some of the history of transport reforms in Ghana. In the early 1980s, Ghana went through a period of economic recession leading to the government signing up to the IMF/World Bank Economic Recovery Programme and the Structural Adjustment Programme in 1983. The implementation of these programmes saw a policy shift which affected the transport sector. The liberalisation of the market saw a change in the role of government from one of being a provider of transport infrastructure and services, to one of creating a market in which the private sector leads in the provision of transport services. Subsequently, regulations aimed at safeguarding the interest of users and private sector operators were put in place.

In parallel with a shift to liberalization of the transport market, Ghana has been experiencing rapid urbanisation and this has come with its associated transport challenges. With an estimated urban population of 14 million (Ghana Statistical Service, 2015) accompanied by high incidence of

urbanisation and natural population increase, Ghana has been experiencing rising travel demand, high levels of congestion (see Oteng-Ababio & Agyemang, 2012; Addo, 2005; Kwakye et al. 1997) and significant pollution problems brought about by poorly maintained vehicle fleets (see Poku-Boansi & Adarkwa, 2013), especially in the two major cities of Accra and Kumasi.

These wider pressures create an environment where a change to transport provision is seen as desirable. Transport reforms have also been a goal also of key development partners to Ghana. As part of a reform package established in 1998 (Kwakye & Fouracre, 1998), an initial proposal to establish higher quality public transport provision was made. This led to an initial limited BRT system which was implemented but subsequently failed. The Metro Mass Transit Limited (MMTL), established in October 2003 to offer intracity, intercity and long distance transport, attempted to introduce a BRT system on the 20km Kinbu – Adenta corridor in Accra in September 2005 (Agyemang, 2015). The project started with twelve (12) buses with the Department of Urban Roads delineating the outer lane of the existing Kinbu – Adenta corridor for the exclusive use of the buses (Agyemang, 2015). However, compliance of the right-of-way provision was seldom enforced (Agyemang, 2015) and due to other implementation challenges, such as government's inability to provide the needed infrastructure, non-enforcement of regulations and stiff opposition from operators in the informal sector, the pilot BRT system was suspended in 2007 even though there was some initial success in ridership (Agyemang, 2015). This suggests that the implementation of the infrastructure and provision of the buses were not sufficient conditions for the system to become an established part of the existing transport regime.

Despite the initial failure, the government of Ghana did not give up in reforming the public transport system. Subsequently, both the National Transport Policy (2008) and the Transport Sector Medium-term Development Plan (2012–2014) which guide the implementation of the government of Ghana transport policy objectives have aimed to prioritise and supporting the development of transit systems in Ghana. Discussion with officials of the Ghana Urban Transport Project (GUTP) revealed that following the failure of the initial BRT system, the following factors served as drivers for trying again with the reforms:

- recurring traffic congestion;
- passengers' perceptions of inadequate comfort and personal security on the current system;
- the continuous support of the World Bank; and

- the prospect of securing other funding such as the Global Environmental Facility (GEF) and the Agence Francaise de Developpment (AFD).

The history of multiple approaches to introducing BRT has some echoes of the South African approach (Wood, 2015) although in Ghana, an initial system was brought in to operation.

The government of Ghana thus started the process of tackling these challenges through the GUTP which was established in 2007. The GUTP is funded by the Government of Ghana, the World Bank, the AFD and the GEF. It seeks among other things to provide an affordable, safe and efficient urban transport system that supports the overall development and competitiveness of country's urban area. The implementation of the GUTP signifies a major reform in the transport system of Ghana and includes regulatory and institutional development, the introduction of a BRT system and the development of improved minibus and taxi services in the major cities of the country starting with the two major cities of Accra and Kumasi.

The GUTP empowered the Metropolitan, Municipal, District Assemblies (MMDAs) to perform urban transport functions and improve public transportation in their jurisdictions. GUTP has two key objectives:

i. to improve mobility through a combination of strategies and implementation of BRT system; and
ii. to promote more environmentally sustainable transport modes and lower transport related GHG emissions.

As a policy, the government has set a target for 80% of all trips made in the major urban areas in Ghana to be done through public mass transit systems by 2035 (Ministry of Transport, 2016). In realizing this vision, the government has developed several strategies as shown in Table 3.

Insert Table 3 here

As can be seen in Table 3, the BRT reforms are taking place as part of a broader set of institutional reforms which include decentralization of competences and power to metropolitan areas, the establishment of a new regulatory body and the formalization of larger bus companies. The key institutional reforms are now described with a view to understanding why particular reforms were undertaken in the way that they were.

4.1. Centre for Urban Transportation

The government of Ghana, through Parliament in 2010 passed Act 799 establishing a Centre for Urban Transportation (CUT) to serve as a centre of expertise in urban transportation. The CUT has a governing body with representation from national organisations such as the Drivers and Vehicle Licensing Authority, academia, the private sector and transport operators. The CUT has 23 functions which can be synthesised into conducting evidence based research to inform policy, promote innovation within the urban transportation system, collaborate with stakeholders (e.g. MMDAs) and monitor and ensure the performance of public bodies, agencies and organisations in relation to the use of services received from the Centre. As can be seen in Figure 1, the CUT is a body under the central government providing technical support to the MLGRD. After three years of functioning, the CUT has become defunct. However, steps have begun to reconstitute the CUT. Funding for the CUT per Act 799 will come from parliamentary grants, fees from services and other international or national grants and donations. This is a crucial element for capacity development which, as Lindau et al. (2013) note, is often lacking due to the institutional history which tends to be focused on road construction and concentrated at a national rather than city level.

Insert Figure 1 here

4.2 Ghana Private Transport Executives

The ongoing reforms have seen a structural change in the management of public transport system in the GAMA with the establishment of the Greater Accra Passenger Transport Executive (GAPTE) to facilitate the management and the execution of the public transport reforms in the participating MMDAs. As seen in Figure 1, GAPTE is a unit established to plan and manage public transport functions that are cross-jurisdictional. It is a functionally specific body (Hooghe and Marks, 2001) but one which is held to account by the Chief Executives of the twelve participating MMDAs who serve as the Board of GAPTE. Apart from legal authority, GAPTE represents the executive arm with governance and representation from the participating MMDAs. GAPTE is thus accountable to the twelve participating MMDAs. GAPTE is mandated to undertake public transport planning, public transport regulation and enforcement, develop bus priority measures, bus support infrastructure and overall system management. The idea to as much as possible bring the management task under a central control is in line with the belief of transport institutional reforms

(Shafritz et al. 2009) and to avoid duplication of efforts. This will provide a framework with strong direction and planning at the centre (Low & Astle, 2009). GAPTE has being established as a Company limited by Guarantee under the Companies Act, 1963, Act 179 and structured into the three departments, Network Development, Operations and Corporate Services Departments (see Table 4). Currently, GAPTE receives funding for infrastructure work, bus purchase and its planning activities direct from the national government through the Department of Urban Roads and the MLGRD. In the medium to long term, GAPTE will be funded through MMDAs contribution from revenues generated from direct public transport activities (such as permits, sticker and parking fees), commuter user charges, fees from the issuance of operating permits, track access charges, depot user charges and advertising on buses and infrastructure. GAPTE collects the bus lease fees and distributes the remaining smart ticket income to the operators and for the repayment of the loan guaranteed by the national government for the purchase of the buses.

Insert Table 4 here

4.3 Ghana BRT system

In September 2016, a BRT system, popularly referred to as Aayalolo, was launched on a pilot basis in the GAMA. The US$ 95 million project seeks to address the many challenges associated with the provision of public transport services. The 22.3km line which is a bus-based BRT system, forms part of a network consisting of six lines designed to deliver fast, comfortable and cost effective urban public transport services in the twelve districts covering an area of 1,494.4 km^2 – approximately 40.4% of the Greater Accra Region. A total of 245 Scania BRT Buses have been procured through a loan guaranteed by the government of Ghana for the bus companies who are expected to pay for them during operation. The repayment as indicated earlier is done through GAPTE who retain a proportion of the fares collected for the servicing of the loan. Each bus has a maximum occupancy of eighty-six (86) passengers and is equipped with an electronic ticketing system, GPS receptors, on-board computers, closed-circuit television (CCTV) and communications systems.

The BRT system when completed will have a total of 163.7km and will represent the longest network in Africa. The six BRT routes will be serviced by twelve arterial bus routes totaling 168.3km with the longest route being about 43.8km (Ashaiman – Ring Road). The proposed BRT system in Ghana is designed to provide separate roles for existing minibus and taxi operators within a

'universal network' (see Figure 2). This universal network is fashioned around the hub and spoke strategy where the 'hubs' are the existing informal minibus (trotro) terminals expected to become the major terminals. These hubs will serve as the medium of carrying the travelling public from residential areas to the minor and local distributors using the existing informal services. Other bus stations and small sized terminals located along minor and local distributor roads within residential neighbourhoods have been designed to serve as the "spoke" of the system, serving small and medium capacity transit modes which will feed the BRTs operating on the major arterial routes. The use of the universal network system is to make provision for separate roles for the proposed bus services and the existing trotros and taxis operators in the network and to deal with agitations because of the fear of losing livelihoods (Venter et al. 2013; Dibetle, 2009; McLachlan, 2010). Even though the system allows for varied roles, all existing trotros and taxis will operate but under permit to enable them provide feeder services to the BRT system.

Insert Figure 2 here

Operations along the pilot Amasaman – Tudu corridor have being designed into three operational routes with three different Bus Operators, all private sector companies responsible for operating the buses and depot management. These companies were created out of the existing informal bus and minibus operator unions operating along the route where the BRT system operates. Table 5 presents the schedule of each of the operators and assigned colour.

Insert Table 5 here

Payment for the service is done using e-cards through an automatic fare collection system which ensures a cashless system. A zonal fare structure which allows for graduation of fares paid per distance travelled is applied with fare levels ranging from GHS 1.20 to GHS 3 (GHS 1 = US$ 0.2243 - based on March 2, 2018), equivalent with the minibus fares for similar routes along the corridor. Benchmarking the fares charged with that of existing trotro operators according to an official of GAPTE was to make the service competitive and to attract passengers, especially at the early stages of their operations. What remains to be seen is whether the current rates will be able to sustain the operations.

4.6 Governance Reform

Reflecting back on the definition of governance earlier, we can see BRT as a mode of political steering in so far as the necessity of BRT to achieve the modal share targets brought with it a raft of requirements for other institutional reforms. The way in which the reforms were designed reflected the network of actors and, in particular, as found in other case studies, the incumbent operators. It is difficult to imagine, for example, the configuration of services in Table 5 emerging from a blank sheet of paper system design exercise. However, whilst that shaped the way in which the companies and franchises were formed, it was only a part of the wider story of institutional reform which covered rules, laws and structures at different scales. The absence of governance reform was seen to be a contributory factor to the failed 2003 implementation.

The scale of institutional change instigated for this BRT reform compared with the 2003 reform is significant. Taken together, we estimate that, excluding the individual trotro operators that form part of the BRT operations, there are nine (9) organisations or institutions involved in designing, developing and delivering the BRT system of which four (4) are new – 2 newly established (i.e. GAPTE and CUT) and 2 existing but new to the project (MMDAs and MLGRD). The operations of these institutions are guided by legislations and bylaws passed by the MMDAs. There are twelve new rules and regulations that have been necessary to make this possible. This has covered all aspects of defining the routes, permits, operating rights, quality and enforcement. Of particular interest is the passing up of powers to GAPTE from the MMDAs. This seems a necessary condition on transport grounds due to the routes crossing boundaries but also from a skills perspective where the MMDAs would struggle to each manage such a complex range of tasks. This has been further augmented by the creation of the Department of Transportation as part of the decentralised departments of the local government system.

This is truly the story of a major set of governance reforms as well as a new transportation system. It is, however, early days in the implementation to know whether the reforms will deliver their intentions. Ridership data suggest a steady increase in the volume of passengers carried by the BRT (see Table 6 for details). The total number of passenger carried on the pilot corridor has increased from 42,491 as at December 2016 to 133,694 by the end of July 2017. This increase is also seen in the average passenger per day where the December 2016 average was 1,416 compared to the July 2017 average of 7,427. Despite the gradual increase in ridership, it will be difficult to attribute that to

the governance reforms put in place. This is because, formal institutions change at point in time but the governance processes which flow out from these changes, emerge over time. The success of the reforms will depend, in part, on the BRT system replacing trotro services for the main trunk routes and being fed by them at the key terminals and the necessary regulatory and enforcement roles supporting this as envisaged by the government of Ghana (Ministry of Transport, 2016). Other factors such as the ability of the operators to cover the costs of the fleet renewal whilst holding fares at the same levels as parallel informal services seem challenging. Of particular interest will be the extent to which reforms for future corridors occur and whether, if they do they follow the same model as the pilot corridor or develop the reforms further. This will be an indicator of where power lies within the system between the state and the private transport operators.

5. Governance Capacity

As highlighted in sections 1 and 3, given the scale of the institutional rearrangements to make the BRT implementation possible, the BRT project can be seen as a major governance reform. We hypothesized that this is most likely to happen in countries where there is both a level of need for mass transit system reform and the necessary governmental capacity to do so. Figure 3 shows the plot of need (measured by size of largest city or largest city in a country with BRT operations taken from a city population website)[1] against the composite World Bank Index of governance. The figures used for governance capacity are 2015, unless a BRT system has been implemented in which case, the year of implementation is used.

Insert Figure 3 here

With only four implementing countries, it is important not to read too much into the data. There are other influences such as political leadership and the different importance of city priorities in different contexts that can explain why systems may have been implemented. Nonetheless, South Africa and Ghana are the two countries with both significant population growth pressures and positive levels of governance capacity that have implemented BRT reforms. Tanzania and Nigeria feature more strongly on the need scale but score much less highly on the governance capacity. This

[1] www.citypopulation.de/africa

has some read across to the strength of the associated reforms that have accompanied BRT implementation as shown in Table 7.

Insert Table 7 here

Of particular note is the substantially more advanced reforms to the reorganization of existing provision which has been achieved in South Africa and Tanzania. This forms part of the Ghanaian reform process but the reconfigured private sector operators seem to have influenced the system configuration and trotro competition has not yet been eliminated. The Lagos BRT corridor in Nigeria has been open since 2008 but has not expanded which suggests an on-going lack of commitment or capacity to further implement transport system reforms.

Ghana is also different from the other reforms in Africa as the newly created agency (GAPTE) that is implementing the BRT is situated outside the local government structure. The success of this model remains to be seen during implementation but there is a greater degree of influence of a new agency and of the Union led operators in the Ghana model. We have shown that this results from the history of previous attempts at reform.

If the evidence put forward here lends confidence to the importance of governance capacity to the successful implementation of BRT, then it could have implications for the countries bounded by the dashed grey shape on Figure 3 which appear to be closest to the most recent sites of implementation in terms of need and governance capacity (Senegal, Tunisia, Morocco, Côte D'Ivoire and Kenya). We tentatively suggest the approach adopted here is helpful in understanding where might be suitable next and that, improving the governance systems might be a necessary pre-cursor to accelerating the adoption of these solutions. However, as all but the Lagos system are relatively new in their implementation and the full maturity of the governance reforms remains unclear, we are unable to be definitive. We would also suggest that it is not simply sufficient to look at governance capacity at a national scale as, it is clear from the Ghanaian case study, the ability of local government to reform to incorporate new structures and processes is equally critical. Indeed, it is the nexus of national-local and public-private which seems critical, which points more generally to calls for greater attention to be given to multi-level governance challenges (Hooghe & Marks, 2001; Ahluwalia, 2017).

6. Conclusion

Whilst institutional issues have been identified as critically important to the effective adoption of BRT systems, the overwhelming majority of research attention on BRT is to the design and wider system impacts. This study, through an in-depth examination of the implementation of BRT in Ghana, has demonstrated that as well as being a transport project, BRT is in fact a stimulus for wider governance reforms. Without such reforms, the ability of BRT to challenge the dominance of the informal sector is threatened.

This paper has explored BRT development in Ghana and, to a lesser degree, the three other implementing African countries. We tentatively conclude that, as a major governance reform, the wider institutional reforms have been more comprehensively addressed in countries with a generally higher level of governance capacity in Africa. A willingness to devolve transport responsibilities from national to local bodies and the creation of structures which can govern across boundaries within and outside the main urban areas seem important elements of the reforms. This has also been accompanied with long recognized capacity building efforts. All of these elements were absent in the previous failed reform in Ghana. Whilst the construction of BRT schemes is rapid and can happen, without such a comprehensive set of reforms, as in Nigeria, the need for more substantial governance changes and the establishment of new institutions can perhaps explain why African cities have not been rapid adopters of BRT. Through a preliminary analysis of governance capacity across Africa there are many countries which seem unlikely to be in a position to effect such reforms currently, although we have tentatively identified some potential next adopters on the basis of transport need and relatively higher governance capacity.

This work has reinforced previous calls to pay greater attention to institutional issues surrounding BRT reform. Here we have focused on adoption, but the field would benefit from much greater clarity about the extent to which different reforms impact on the operational success of the systems. Creating new institutions happens slowly and so knowing which specific institutional changes seem to matter most could help other countries streamline their reforms and accelerate adoption. It would also be useful to understanding, through richer comparative research, the importance of local cultural and historic reasons for structures being as they are and how these in-turn impact on the

types of reforms seen to be possible and actually realized. The time span over which the Ghanaian case unfolded was more than three decades and relates to broader reform agendas such as liberalization and modernization of the economy (Ulli-Beers, 2013) well beyond the transport sector.

This work has focused on BRT implementation in Africa. Institutional arrangements and questions of governance will apply in other contexts and the findings here may have some applicability elsewhere. However, context matters to governance, and we would therefore caution against direct transfer of the findings, but instead suggest that this paper acts as a stimulus to broadening the understanding of the ways in which governance matters to BRT reform in different places.

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To be added after peer review

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Table 1 - Planning and Implementation Barriers

Planning Barriers	**Implementation Barriers**
Institutional complexities and lack of technical capacity	Underestimating the implementation effort, i.e. optimism bias.
Lack of alignment among stakeholders	Discontinuities due to political cycles
Strong promotion of competing modes	Lack of national policies supporting BRT Development
Perception of BRT as a lower quality mode	Insufficient funding for adequate implementation
Traditional bias towards vehicle capacity expansions	Rushed inauguration
Opposition from existing bus operators	
Lack of community participation	

Source: Lindau et al. (2014)

Table 2 - World Bank Worldwide Governance Indicators

Area	**Description**
Voice and Accountability	Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
Political Stability and Absence of Violence/Terrorism	Measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.
Government Effectiveness	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Regulatory Quality	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Control of Corruption	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.
Rule of Law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Source: Kaufmann, D., A. Kraay & M. Mastruzzi (2010).

Table 3 - Status of implementation of strategies

Strategies	Status	Remarks
Provide urban public transport infrastructure	On-going	28 projects: 17 ongoing with varied completion levels and 11 projects earmarked for future development
Provide a decentralized institutional and regulatory framework	Completed	LI 1961 passed and the Department of Transport (DoT) integrated into the MMDAs. The MMDAs have promulgated bye-laws to regulate urban passenger transport services.
Empower the private sector to invest in buses and transport service provision	On-going	Re-organisation of the individual operators into formal companies has been done to provide an avenue for the private sector to invest in bus services.
Integrate urban transportation within a broader urban development framework	On-going	The DoT forms part of the MMDAs units in preparing and implementing the Medium-Term Development Plans.
Reorganize existing transport operators into business entities to deliver urban public transport services	Completed	Three (3) Quality Bus Companies have been formed to provide services
Ensure that operators comply with government regulation and provide higher quality service	Completed	GAPTE to plan, regulate and manage public transport services

Source: Ministry of Transport (2016).

Table 4 - Departments and Functions of the GAPTE

Department	Positions	Functions
Network Development Department	Transport Planning and Research	Leads and facilitates the development of public transport services such as data gathering, transport network design, forecasting and network integration. It will assist the appropriate MDAs, MMDAs and transport operators to develop efficient, sustainable and flexible public transport services. It will be responsible for leading and shaping the whole public transport system in GAMA.
	Network Planner	
	Transport Infrastructure	
Bus Operations Management Department	Regulations and Permit	Responsible for the overall management and general administration of the core operations of regulating public transport. Ensure safe and efficient movement within GAMA. It will develop the mobility requirements and express this in terms of a network, routes, detailed timetables and/or service parameters for public transport patrons and operators. Responsible for the development, adaption and express of transport policies, establish and manage the processes for regulation and enforcement of public transport, bus services management and customer care.
	Monitoring & Enforcement (with support from the Motor Traffic Department of the Ghana Police Service)	
	Bus Operations Management	
Corporate Services	Marketing & Corporate Communications	Responsible for rendering to GAPTE and the public, high quality administrative, financial and support services needed to enhance public passenger transport services
	Legal Service	
	Finance & Admin	
	IT	
	Support Staff (Administrative, Accounts and Human Resource Officers)	
Internal Audit	Internal Auditor	To review, recommend and implement internal control systems. Helps GAPTE accomplish effective financial practices, risk management, control and governance processes

Source: Extracted from the Report on Organizational Framework and Structures for GAPTE, 2013

Table 5 - Schedule of operations of Bus Companies

Route	Operator	Colour	Schedule of Operations
Amasaman – Tudu	Ghana Co-Operative Bus Rapid Transit Services Limited	Green Colour	• Semi-fast service taking Expressway • Serving end-to-end movements and the important interchanges at Achimota and Circle • 16 Stops (Inbound and Outbound)
Ofankor - Tudu	Accra GPRTU Rapid Bus Services Limited	Blue Colour	• Stopping service taking service lane • Serving intermediate demand between Ofankor and Achimota • 17 Stops (Inbound) and 16 Stops (Outbound)
Achimota - Tudu	Amalgamated Bus Rapid Transit Services Limited	Charcoal Colour	• Serving as efficient 'shuttle' for the demand interchanging and originating from Achimota towards Central Accra • 12 Stops (Inbound) and 10 Stops (Outbound)

Source: Ministry of Transport (2016).

Table 6: Ridership data of the Pilot corridor

Months	Number of Days	Average passenger per day	Average bus trips per day	Total passengers	Total kilometers travelled per day
December 2016	30	1,416	134	42,491	89,866
January 2017	25	3,274	297	81,848	113,748
February 2017	24	4,483	316	107,603	112,767
March 2017	27	5,417	322	146,250	140,503
April 2017	24	6,137	348	147,289	139,254
May 2017	25	7,316	388	182,905	163,041
June 2017	25	7,499	398	187,482	169,369
July 2017	25	7,427	341	183,998	151,380
August 2017	27	7,360	370	205.209	174,638
September 2017	24	7,600	380	204,091	145,651

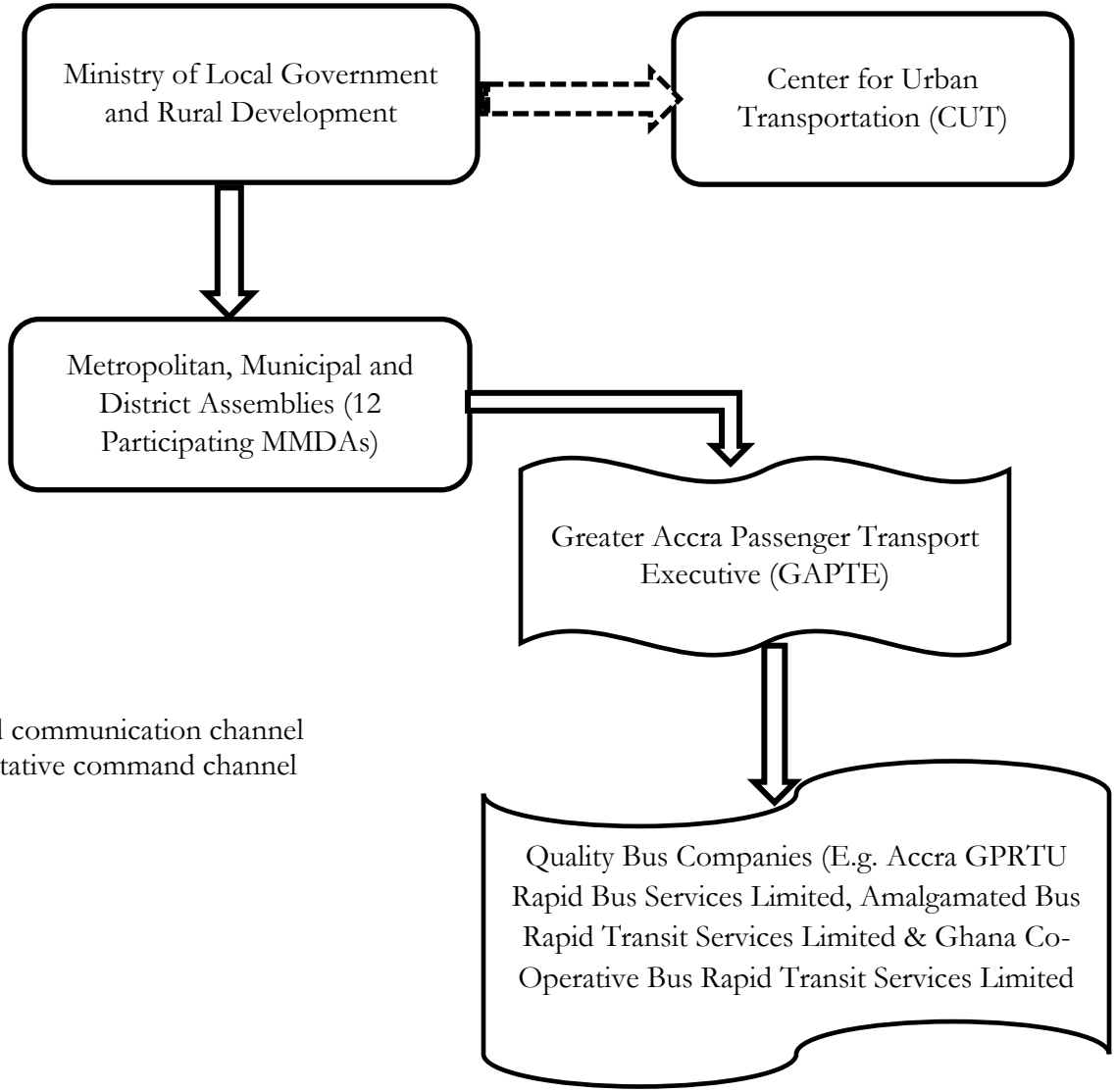
Source: GAPTE, 2017

Table 7: Status of Implementation

Parameters	Ghana (Accra)	Nigeria (Lagos)	South Africa (Cape Town)	Tanzania (Dar er Salaam)
Open or Closed system	System is opened with feeder buses plying the same route as BRT buses in most sections of the route. There are only few areas along the corridor that the BRT buses have exclusive lanes.	System is closed as dedicated BRT infrastructure along the corridor is used exclusively by BRT buses. However, there are few sections without non-dedicated infrastructure leading to feeder and BRT buses plying the same road space (Keanzig et al. 2010)	System is closed with BRT buses plying dedicated routes (Venter, 2013; Ugo, 2014).	System is closed with BRT buses plying dedicated routes (Ka'bange et al. 2014).
Operators of the system	Private operators	Operated by Lagos Metropolitan Area Transport Authority	Operated by Local Government Authority	Operated by Local Government Authority
Management of system	Managed by the local governments through GAPTE	Managed by Lagos Metropolitan Area Transport Authority (LAMATA) (Keanzig et al. 2010).	Managed by Metropolitan Authorities. Example, MyCiti Bus services by the City of Cape Town (Ugo, 2014)	Managed by Surface and Marine Transport Authority (SUMATRA) (Ka'bange et al. 2014).
Procurement of bus fleets and payment arrangement	National government provided support to private operators to acquire fleet. Payment will be done using proceeds from operations	Private operators procured the fleets. Example, The National Union of Road Transport Workers upgraded their ailing vehicle fleets and acquired 100 new, standard, high-floor buses for use. Lagbus also acquired an additional 120 buses (Keanzig et al. 2010).	National government's re-capitalisation programme helped in procurement fleets (Venter, 2013)	Create a competitive environment where the private sector will invest in the provision of public transport services (Ka'bange et al. 2014)
System integrated with feeder services	System does not allow passengers to purchase tickets (or pay fare) on a feeder all the way to the city centre	System does not allow passengers to purchase tickets (or pay fare) on a feeder all the way to the city centre (Keanzig et al. 2010).	System does not allow passengers to purchase tickets (or pay fare) on a feeder all the way to the city centre	System does not allow passengers to purchase tickets (or pay fare) on a feeder all the way to the city centre
Status of existing transport operators	Existing trotros' compete with BRT buses on pilot corridor	Existing mini- and midibuses operate on the feeder network but compete with the BRT buses on certain segment of the roads (Keanzig et al 2010).	Registration of existing operators (including those operating without permits) to provide feeder services to the BRT buses (Venter, 2013).	Dar es Salaam Commuter Bus Owners Association provides feeder services to BRT buses thus eliminate competition.
Other notable institutional changes	Department of Transport created as a department of the MMDAs	Creating the Lagos State Traffic Management Authority differ from the case of Ghana where the power to control primary traffic and enforcement is the responsibility of the Motor Traffic Department of the Ghana Police Service.	The government of Ghana has not been able to decrease destructive competition between modes unlike the case in South Africa	The use of Traffic Police Department to enforce rules and regulations (Ka'bange et al. 2014) is similar to that of Ghana.

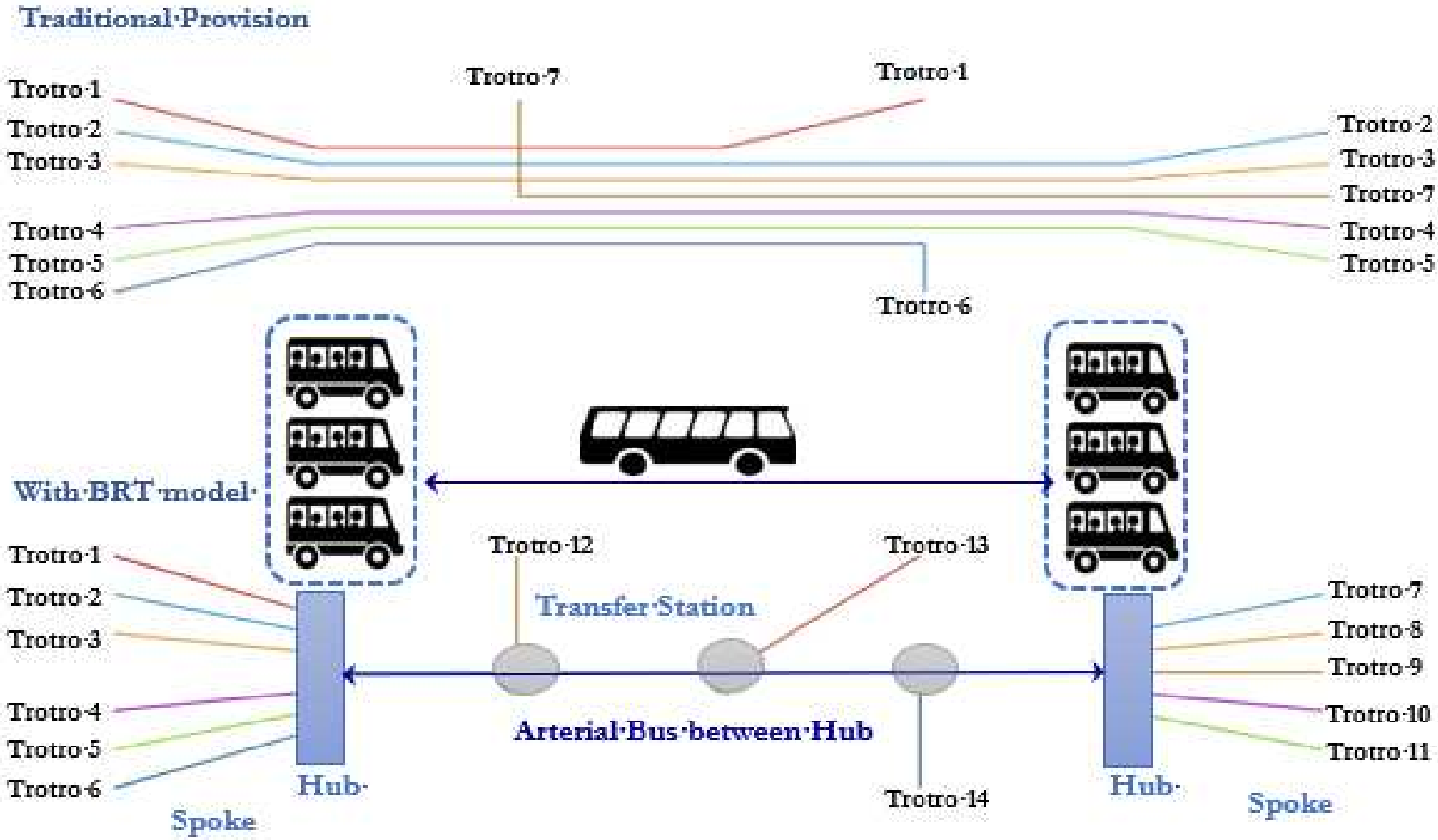
Source: Extracted from Keanzig et al. (2010); Venter (2013); Ka'bange et al. (2014); Ugo (2014).

Figure 1: Institutional Framework for Reform



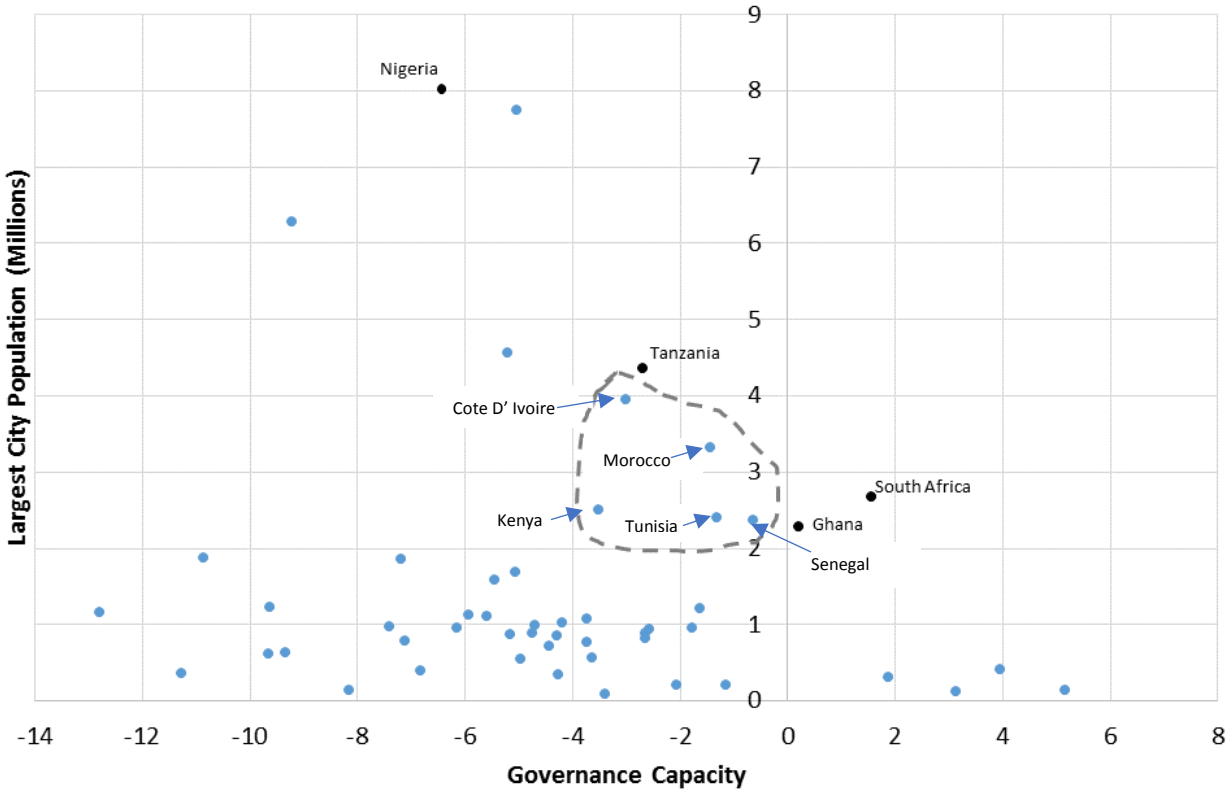
Note: Firm lines depict a command communication channel whiles broken lines depicts a consultative command channel

Figure 2 - The Public Transport Network System



Source: Ministry of Transport, 2016

Figure 3 - Need against Governance Capacity in Africa



Note: Countries bounded in dashed grey shape are those closest to the most recent sites of implementation in terms of need and governance capacity.

1