



PUBLIC TRANSPORT INSTITUTIONS AND THEIR RESPONSIBILITIES

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Abstract:

Public Transport Institutions are imperative in countries or cities to plan, coordinate, regulate and integrate city public transport as well as provide the necessary platform for subsidy applications in the operations of public transport. Considering the place which public transport occupies in development and social services, an independent body is needed to create a level playing field for public and private sector initiatives in transport. The paper highlights the duties and models of Transport Institutions with examples from some selected countries and draws a conclusion on the need to avoid institutional gridlock to transport planning efficiency.

Keywords: transport, institutions, government

1. Introduction

Institutions play fundamental roles in setting and dictating the tone of transportation in any country. Transport institutions are machinery through which the transport programmes, policy and objectives of any country or city are set and translated into action. The existence of institutional capabilities strategic thinking and long-term policy development and for actual implementation, evaluation, and control of policies is critical for growth. Implementing institutions determine how urban transport system function. According to Vuchic (2009), urban transport system include bus, car, rail, information such as travel timetable, announcements in vehicles and other information about how to use urban transport. To achieve coordinated and cohesive planning and transport programmes in a country, national transport institutions are imperative driving force.

The hierarchical structure of government may be seen from the national (central), provincial/state, districts/Local or Borough. Each with descending but progressive responsibilities and coverage. These arrangements are usually formalised by legislation. The concentration of powers therefore at the central particularly in developing

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countries of power and authority affects decision making with all forms of structured bureaucratic processes. Though, government structures vary widely in different countries, the principles of transport responsibility to the public are the same. Whichever structures that is adopted in any country, such structure has effect on transport institutional arrangements. In some cases, there are disconnects between the transport activities at the central level with other tiers of governments resulting to poor national transport coordination and unequal developments

Table 1: Transport Institutional Arrangements

Governments	Transport Institutions	Transport Operators	The public
The government leads in the strategic plans and decisions comprising developing a comprehensive public transport policy and implementation plans	The public transport institution is an intermediary between government and the operators and is responsible for tactical-level decisions, basically franchising, enforcement and implementing the government transport policy	The public transport operators are the concessionaires for the operations of the services. They are responsible for the acquisition of rolling stock ie buses, trails etc where the government concentrates on planning/ infrastructure provisions	The public are the actual users of the services, they derive value for money paid for services

Source: Author, 2017

2. Functions of Transport Institution

The specific responsibilities of transport institution are:

2.1 Planning

This include the comprehensive planning of all public transport networks and schedules, demand modelling, service planning, infrastructure and technical systems such as bus stops, laybys, terminals, train cars, information and ticketing etc. As part of the mechanism for planning, the public transport institution would be required to carry out survey ie Volumetric Occupancy Counts, Vehicular Traffic Counts, Households survey, Users' preference survey, focus group survey, trip generations and attractions survey, modal split, Non-Motorized survey, etc. The transport authority would also be required, as part of the planning responsibility, to develop the national, provincial or city transport master plans to guide the development and private sector participation in the future investment in public transportation.

2.2 Tendering and franchising

As part of the institutional responsibilities, once infrastructures are being planned or developed, bids are invited publicly so that responsive contractor are selected for the operations of the public transport scheme. On behalf of the government, the Authority defines the routes, and group of routes to be tendered, preparing terms of reference, conducting tenders and administering and enforcing contracts. Responses to tenders are evaluated against pre-set criteria such as maximum sum or minimum subsidy bid. The following Table provides alternative evaluating and contracting models in the operations and implementation of public transport.

Table 2: Public Transport Service Contracting Options

Option	Advantages	Disadvantages
<p>Gross cost route service contract The authority specifies the required service offer in some detail, and the operator is then rewarded for supplying this. Revenues are collected by (or on behalf of) the Authority, and used (either in whole or in part) to pay the operator.</p>	<ul style="list-style-type: none"> • Detailed service specifications set by Authority • Authority can determine the transport supply and operational performance standards • Authority can reallocate routes and service levels for operators without impacting on operator revenues • Authority can determine the tariff structure, prices and rules for Transfer • Authority can implement full integration of services • Operator is relieved of Revenue risk and can make investments based on secure funding stream • Operator can tender more competitively as his bid parameters are under his direct control 	<ul style="list-style-type: none"> • Authority carries the financial risk, and may not have the powers or resources for this • Authority has substantial technical and administrative burden for network design and service specification • Effectiveness and financial outcome highly dependent on Authority guidance and capacity • Lack of Incentive for operators to improve quality of service delivery
<p>Net-cost route service contract The Authority specifies the required service offer in detail and sets the tariffs, and the operator then supplies the service and collects the revenues accruing from this.</p>	<ul style="list-style-type: none"> • Main service parameters set by Authority • Operator bears the revenue risk • Authority knows in advance the funding needs for any route or network subsidies • Operator has strong incentive to manage fare collection and enforce revenue protection • Operator has incentive to improve service quality and hence attract additional custom • Suited to situation where Authority does not have the knowledge or financial capacity to take risks • No obvious barrier to integrated ticketing 	<ul style="list-style-type: none"> • Requires technical capacity to plan and specify the service contract parameters efficiently • Operator may tender conservatively because of the uncertainty over revenue • Operator benefits from system level initiatives such as marketing campaigns, without having to contribute to these • Constraints on changes to routes and service levels since it impacts on operator revenue and viability
<p>Route Franchise The Authority specifies the required service offer in broad outlines and sets the Tariffs. The Operator then supplies the Service and collect the revenues accruing from this, but retains some freedom in optimizing his transport supply to passenger demand along the route and at differing times</p>	<ul style="list-style-type: none"> • Authority is relieved of Revenue Risk • Authority has lower burden of service specification • Ease of administration for Authority • Authority can set the basic parameters (alignment, service hours, minimum service level) • Operator determines the detailed service, can adapt service to what is viable • Operator has Strong incentive to manage fare collection and enforce revenue protection • Operator has incentive to improve service quality and hence additional custom • Suited to Situations where the Authority does not have the detailed knowledge for efficient route design 	<ul style="list-style-type: none"> • Authority has less control over service levels • Reduced Mechanisms for control of service quality • Routes are essentially free standing, hence reduced possibility to integrate within the system
<p>Area franchise The authority specifies the required service offer in broad</p>	<ul style="list-style-type: none"> • Authority relieved of much the administrative and technical burdens and revenue risks 	<ul style="list-style-type: none"> • Authority has less control over the area network design and over service levels

<p>outline and sets the tariffs. The operator then supplies the services and collects the revenues accruing from this. But retains freedom in optimizing his transport supply to passenger demand within the Area by inter-working routes etc</p>	<ul style="list-style-type: none"> • Authority can establish the basic Service parameters • Operator develops the Area network and Service levels to what it deems is required • Operator can gain synergies and efficiencies across the area • Opportunities for economies of scale • Encourages consolidation within operating industry in order to be able to operate the franchise • Business opportunity can remain matched to the institutional capacity of the local operating sector. 	<ul style="list-style-type: none"> • Authority has less control over tariff structure and Price levels • Reduced mechanisms control of service quality and reduced mechanisms for incentives • May get internal integration within the area network but not with the other areas • Franchise may be larger than the institutional capacity of the local operating industry
<p>Network franchise The Authority specifies the required service offer for the network in broad outline and sets the tariffs. The operator then supplies the service and collects the revenues accruing from this, but retains freedom in optimizing his transport supply to passenger demand within the network by route planning etc.</p>	<ul style="list-style-type: none"> • Authority relieved of much of the administrative and technical burdens, and the revenue risks • Authority can establish the basic service parameters • Operator develops the total network and service levels to what it deems is required • Operator can gain synergies and efficiencies across the whole network • Better opportunities for economies of scale • Overcomes inter-operator revenue sharing requirements 	<ul style="list-style-type: none"> • Risks of private monopoly which abuses its positions • Difficulty to enforce compliance conditions since ultimate sanction requires termination of Contract for the entire network and finding replacement • Pressure for tariff increase may prove hard to resist for this reason • Authority cannot supplement the franchise service by authorizing other operators • Only an international operator would have the technical and institutional capacity needed
<p>Network Concession The Authority specifies the required service offer for the network in broad outline, but the operator retains freedom in respect of tariff setting and optimizing his transport supply to passenger demand within the network</p>	<ul style="list-style-type: none"> • Simplicity for the Authority • No revenue burden for Authority; normally expected to be self-financing • Operator is motivated to innovate and develop the network • Operator has fairly free hand in network design • Harness the knowhow and experience of the operator which may well exceed that of the Authority • Concession may include development rights and the introduction of capital for infrastructure 	<ul style="list-style-type: none"> • Risk of private monopoly which abuses its position • No control over Tariffs levels which would be set by the concession to maximize profits • Difficulty to enforce compliance conditions since ultimate sanctions requires termination of contract for the entire network and finding replacement • Authority has little or no say even about general service parameters; cannot determine the transportation outcome • Authority cannot supplement the concession service by authorizing other operators • Only an international operator would have the technical and institutional capacity required • Fixed investments for operating infrastructure may deter potential concession bidders.

2.3 Integration

Integration is the incorporation of all modes of transport comprising rail, bus, water, air, taxis, NTM, 2 and 3 wheelers to operate a seamless entity for the benefits of the fare-paying passengers. The responsibility lies on the transport institution to ensure that in

the planning and preparations of the public transport activities in the urban city that all the modes are integrated. There are inter-modal integration (integration between modes ie rail and bus) and as well as uni-modal integration (within a mode).

However, Potter (2010) and Dhingra (2008) identified the following integration:

1. Locational integration; being able to change easily between transport modes using interchanges. It is imperative that the transfers be made as seamless as possible, with the minimum of time and difficulty.
2. Timetabling integration; this is the integration and connections of various arrivals and departures times of the different modes or the same mode to enable passengers connect to scheduled departing or arriving service to their destinations.
3. Ticketing integration; public transport users (and those who desire to be) are not only sensitive to the absolute level of fares, but also to the number of times that fare must be paid and how fare media are purchased. This is obviously most important for travellers that must transfer but also has implications or those who don't. A public transport user should be able to buy a ticket for multiple journeys and days.
4. Institutional integration; this is a system where different agencies like railways, unions, water transport agencies etc work interfacing with each other.
5. Information Integration; The information should be available at home, at work or school, on board and at stops, stations, terminals and interchange points. The type of information will include:
 - Schedules and next service arrival times at the first boarding stop;
 - Way finding information directing travellers between major public transport stops, stations and terminals and major activity centres;
 - Way finding information within transfer facilities;
 - Schedules and next service arrival times at transfer points;

The key objective is to provide the needed information which is easy to use and understand for all services which could be available on mobile Apps, website etc.

2.4 Fare Management

Public transport fare setting and management of the revenue allocation system are the responsibilities of the transport institution. Depending on the contracting options, there are various beneficiaries to the revenue accruing from the public transport scheme. For all modes of transport, deregulation of fares into private sector prerogatives would result in no doubt over-commercialisation without the social element in the provision of transportation services to the users. For example, in Bogota (Columbia), the regulator (TransMilenio) representing the government, the operators (both trunk and feeder), the trust fund manager and the fare system company form the revenue cycle as shown in the figure below:

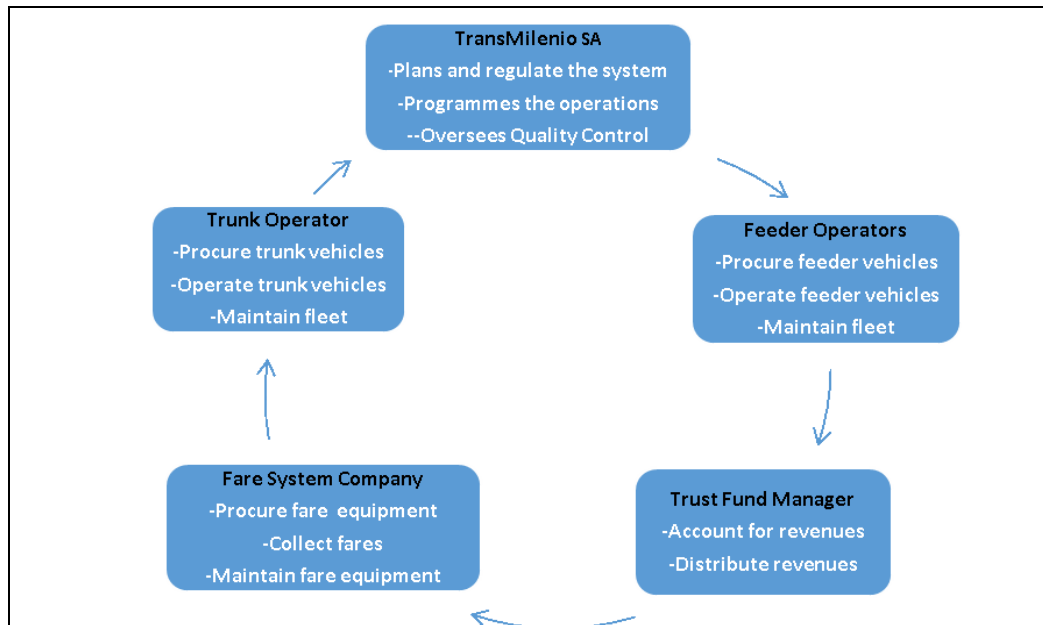


Figure 1: Revenue Management Cycle

2.5 Provision and Management of Transport Infrastructure

Provision and maintenance of public transport infrastructure is a key component in the efficiency of public transport operations. If such is not institutionalized, it would result to public transport infrastructure dearth which many countries particularly in the developing countries are suffering from contemporarily. It is a key function of the transport agency/institution to provide and maintain public transport infrastructure to ensure the operations of public transport is sustained efficiently. Jurisdiction over the provision and management of urban transport infrastructure in Africa for example is spread over multiple tiers of government ranging from central to local administrative constituencies. Ironically, there is paucity of funds particularly for local tiers of government in developing countries to provide and manage public transport infrastructures.

Typically, several national and local bodies share responsibilities whilst separate legislation governs roads, rails and water transport infrastructures development, provision and management. The monitoring of damage to road infrastructures by public users is poorly coordinated in developing cities as there are no CCTV on both trunks and feeder roads resulting to non-identification and apprehension of culprits. Cost recovery is therefore low coupled with continuous maintenance neglect as a result of non-institutionalization.

3. Options and Models of Transport Authorities

The option and model of transport authority to be adopted is dependent on local circumstances. There is no acclaimed best practise as it varies from country to country depending on the political arrangement, funding autonomy structure, legislative framework amongst others. The options for transport authority however would comprise but not limited as stated in the table below:

Table 3: Transport institutional options

Category of institution	Description
Transport Department	Large entity with a wide range of regulatory and management responsibilities; reporting directly to the city or country political officials
Transport Authority	Organisation with wide oversight on all public transport activities, given autonomous status through a Board of Director as set up by an Act or legislation.
Public Company	A specially created company that is owned and managed by the local government
Specialized transport agency	Smaller organisation with a focused mandate; reporting directly to city political officials
Non-governmental organisation	Independent outside organisation that is given the responsibility of managing the public transport

Meakin (2004), Hamed (2008) and Kane (2001) considered accountability for performance, separation of functions, defined working procedures etc as requirements for effective institutional management. However, the key to successful transport institution includes but not limited to the followings;

A. Political champion and continuous acceptance: there has to be a political leader that would formally champion the formation of a transport institution, woos the support of legislation and continuous acceptance by successive political office holders. If political championing and acceptance are weak, it will result to either non-formation of transport authority, redundancy of an existing transport authority or eventual demise. Without a strong political championship, the existing multiple transport related agencies in the city or country would not allow the transport authority to survive, as it would be perceived as a threat to their relevance. It would therefore require a lot more of politicking and lobbying to set up veritable structures and good governance for the institutionalization and operationalization of the transport authority.

B. Defined and predictable sources of funding: one of the fundamental factors that would make or mar a transport authority is the availability or non-availability of funds for project feasibility study and implementation. It would also determine the capability of the authority to hire professional and technical staff, build capacity, carry out administrative and routines responsibility, engage and educate stakeholders amongst others. There are cases where multilateral donors like the World Bank, French Development Agency, and Africa Development bank etc may provide grants or loans through the government to the transport authority, the government would however be required to provide its own counterpart funds to execute identified projects in the city. It is therefore of utmost priority for the national or local government of any city or country to secure the necessary funding structure that is sustainable to support the long-term existence and relevance of the transport authority in the city or country.

Other sources of continuous funding for the transport authority are franchising agency fees, consultancy charges for third party, congestion charges, parking charges etc. The quantum of funds accruable to the transport authority is a function of the types of franchising agreement between the transport authority and the franchisee, and the degree of enforceability and empowerment of the transport authority.

C. Formal linkage to land-use and environmental planning: Transportation planning is meant to address the urban environmental spatial differences in the city. The city transport authority therefore does not plan or operate in isolation from other planning authorities in the city or country. Where any dichotomy in planning exists, the consequences are poor integration of land-uses with transportation, inefficiency in the implementation and operations of transport projects, increased urban traffic congestion, longer trip-making for the urban residents and lack of cohesiveness in the development of urban transport infrastructures.

Planning for transport projects would be an opportunity to achieve an enviable land-use changes within the urban landscape in the city. Land-use refers to way the urban land form is shaped through policy action and consumer preferences. Land use is often best characterised by what is known as the “3D” ie Density, diversity and design. The concept of “3D” can be the basis for creating an effective ridership base for public transportation. For density, areas of high and medium density are located with inhabitants to support shops and public services without motorised transport. In low density areas, consumers must be attracted from wider areas of inhabitants to support commercial activities. In that vein, motorised means of transportation would be required to cross over various distances. Diversity is the creation of mix uses of land within in an area of community. It combines commercial and residential uses in an area thereby reducing the length and number of trips in a particular area whilst cycling and walking become a dominant means of access to desired destinations. Design refers to the planning of housing, shops and public transport in a manner that supports a reduced dependence on cars. Transit-oriented development serves as a way for achieving such pattern of transport and land uses integration. Transit-oriented development or smart growth is the increase of the proportion of destinations like shops, schools, worksites, public services located near public transport stations as well as improving walking conditions to the areas.

D. Formal public private sector participation

From all ramifications, it will be extremely difficult for the public sector to execute all transport projects alone, considering the paucity fund that is competing for various public services. This therefore calls for the public authority to partner with private sector in the delivery of transport projects. Though, private sector investment in public transport infrastructure is arguably limited, but it is conceivable that under limited circumstances, it could be of great benefit to the public. Private sector funds in infrastructure investment could help the public sector diversify and re-apply its fund on other aspects of the economy, however, it could also prove to be more expensive at the long-run because of the commercial orientation upon which such funds are applied. Private investments in public infrastructure can lead to the delivery of higher quality infrastructure and could be a means of checkmating corrupt political public office that would have compromised the process of public infrastructure developments.

Areas where private sectors have invested in transport infrastructure include toll plaza as is in the case of Lekki expressway in Lagos (Nigeria), rail infrastructure like the

Johannesburg Gautrain linking to the city of Pretoria, Hong Kong subway developments etc. In most cases, the private sector willing to invest in public transport infrastructure are construction companies, rolling-stock manufacturers, real estate developers and private banks. Such investors have the attractions of long-term concession to be able to recoup invested funds. Private transport operators are usually interested in the acquisition and maintenance of rolling-stock, recruitment and management of crew, as well as the acquisition, management and maintenance of fare collection system.

The main difficulties encountered in Public Private Partnership inclusive of transport projects comprise;

- Inability of the government to protect the public interest in contracting;
- Potentially increase actual project cost to the taxpayers;
- Potentially less focus on quality of service;
- Political and regulatory risks to investors.

For any Public Private Partnership to thrive, there has to be strong policy and regulation, enforceable and transparent risks allocations, high level of sophistication in drafting and contract negotiations.

E. Authority over strategic operations and polices

As part of the bedrock for Public Transport institution's effective functioning, the Authority has to have oversight of the management and operations of the transport system. The Authority would need to design the level and type of services that the concessionaire must maintain ie number of bus frequency per direction per hour, headway and total number of buses or services that would be required to meet the demand, specified speed, dwell time and lay-over at stations, stage carriage, stop, express or semi-express services, time of commencement and closing of operations etc. The concessionaire or the private operator would not be expected to fix fares on their own to ensure public socio-economic protection. The Authority will however be required to carry out some economic analysis visa-vice the demand that would justify private participation.

Table 3: Typology of Metropolitan Transport Authorities

City	Name of authority	Governing body	Constituent local governing units	Public transport functions							
				planning		regulations		Fares/marketing		Infrastructure	
London	Transport for London	Appointed expert governing board	boroughs	✓	✓	✓	✓	✓	✓	By boroughs	

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Manchester (mode for 7 UK metropolitan countries)	Greater Manchester passengers transport authority	Elected representatives of constituent	10 district councils	✓	✓	✓	✓	✓	✓	✓	By district councils	✓	✓
Paris region	Syndicate des transport d'Ile de France	Councils of representatives of central, department and region gov't	Department and region	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lyon (French provincial model)	Urban transport perimeter (PTU)	Association of constituent town councils	25 towns councils	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Frankfurt (German model)	Rhein-main – Verkehrsverbund GmbH	Supervisory board representatives of constituent cities districts and state	11 cities, 15 districts, states of Hessen	✓	✓	✓	✓	✓	✓	✓	By municipalities	✓	✓
Singapore	Singapore land transport authority	Appointed board of directors	No local government	✓	✓	✓	By PTC	By operators	✓	✓	✓	✓	✓
Metro manila	Metro manila development authority	Metro manila council of constituent mayors	13 cities, a municipalities	✓	✓	By LTF RB	By LTF RB	✓	operators	✓	✓	✓	✓
Hong kong	Transport bureau and transport department	Appointed transport advisory committee	No local government	✓	✓	✓	✓	By TAC	By operators	By works Dept	✓	✓	✓

Source: Meakin, 2004

F. Pipelines projects

The relevance of any institution is the proven ability to initiate and implement projects that would continually impact on people's mobility and political promises. If there are no transport hard core projects to execute, maintenance and monitoring of existing projects would be required to ensure sustainability and public satisfaction. Even where there are multiple transport projects to implement, maintenance of existing projects, gauging of users' satisfaction and correcting service defects should form the fulcrum of the public transport Authority activities.

4. Examples of Transport Authorities

- a) **Transit Authorities- The US Model:** In the US, the creation of Transit Authorities followed the transfer of public transport operations to the public sector. In 1949, out of the 117 American cities, 107 had privately owned transport systems. By 1979, only eleven cities had major private sector operator. Many transit authorities employ contract executive management which are selected competitively, thus introducing private sector incentives into some areas of operations. Not all services are therefore operated by the transit authorities. Subsidies are provided to support transit operations from the central government to municipal authorities, though half or less of the operating cost is met from the revenue. With increased pressures on subsidy reduction, surrogates are devised to improve the efficiency of the operator whilst some cities now achieve over 65% of operating costs from fares.
- b) **Verkehrsverbund – The German Model:** In Germany, state governments make transport policy, whilst the largest cities and conurbations have joint transport authorities which plan and integrate services and co-ordinate a common fare structure and investment programmes on behalf of the participating operators.
- c) **STIF – The French Model for the Paris Region:** The French has two models; the Paris region model and the Provincial cities model. From 1959 until 2000, the syndicate des transports Parisiens (STP) was responsible for organizing public transport in Paris Transport Region. But in 2000, the SRU law changed the transport authority for the Paris region from STF to STIF which also introduced several representatives from the regional councils to the board. In the Paris Region, the government provides about 55% of the services directly through the state-owned undertakings including RATP and SNCF. The remaining services are provided by private operators under tendered contracts. The Provincial cities model devolves the responsibilities of public transport planning as well funding to the lowest level of government strata. Under the decentralized arrangements, each council must define its transport policy through a transport mobility plan; design the services (routes, timetables, quality); determine the fares; develop and manage transport infrastructure; choose operators through competitive tendering.
- d) **Transport for London – UK model for the London Area.** Transport for London is responsible for implementing the Mayor Transport Strategies and is under his direct supervision. Transport for London was established in 2000 chaired by the Mayor with board members who are appointed by the Mayor having understanding of transport matters. TfL is responsible for both the planning and delivery of transport services. It manages London Buses; London Underground; Docklands Light Railway; London Trams; London River Services; Victoria Coach Station; London Transport Museum; Taxis and private hire vehicles; Dial-a-Ride Scheme; the network of 580km of main roads including 4,600 traffic lights. Transport for London works with the boroughs which implement the Mayor

Transport Strategies on local roads, the Strategic Rail Authority, the police and other stakeholders etc.

5. Conclusion

Institutional challenges associated with urban transport system are coordination (Kanyama et al, 2004). Difficulties of institutional coordination which can paralyse policy development are exemplified in Buenos Aires, Argentina. Overlapping authority between national (Republic of Argentina), provincial (Federal Districts) and city (City of Buenos Aires) governments are outstanding despite numerous attempts ((Richard, 2004)). As in Bangkok, urban transport policy initiatives developed by one level of government or agency are frequently resisted by another level of government (agency) with overlapping or related responsibility.

In Nigeria for example, there over 20 agencies responsible for various transport functions at the Federal level as well as multiple agencies at the state level with cross-purpose jurisdiction. As there are traffic gridlocks at major intersections on the roads, so in the same vein, there are institutional gridlocks at planning and inter-agency level.

A single transport institution avoids many of the inter-organizational conflicts that are prevalent in proliferation of transport agencies performing parallel roles. An institution like Transport for London (TfL) has a wide transport functions that cut across the entire London Metropolitan Area.

About the author

Dr. Desmond Amiegbekhor has been involved in the management of transport operations for over 24 years with educational background in Transportation Operations Planning and Urban Transportation Geography from the Federal University of Technology Owerri and University of Nigeria Nsukka (UNN) respectively. Dr. Desmond has garnered varied experiences in Public Transport Operations spanning from Associated Bus Company (ABC) Transport Plc from 1993 to 2007 leaving as the General Manager of the organisation. He is the Director of Bus in Lagos Metropolitan Area Transport Authority. He is a Fellow of the Chartered Institute of Logistics and Transport UK, Alumni Harvard Business School and a Faculty Member Lagos State University. He is a vested transport professional with leading roles in Transport Operations Management, Transport Service Planning and Transport Researches. He has published over ten editorial topical transport issues in both local and international journals. He has extensive experience in the Development of Public Transport Operations, Transport planning for fleet deployment and Management.

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