

# Identifying policies and legislative frameworks to create integrated innovative public transport in Gauteng province

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## **ABSTRACT**

Urban Public Transport (UPT) plays a very imperative role in a society, it allows people to access different locations easily. Good urban public transport services attract more users reducing private vehicle on the roads and creating an environment with less gas emission produced. Key instruments used globally for good public transport service are policies and legislative frameworks. In South Africa, all three spheres of government National, Provincial and Local have implemented good urban public transport systems. However, in all the three spheres of government, there seems to be lack of connectivity of different systems of innovative urban public transport (BRT system and Gautrain system). Therefore, this paper aims to identify policies and legislative frameworks put in place to integrate innovative urban public transport in Gauteng province and what strategies can be implemented from these documents. The study adopted qualitative research approach were literature of previous documented studies, urban public transport drafted policies and legislative framework documents in South Africa, and interviews conducted with urban public transport officials. The results revealed that there are policies and legislative frameworks implemented, however, it is difficult to practice the strategies and ideas documented as these systems are owned by different entities. The study concluded that the provincial government need to identify ways of strengthening the available policies and legislative frameworks to integrate the different innovative public transport systems, by doing so, a common ground could be identified for integration leading to convenient public transport creating seamless travelling in the province. The study recommends that policies and legislative frameworks used in developed countries with good integrated urban public transport should be adopted and practiced in Gauteng province.

Keywords: Urban Public Transport; Integration; Policies and Legislative Frameworks; seamless travelling

## **1. INTRODUCTION**

Globally, developed countries with good public transport system have good policies and legislative framework supporting sustainability, and integration to allow commuters easy access to UPT services. Urban public transport plays a significant role in the social and economic development of any country, and the National Government of the Republic of South Africa (the Government) has recognised transport as one of its priority areas for socio-economic development. The effectiveness of the role played by urban public transport is to a large extent dictated by the soundness of the transport policy and the strategies utilised in implementing the policy (Chowdhury et al. 2018). Gauteng has developed innovative UPT in the past 10 years BRT system and Gautrain system. However, there is lack of integration in these systems. Therefore, the paper aims to identify policies and legislative frameworks put in place to integrate innovative urban public transport in Gauteng province and what strategies can be implemented from these documents for the province to have a world class functioning UPT.

## **2. LITERATURE REVIEW**

Recently, integration of PT systems has received attention from policy makers. Government authorities are investing in new infrastructure to improve the quality of PT services (Vassallo et al., 2012). Globally, regional plans are typically established to indicate amendments in the current system to alter it into a connected system. As most cities have an existing PT network, it can be difficult to create the changes that are required for integration. Implementation occurs in steps. For this reason, it is important to determine the key attractive features for the users (Chowdhury et al. 2018). The main purpose of an integrated transport system is to provide PT users with a “wide spectrum” of destination choices and with a convenient, accessible, comfortable, safe, speedy and affordable system (Ibrahim, 2003; Luk and Olszewski, 2003; Uलगin et al., 2007). Studies have shown that integrated systems can attract a greater number of users.

Ibrahim (2003) discussed that in Singapore, where PT use is considerably high at 60% of mode share, the government aimed to increase the mode share to 75% through integration. Matas (2004) investigated the significant increase of PT use (>40%) in Madrid, Spain from 1986 to 2004 and found the reason to be the changes made for integration. The study discussed that integrated fare system and network integration had the most impact on ridership. Buehler (2011) conducted a comparison study between USA and Germany and showed the ridership of sustainable transport in Germany to be greater; 40% of German travelers used sustainable modes (8% for PT) while only 11% of American travelers used sustainable modes (2% for PT). One of the reasons given was better integration of PT services in Germany. Abrate et al. (2009) assessed the impact of fare integration on the ridership of services from 69 Italian operators. The effects of integrated fare systems on patronage were 2% in the short-run and 12% in the long-run (Chowdhury et al. 2018). These, countries managing to improve to higher ridership have well design policies and legislative frameworks focusing on supporting integration.

The provision and management of well-integrated, affordable and reliable modern public transportation systems in South African cities is critical in ensuring both smart cities and mobility within them. Notwithstanding the evident benefits of modern urban public transport systems, governments of the developing world at all levels, have been struggling to plan for, develop and manage public transport systems of acceptable standards (Musakwa & Gumbo, 2017). African governments, have been struggling to provide well-coordinated, efficient, reliable and affordable public transport systems in their ever-growing cities spatially and demographically (Risimati & Gumbo, 2018). Consequently, there have been spirited efforts in South Africa to not only enact relevant urban transport legislative frameworks and policies but also their implementation to facilitate the development of efficient modern public transport systems. Notably, South Africa has adopted several enabling policies and legislative instruments to promote innovative urban public transport systems since the realisation of the democratic dispensation in 1994 (Risimati and Gumbo 2019).

### **3. METHODOLOGY**

A qualitative study research design was adopted with most of the data drawn from the policies and legislative framework. Some of the data was drawn from the key informant interviews to understand why policies and legislative frameworks cant be implemented or used practically with 3 officials from the Department of Transport, 2 officials from City of Johannesburg Metropolitan Municipality and Larger database. Larger database used are Scopus, Science direct, Sage and Google scholar. Secondary data sources were used such as journal articles, Newspaper articles and document from municipalities. The publication of authors featured on many journal articles in search results were studied for any relevant information to assist the study. For preparation of this study, 50 publications were reviewed, and only relevant publications were used. Further, Up-to-date conference proceedings were reviewed to assist with the current awareness, improvement from industry practitioners and researchers. Secondary data is important in supporting the study based on what other studies revealed. Purposive sampling was selected to assist this study with relevant data, only UPT journals articles and other materials were used. Journals as well as other materials selected only focused on integrated innovative UPT, Policies and legislative frameworks. Journal articles focusing on UPT not relating to this study were excluded. Distillation of existing literature and documented analysis was used for the data analysis. Documented analysis highlighting ways of supporting integration of innovative UPT through drafted and approved policies and legislative frameworks was conducted.

### **4. FINDINGS**

Interviews from different personnel have indicated that there are different modes of innovative UPT in Gauteng province which are owned by different entities with different visions. With these different

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innovative UPT modes developed in Gauteng, it has been agreed that there is lack of integration and it is not easy to connect all this modes due to different objectives. However, the study has identified numerous policies and legislative framework supporting integration of different modes of UPT. These policies and legislative frame are implemented to support the modal shift from private vehicles to UPT. This will minimize several challenges on the roads such as traffic congestion, GHG emission and drive less by reducing private vehicles and drive smart by using innovative UPT. Below are the policies and legislative frameworks identified;

#### **4.1 National Development Plan (NDP) 2030**

The National Development Plan offers a long-term perspective for the entire country. It aims to eliminate poverty and reduce inequality by 2030. The plan identifies the improvement of the quality of public services as critical to achieving transformation. This requires provinces to focus on identifying and overcoming the obstacles to achieving improved outcomes, including the need to strengthen the ability of local government to fulfil its developmental role. Transportation planning aims of the NDP 2030 are focused on the need to address inherited spatial divisions and call for a strategy that focuses on the space economy to address the legacy of the apartheid geography and create conditions for more humane and environmentally sustainable living and working environments by defining a spatially targeted approach.

The need for modal shift from private transport in the long term is highlighted. Behavioural change is critical in reducing environmental, social and economic cost, by shifting user and supplier decisions about movement, travel and sources of energy. While some forms of private transport, such as the car, will still be used in 2030, a marked change to PT will emerge through concerted effort, strong leadership, consistent messages and actions, and public system alternatives that work. By 2030, PT will be user-friendly, less environmentally damaging, cheaper and integrated or seamless.

#### **4.2 Draft Revised White Paper on National Transport Policy 2017**

Integrated transport planning has experienced limited success and difficulties in implementation, in that integrated transport planning is subservient to prioritised public transport and associated planning, and land use and transport integration is missing from current practices. An integrated transport planning framework should be established that integrates planning for infrastructure and operations across different modes, integrates the transport system with other sectors, and fosters integrated transport planning between the DoT and other departments, across and within the three spheres of government using shared data and information.

The part of the policy's mission in to provide integrated, well-managed, viable and sustainable transport planning and infrastructure meeting national and regional goals in the 21st century, in order to establish a coherent base to promote accessibility and the provision of safe, reliable, effective and efficient transport services. Accordingly, the strategic objectives for ITP are as follow:

- To establish sound integrated intermodal coordinating structures and promote the provision of seamless intermodal services;
- To promote seamless integration and harmonisation of standards with neighbouring member states; and to develop a comprehensive transport data and information system to inform integrated transport planning decisions;
- To find a practical and reasonable solution that leads to an equitable distribution of infrastructure capital, management, operating and maintenance costs across transport modes;
- To encourage more urban land use densification, correcting spatial imbalances and reducing travel distances and times for commuting to a limit of about 40 km or one hour in each direction;

- To promote a strong, diverse, efficient and competitive transport industry within the limits of sustainable transport infrastructure;
- To enhance the competitiveness of South African industry and the quality of life of its citizens by providing protection of consumers, safety and security, and meeting accessibility, reliability and mobility needs by providing transport infrastructure to serve the purpose;
- To ensure that the transport needs of persons with disabilities are considered when new infrastructure and operations are planned and designed;

To advance human resource development in the provision of transportation infrastructure and management of operations (Department of Transport 2017).

#### **4.3 Green Transport Strategy for South Africa: (2018- 2015)**

South Africa has launched a Green Transport Strategy in June 2019 (GTS). Green Transport Strategy promote a transport system that is environmentally friendly and help boost economic growth and create jobs. This aims to minimize the adverse impact of transport on the environment, while addressing current and future transport demands, and encourages electric vehicle use and public transport enhancement. Fundamental to the greening of the transport sector is the seamlessly integrated functioning of the transport system. These integration policies and strategies have been defined in all transport sector planning, policy and strategy documents. Integration is the key principle on which all transport strategy rests for successful execution and functioning. In terms of the GTS, the modal shifts to rail and away from private vehicle use are premised on integrated transit and feeder systems that make far greater use of public transport and non-motorised transport.

GTS acknowledges the importance of advance technology in integrated transit systems as it notes that Intelligent Transport Systems have the potential to reduce GHG emissions and can be used through transport planning processes to provide advanced data via digital connectivity such as signal timing, real-time traveller information, incident management, etc. Transport planning and investment decisions can improve the operational efficiency of multi-modal transport networks and integrated transport and land use planning to reduce travel time. The DoT in consultation with National Treasury will provide a national team of experts to consult to all spheres of Government as infrastructure expands. The team of green transport integration experts will also consult to the Strategic Integrated Projects throughout their planning and execution.

#### **4.4 National Land transport act of 2009**

The national land transport act 5 of 2009 (“NLTA”) provides for the development and implementation of the Integrated Rapid Public Transport Network (“IRPTN”) plans by the metropolitan cities in order to provide uninterrupted public transport services to commuters. The Gauteng province consequently initiated the implementation of the IRPTN plan to improve the quality of lives of its commuters through facilitating an affordable and safe public transport services that will reduce the daily travel time between home and work. Bus travel time is naturally unstable since a small disturbance, such as a delay in boarding or alighting, can start a vicious cycle that results in bus unpunctuality. Further, buying a ticket for every public transport mode cost and take time. This reduce the attractiveness and the competitiveness of public transportation (Letaifa, 2015).

#### **4.5 Gauteng 25-Year Integrated Transport Master Plan (2013)**

The 25-year Integrated Transport Master Plan (ITMP25) contains a full Implementation Strategy for the transformation of the transport system in Gauteng over the next 25 years. However, given the current state of transport in the Gauteng City Region and the associated pressing problems and challenges, some urgent interventions are required. A number of various initiatives have been identified in order to integrate urban

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public transport in the Gauteng province. Regarding the study, integrated public transport ticketing and information are identified as one of the key importance initiatives.

#### 4.5.1 Integrated Public transport tickets

In April 2011, Gauteng Department of Roads and Transport undertook the completion of Public Transport Systems Planning and Development of an Integrated and Interoperable Fare Management Framework. The objective of Integrated Fare Management (IFM) is to make it possible for seamless travel and transfer across an entire journey using a single fare media (and possibly a single fare) for different operators and modes of transportation. Furthermore, it is to promote an integrated fare collection system that will improve the transit experience and convenience for commuters. The IFM approach is to make public transportation systems more efficient by reducing the need for cash and cash management, and improving boarding times, which in turn reduces delays leading to better schedule adherence.

IFM relates to multiple operators (and multiple modes such as bus, rail, taxi) who deploy and accept the same fare collection mechanism for public transport services within a defined region. This type of system allows customers to travel throughout the region in a seamless manner. At a minimum, the use of a common fare media permits commuters to load individual Transit Products (e-Tickets or passes) from multiple operators as well as e- Money (electronic cash for fare payment) onto a single card. The purpose of the IFM Framework is to establish a common basis and vision from which to promote and execute Integrated Fare Management, towards establishing an integrated public transport system in Gauteng. The framework is being developed on a provincial level (to ensure consistency for strategic components), although operational components of the framework will be carried out primarily at a municipal level.

#### 4.5.2 Integrated Public transport Information

The potential for collecting and integrating passenger travel information has always existed, but never realised because complex surveys were necessary to record this data. However, this problem has been resolved with the advent of Integrated Fare Management and the requirement for fare collection systems to comply with National AFC Regulations through the use of bank issued fare media. Many such electronic fare collection systems calculate and deduct a passenger's public transport fare through a "tap on tap-off" process. With the aid of vehicle satellite tracking systems this data translates into information on passenger travel patterns and volumes. A central data warehouse is required to be established in order to collect and collate this passenger travel data from different operators. The data can then be analysed to produce passenger travel information and real-time data for schedule information systems at stations and on-board busses. The advent of fast, reliable and affordable wireless/Internet communication has made it possible for travel information to be disseminated timeously and reliably via mobile phone (sms or social media), web sites and electronic signs. The use of an integrated, bank issued fare media must be established, through compliance with National AFC Regulations, followed by a Provincial Public Transport Data Warehouse. This will ensure the centralised collection of passenger data, to be disseminated as required once analysed. A Passenger Information Call Centre would be one means of co-ordinating the dissemination of such travel information.

### **4.6 Comprehensive Integrated Transport Plan 2015 - 2020**

CITP 2015 to 2020 addresses all the chapters specified by the Department of Transport (DoT) CITP Minimum Requirements. The CITP is a statutory plan required by the National Land Transport Act No. 5 of 2009 (NLTA) and the Gauteng Transport Framework Revision Act. The CITP forms an integral component of the Integrated Development Plan (IDP). The CITP formulates City of Johannesburg, City of Tshwane and Ekurhuleni's vision, mission, policy and objectives for transport, consistent with the NLTA. The scope of the

CITP has gone beyond what is required by the DoT in its minimum requirements, including aspects such as sustainable transport, aviation, road and public transport safety and security, intelligent transport systems, and micro-simulation of traffic in congested areas (Department of Transport 2007). The Gauteng province goals and objective are develop a transport system that improves accessibility and mobility whilst enhancing social inclusion, and provide a fully integrated public transport system. Consequently, develop a transport system that drives economic development, improve the safety and security of the transport system, and develop an efficient, effective, development orientated public transport system and integrates land use and public transport plans.

## **5. Conclusion**

Improving the reliability of UPT services is a key priority and primary focus for the Gauteng Province Roads & Transport as stated in the Gauteng 25- year Integrated Transport Master Plan. Consequently, National transport act 5 of 2009 (“NLTA”) supports integrated UPT which provides for the development and implementation of the Integrated Rapid Public Transport Network (“IRPTN”) plans. The City of Tshwane (A Re Yeng BRT), City of Johannesburg (Rea Vaya BRT) and Ekurhuleni (Harambe BRT) innovative FUPT services are the focus and Gauteng province is the primary unit of study. The aim of the study was to identify policies and legislative frameworks that supports the integration of innovative UPT. Therefore, policies and legislative frameworks have been identified. Accordingly, the province needs to initiate the implementation of the Integrated Rapid Public Transport Network policies in its Metropolitan cities to improve the quality of lives of its commuters through facilitating an affordable and safe public transport services that will reduce the daily travel time between home and work. Consequently, other policies and frameworks used in the province indicate strategies that could be used to strengthen and integrate different modes of UPT services, and this include integrated information dissemination, integrated payment system and spatial integration. With this, a common ground could be discussed, a working relationship for collaboration amongst public transport service providers with various entities to assist produce quality UPT services could be designed to benefit everyone.

Non-integrated transport planning across various modes result in modes that are not sufficiently customer-focused and that are inefficient and have poor levels of reliability, predictability, comfort and safety. Such planning does not reflect the world-class aspiration of the NDP 2030. The fragmented nature of institutional governance over public transport is also not helpful. Therefore, there is a need for emergency solution to adopt and implement right policies and frameworks in the province.

## **6. Recommendations**

Policies and legislative frameworks in Gauteng province supports the integration of urban public transportation as their strategies of improving the public transport are focusing on integration. Therefore, the study recommends the adoption of the available policies and legislative frameworks in the province. Policies are available, however, the challenge they are not implemented practically. This is due to that, some entities are private and the others are public. Cooperation of public and private entities will strengthen the province’s public transport. Therefore, policies and legislative frameworks need to support the relationship between the two (private and public) as they bring different perspective in UPT services. Further, countries with developed UPT make private and public entities relationship workable this include fare collection, information dissemination that is inline with one mode to the next and spatial integration with good transport networks. If such can be implemented at a global level, Gauteng province is capable as there is availability of innovative UPT. South Africa, Gauteng province, could adopt strategies used by these countries providing good UPT services.

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