

The Impact of Ride-Sharing on Urban Traffic Flow in Nigeria

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Abstract: *Urbanization of Nigerian cities has become faster, which in turn has caused significant difficulties for transportation within them, namely worsening traffic jams, public transportation system inefficiency, and environmental issues. One of the technological solutions to increase the sustainability of the given transport networks is the adoption of the system of passenger car sharing. The study considers the effect ride-sharing has on urban transport in Nigeria in both situations as a way to reduce congestion and as one of the causes. The main success stories are less car ownership, better accessibility to the suburbs, and the new introduction of ride-pooling options. However, there are also negative consequences such as the increase in the driver's vehicle miles, deadheading and the existing road infrastructure being further weakened. The study emphasizes the fact that, with the help of policies, partnerships, and road infrastructure investments, ride-sharing can be a significant means for urban mobility improvement. Recommendations are provided for policymakers, local governments, ride-sharing companies, and urban planners to harmonize ride-sharing with Nigeria's broader transportation landscape. Future research directions include long-term impact assessments and the integration of advanced technologies in Nigeria's urban mobility framework.*

Keywords: Ride-sharing, Urban traffic flow, Nigeria, Urban mobility, Urban planning, Public transportation, Congestion reduction, Electric vehicles (EVs), Autonomous vehicles, Informal transport systems, Smart traffic management, Multimodal transport systems, Sustainable transport, Ride-pooling

INTRODUCTION

Urbanization is like a two-edged sword in cities all over the world, because as it brings economic growth and development opportunities to the people, it equally throws challenges at them, particularly at the level of urban transportation. In Nigeria, the rapid expansion of cities like Lagos, Abuja, and Port Harcourt has exceeded infrastructural growth, which has brought out a transportation problem. Cities like these face severe traffic jams. It includes endless waiting periods, fuel wastage, and a decrease in productivity as the main parameters of the problem (Oluwafemi & Daramola, 2022). These obstacles require original and creative

approaches to make mobility easier and to reduce the negative consequences on the transportation systems caused by urbanization.

Ride-sharing has emerged as a potential game-changer in urban mobility. Globally recognized as a form of shared mobility, ride-sharing involves sharing a vehicle with other passengers whose travel itineraries align partially or wholly with the driver's route (Morency, 2007; Furuhata et al., 2013; Jin et al., 2018). This idea is being talked about in Nigeria using applications such as Uber and Bolt, which provide both informal and commercial ride-sharing options.

The immediate increase in ride-sharing platforms in Nigerian cities reflects the global trend of collective and eco-friendly mobility solutions. These services ensure charm, payment through money, and decrease vehicular traffic. Nevertheless, their influence on city congestion and the whole urban mobility situation is a subject that is actively being discussed. Lagos is a city with over 20 million citizens, it symbolizes the urban transportation issues that Nigeria is facing. A short road network and bad traffic controls make the jam worse which is approximated to be costing the city ₦42 billion lost productivity annually (Guardian Nigeria, 2023). Similarly, Abuja and Port Harcourt, though smaller, are also affected by the traffic. Port Harcourt has issues like too much land use and thin development, meanwhile, Abuja is the main city grappling with rapid urban sprawl and lacking transport systems (IdPublications, 2018).

In such a scenario, ride-sharing introduces itself as a plausible tool. Services, such as Uber and Bolt, promise shared rides that eventually will cut down the number of cars on the road. Nonetheless, as Furuhata et al. (2013) point out, the specifics of ride-sharing like matching passengers' itineraries and synchronizing timetables also mean more waiting and less travel, thus people are less inclined to use this mode of transport. In Nigeria, which is predominantly a location where the informal transport system namely minibuses and motorcycles rules, incorporating ride-sharing into the network poses other types of problems as well.

Nigeria is separated into two categories, which are informally sharing cars and commercial services. The family and friends' ride-sharing among smaller communities, known as informal ride-sharing, is quite rewarding in terms of close relationships and social life (Morency, 2007; Agatz et al., 2012). By contrast, commercial ride-sharing allows strangers to meet on dynamic platforms like Uber and Bolt and share the same trip. The commercial mode has been widely observed globally, but the Nigerian implementation is still an early-stage solution.

At the same time, almost nobody is available on BOLT for shared rides among certified vehicle drivers, which is typical in other places, where professional car driving systems do not have an iteration, although the celebrated ride-hailing companies manufacture them (Gehrke et al., 2018). Studies in different settings (Heno & Marshall, 2018; Li et al., 2019) demonstrate that impurities like trust, data security, and the liability of riding with fellow travellers are drag races on the mobility information highway. Hence, the situation equally applies in the case of Nigeria. The comprehension of these interactions is imperative for intelligent ride-sharing positioning as a remedy for traffic overload.

The main objective of this research is to assess the influence of ride-sharing on urban transportation in Nigeria, looking at its dual role as a remedy to congestion and a cause of the same. In the research on both informal and commercial ride-sharing, the main idea is to discover the small aspects that exist within it and how it will be part of the mobility program in Nigeria. In particular, the study will measure the operational difficulties, consumer behaviour and infrastructure limitations that structurally confine the adaptation and effectiveness of ride-sharing in Nigerian cities.

OVERVIEW OF RIDE-SHARING IN NIGERIA

Ride-sharing, one vital constituent of shared mobility, includes people joining in the same car for the trip whether they have the same route or destination. It leads to the most efficient use of a vehicle, and savings in travel expenses, and thus helps to mitigate congestion in traffic (Morency, 2007; Furuhashi et al., 2013). In Nigeria, ride-sharing is driven by two different processes: the informal and formal ones. Informal ride-sharing, such as carpooling, is characteristic of interpersonal relationships, while the technological support of formal ride-sharing is a platform that connects drivers with passers in real time.

Examples of transportation networking companies (TNCs) in Nigeria are the likes of Uber Technologies Inc. (Uber), Bolt (formerly Taxify), Jekalo, and MyCoPilot. These companies became popular in the former because of their formal model. Uber was the first entrant into Lagos in 2014 which has introduced Nigerians to app-based ride-sharing services. Besides, the tutelage that Uber provides to new entrants into the market by 2017, Bolt, followed by cities, was a major plus. The focus of Jekalo, a platform that was born in 2015, is on the use of community-based sharing for people going in one direction. The recent introduction of a novel platform named, MyCoPilot in 2022, specializing in the provision of rides from one city to another, indicates that the Nigerian transport system is undergoing a great transformation (Dignited, 2023; Mobility Nigeria, 2023). The apps are aimed at further facilitating, location-based matching services between passengers and drivers through mobile applications. The rise of ride-sharing is seen as reflecting the growing needs of bigger cities in Nigeria certainly suffering from extreme crowding.

The proliferation of ride-sharing in Nigeria is an illustration that transportation technology adapts to local needs. The 2014 Uber launch in Lagos followed by the setting up of Jekalo in 2015 for community-based ride-sharing was another important step in this transformation. By 2017, Bolt had emerged as a major competitor, leveraging its user-friendly app and competitive pricing to attract users in cities like Abuja and Port Harcourt. Local players such as GidiCab, which started operations in 2019, added to the market diversity, while MyCoPilot's launch in 2022 demonstrated a focus on long-distance and intercity travel (Dignited, 2023; Connect Nigeria, 2022). Urbanization, a growing middle class, increased smartphone penetration, and the need for more efficient transportation solutions in cities with persistent traffic challenges drove the adoption of ride-sharing in Nigeria. These factors have made ride-sharing an attractive alternative to traditional taxis and overcrowded public transport systems.

Current Trends in Nigeria

At present, ride-sharing services are an inherent part of urban transportation in Nigeria, mainly in Lagos, Abuja, and Port Harcourt. By the number of inhabitants and vehicles on the road, Lagos has become the largest market for ride-sharing platforms. Uber and Bolt are among the multiple ride-sharing providers present in the city and their services vary from private rides to shared pool options. Ride-sharing in Abuja has been reinforced by the government given the myriad benefits it brings to the people, particularly through reliable and easily accessible transportation. Port Harcourt, the major town of the oil industry in Nigeria, has been seeing a rising trend due to the working-class people's quest to find relative solutions to the transport issue.

The major group of ride-sharing users consists mostly of young professionals and students who are the ones, interested in hassle-free and cheap options. The widespread availability of smartphones and internet access has facilitated the growth of these services. At the beginning of 2023, the embrace of cab services through ride-sharing has substantially increased, as the platforms augment their service technology by not only the customers but also maximizing routes (Shaheen & Cohen, 2018; Gehrke et al., 2018).

Even though the area has seen some success, the commercial ride-sharing in Nigeria has its set of obstacles to break through, for instance; lack of infrastructure, high fuel prices, and regulatory issues. Quite certainly, Lagos State instituted strict guidelines on online platforms in 2020, including the need to pay a license and operational limits, which made spending higher for companies and drivers (Mobility Nigeria, 2023).

URBAN TRAFFIC DYNAMICS IN NIGERIA

Factors Influencing Traffic Flow

Urban traffic dynamics in Nigeria depend on several factors, the main ones being population density, road infrastructure, and insufficiencies in public transport. Nigeria's high population growth, particularly in urban centres such as Lagos, Abuja, and Port Harcourt, adds more pressure on its road networks. For example, Lagos, with a population of more than 20 million, is plagued by the worst traffic congestion on the continent. This is due to the high urban population and substantial vehicular traffic. The process of road infrastructure building has been rather slow in many Nigerian cities therefore a considerable issue has been created i.e. the mismatching between urbanization and road infrastructure. Therefore, severe traffic congestion and inefficiencies become the facts of daily life in those cities.

Inadequate public transport systems further add to the traffic problem. Even though buses, minibuses, and other informal routes such as motorcycles (okadas) and tricycles (keke napep) are the most common transport modes, they are still not enough and they are not well-managed as well as they are not safe. So the lack of these transport services will push numerous individuals to depend on personal cars, thereby increasing traffic intensity. It ends up with a disorderly urban mobility system characterized by jammed roads and full buses with long delays, constant blockages and reduced productivity.

Traffic Flow in Nigerian Cities

The accurate traffic flow numbers provide a baseline understanding of the congestion in Nigerian cities and thus help in addressing the stumbling blocks to deal with the problem. Congestion indices, average travel time, and road capacity utilization are some of the tools used in the traffic study. Congestion indices are numerical outputs, which give the way traffic congestion is affecting free flow travel conditions (Adewale & Bankole, 2021). Lagos, for instance, is one of the African cities where the congestion indices are very high meaning that its traffic issues are very grave.

Average travel time is another crucial metric to consider when we take a peek at what data can offer, e.g., daily commutes, regular peak traffic and the distance of the road, what are the commuters doing, it is about how people spend on the streets under usual and peak periods. In cities like Lagos and Port Harcourt, the average daily commutes even top 2 hours making it glaringly obvious that the situation in Nigeria stands out. Road capacity utilization, a measure of the traffic load on a road, is also another essential index. Nigerian cities like Lagos and Port Harcourt, attract road over-utilization due to weak road networks and high traffic density hence traffic jams and decreased efficiency.

Unique Challenges in Nigeria

The administration of traffic in urban Nigeria is particularly endangered by a lot of shortcomings. As a result, traffic mangers of a sweating sector have a long-standing lack of understanding of how traffic systems work in other parts of the world. The much-debated prolonged question about the impact of traffic is that it threatens the very existence of these systems at present and hence should be managed well. Roads in many cities in Nigeria are chest-deep in trouble. They exist in chaotic functionality because potholes, insufficient drainage, and the lack of proper signage are recurring phenomena. The drivers of the conditions are not only responsible for congestion on the road because the number of accidents and cars breaking down frequently add to already existing congestion.

The transport sector is a domain that is digressively discussed through the use of minibuses (danfos), motorcycles (okadas), and tricycles (keke napep) in Nigeria's urban culture. Even though they provide necessary services, the lack of regulation of these modes is a contributor to traffic disorder. The domestics of motorcycles and keke napep are those that wind through traffic without any consideration for traffic rules thereby producing additional threats.

The prime challenge has been the haphazard part of urban transport mobility planning and implementation. As people in some cities rush to introduce novel traffic management techniques to rectify the already existing deficiencies others while lacking them will just go with the flow, such as bottlenecks and long queues. A trial of transport is a quick travelling way that is reducing a little part of the transportation problem in Lagos. It is the usage of transport in a way that fastens the completion of the transportation job. It is the organization of transport in a manner that stifles traffic flow and therefore harbors heavy delays of operation.

IMPACT OF RIDE-SHARING ON URBAN TRAFFIC FLOW IN NIGERIA

Ride-hailing services are now an integral part of urban transportation in Nigeria, especially in cities like Lagos, Abuja, and Port Harcourt. These software platforms provide a dual perspective on the relationship between them and urban traffic. Both positive and negative aspects of their impact on the city may be examined, as well as an analysis of city-specific adoption, and the origin of statistics that prove their effects were addressed.

Positive Impacts

Decrease in Private Car Ownership and Dependence: The very first great advantage of taxi-hailing services in Nigerian cities is their prospect of eliminating the ownership of private cars. The number of self-owned private vehicles on the roads could be less if more people decide to go for the easiest, most convenient, and most economical car rental services such as Uber and Bolt. The studies have shown that taxi-hailing also implies the availability of alternative transportation means for customers who would normally buy private vehicles, especially in highly congested areas such as Lagos. Not utilizing the available parking spaces can result in less pollution and better urban living environments which is the good condition that the cities will obtain.

Easier Approval to a Better and Safer Means of Transport in Poorly Serviced Areas: Ride-sharing platforms have created a significant breakthrough in transportation in areas with poor access to guaranteed safe transportation services. In Nigeria, where the dominant informal means of transport are in such an advanced mode, ride-sharing closes the gap in transport safety by making available better modes of transport. For example, many residents living in the suburbs and outlying areas of the cities may have limited opportunities for travelling by buses and taxis. Sharing services, with the help of GPS and real-time tracking, can solve these problems by offering mobility opportunities to people who are not present in that locality.

Introduction to Ride-Pooling Options and Their Impact on Congestion: Ride-pooling options provided by services like Uber and Bolt further extend the advantages of ride-sharing to reduce congestion. By enabling multiple passengers with the same destinations to use a single ride-sharing option, ride-pooling was able to make a significant reduction of cars on the road. Even though ride-pooling is still in the fledgling stage of its adoption in Nigeria, its potential to resolve the problems of the road and to bring down consumption of fuel over the long term is considerable. Preliminary data from prominent cities such as Lagos hint that ride-pooling might be vital in the management of peak-hour congestion. Negative Aspects

Additional Miles Covered Due to Ride-Hailing Trips: Despite the favouritism of the method, ride-sharing inadvertently adds to urban traffic problems. The mileage increase is a major issue. Yet, ride-hailing is the most preferred choice of many people who would have opted otherwise to use other transport modes, such as walking, cycling and public transportation. In areas where the use of public transport systems is rare, ride-sharing platforms have contributed to the increase in vehicles on the road, especially during rush hours, in cities like Abuja.

Empty leg and its role in congestion: The movement of a ride-hailing vehicle without a passenger, where they move to reach the next station for pickup or return to a highly demanded area, known as deadheading, is another issue that escalates congestion. Deadheading constitute a big chunk of ride-hailing activities in Nigerian cities since drivers have to raise their earnings

in the highly competitive carriage-hailing market. Along with traffic congestion, deadheading increases emissions, which we wanted to minimize through the shared mobility strategies that we have.

The strain on Poor Road Infrastructure: The already poor road infrastructure of Nigeria is made worse by the invasion of ride-sharing vehicles coming in. A lot of urban roads are hardly maintained, have potholes, and have traffic management systems that do not work well. The raking up of the road surfaces with the increased activity from the car-hailing services is the reason why the roads are breaking down more often and this is adversely impacting road congestion. Particularly, in Port Harcourt, the situation is grim given that the road network is not keeping pace with the surge in population compared to the urban areas.

Case Studies

Lagos (High Adoption): Lagos, endowed with a bustling economy and high population density, stands out as the city that has the highest adoption rate of ride-sharing platforms in Nigeria. The city enjoys popularity with the residents because of the practicality and affordability of the services. Nevertheless, the city's chronic traffic jam, among the worst in Africa, makes it impossible to operate these platforms to reduce overall traffic. Studies show that the use of ride-sharing services indeed improves mobility in Lagos, but they are not free from the disadvantage of the road being congested with too many vehicles.

Abuja (Medium Adoption): Abuja fits perfectly into the middle-of-the-road type when it comes to the adoption of ride-sharing services. As the capital of Nigeria, Abuja has better infrastructure than much of the rest of the country, however, the urban population boom has resulted in traffic jams. Car-sharing companies have captured and are growing among the middle-income groups; deadheading and VMT growth are still considerable issues. There is a possibility that the concept of sharing a ride could be a viable alternative but is barely put into action by the city to alleviate traffic snarls.

Port Harcourt (As a New Market for Ride-Sharing): Port Harcourt is a new market for ride-sharing, with apps like Bolt gaining entry to the mobility landscape of the city. The informal transportation sector still has a strong dependence, and ride-sharing services are only accessed by the richer citizens. The situation with the roads and the lack of integration with the already existing transport systems are the main barriers. Nevertheless, ride-sharing, when brought in, provides the avenue for the slaying of traffic and the mounting of a transport infrastructure for future accessibility.

The data available on the ride-sharing platform show varying degrees of their presence in different Nigerian cities. Lagos, for example, is responsible for more than 60% of all of the transportation services that use hailing in the country; this shows that it is the number one centre of the whole country concerning ride-sharing. Abuja gives about 25%, meanwhile, Port-Harcourt and any other city are responsible for the rest.

Traffic congestion indices give a deeper understanding of the role that ride-sharing plays in improving urban mobility. Lagos keeps on being one of the most congested cities in the world with the commute time that is usually over two hours. In the meantime, Abuja and Port Harcourt have to encounter an average journey period which is a bit shorter but still very

significant and therefore they show the necessity for more efficient traffic regulating measures. However, despite the challenges, ride-sharing is still the best and the most loved transportation system. This is because mobile penetration has risen and also, the middle class has been on the rise thus creating a demand for the same. Furthermore, the arrival of ride-pooling options, though it is, offers a way for the efficient flow of traffic and the minimization of congestion in the future.

INTEGRATIONS WITH PUBLIC TRANSPORTATION IN NIGERIA

The involvement of ride-sharing platforms with public transportation in Nigeria puts forth a notable advantage for addressing urban mobility issues. As cities cope with the growth of populations and the increased demand for efficient transportation systems, ride-sharing platforms have come out as a crucial constituent of the transport system. Nevertheless, to ensure that ride-sharing and public transport collaborate seamlessly, there is a need to overcome the structural issues and the supply of targeted policy responses.

Collaborative Potentials

Ride-Sharing as a Supplement to Nigeria's Public Transport System

Ride-sharing (e.g. Uber and Bolt) provides a flexible and efficient solution for the below-standard public transportation systems in Nigeria. The ride-sharing system, different in structure from the regular public transport modes that have set routes and timetables, solves the problem of on-demand services by filling the gaps in a transport network. In urban areas with low public transport coverage, say peri-urban neighbourhoods or underserved districts, ride-sharing is a last-mile solution.

For example, BRT's systems in Lagos are excellent at catering to the needs of a considerable number of passengers, only the services' low radius and restricted capacity remain a reason why many residents still use informal transport systems such as mini-buses (danfos) and motorbikes (okadas). In other words, ride-sharing services are the voice of the systems by facilitating the provision of door-to-door service that helps reduce the need to take multiple modes of transportation and provides an alternative, which is more reliable for the commuter who seeks a less troublesome and safer way to travel. Also, ride-sharing platforms can back public transport with the first and last-mile connectivity capabilities they offer. Through this interconnection, the need for personal cars for short-distance travel could be largely diminished, while the transport network [in general] could be made more efficient and accessible.

Challenges and Opportunities

Competition with Informal Transport Systems: Integrating ride-sharing with public transport in Nigeria, the most critical problem is competition with the informal transport sector. The primary means of urban movement in all Nigerian cities are informal systems such as danfos, okadas, and tricycles (keke napep). These systems can be changed and are usually cheaper than more traditional ones, making them more available to the low-income population. The often associated issues with their being unregulated availability of the low-income people mean that the traffic is not always optimal, as well as compromising safety and causing environmental

damage. The difference is that ride-sharing provides services according to more formal rules and regulations, for example, safety and quality. The fact that they provide better trips immediately rather than the others is, to this effect, both a strength and a weakness because it is more costly to use due to the latter and more expensive to the low-income class, thus making it less accessible. This is basic if we are to introduce ridesharing into the wider Nigerian transport system.

Competing with BRT Systems: The BRT systems, like the ones in Lagos, are tailored to the demise of the randomness and the steep price of informal modes of transport and give to the masses a convenient and cost-effective transport alternative. Nevertheless, their limited capacity and range make BRT networks ineffective town mobility services for the burgeoning urban population. Onboard ride-sharing apps can play a role in systems like BRT by linking the peripheral zones to the ones still undeveloped in BRT. That said, ride-sharing and BRT services can also have problems in the form of competition between the two. If proper coordination is lacking, ride-sharing might start attracting passengers from BRTs hence decreasing the revenues of those services, which could also lead to the investment in public transportation not being sustained. For example, reports from other areas claim that sharing rides can substitute forms of public transport by providing easier and easier options than public transport.

Opportunities for Integration: The interconnections between transportation and ride-sharing bring different chances to substantiate the urban announcing movement of technology. The reds of ride-hailing and public transport become multi-modal transportation networks that combine the positives of the two approaches to the extent that they work. That is, a tax that comes with the wrong combination of buses and ride-sharing, for instance, is an example of the (first) new ticket for which a ticket agent never has to stop. Greenhouse gas emissions are cut to promote juncture/critique points that suggest the commuters link up with providers experienced in-app services. Also, one option of giving the ride rate data to mobility planning is equally one of the incidences. The counting of people at vehicle stopping points and the highest derby spot in a route is a way to generate infographics on travelling difficulty and frequency schedules that support public transportation. Alternatively, to a classic solution of bike sharing or parking, carpooling platforms can work more efficiently and at the same time utilize the lower carbon footprint provided by the few remaining cars in the traffic grid.

Policy Interventions

Proposed Strategies to Harmonize Ride-Sharing with Public Transportation

To optimize the overall positives and diminish the negatives of ride-sharing, the public should buy into working with platforms and the government to execute the rationalization of services. The major policy interventions are:

- i. **Regulatory Frameworks:** Setting up definite and manageable regulations for ride-sharing is critical to the success of their public aims. They have to touch upon such matters as updates, safety procedures, and the quality of service, while at the same time promoting innovation and competition.
- ii. **Subsidies and Incentives:** Governments can entice people to combine using shared travel by subsidizing ride-sharing trips that work as feeders of public transportation

- stations. Moreover, encouragement for ride-pooling and electric vehicle use helps to reduce the external costs of congestion and environmental pressure.
- iii. **Partnership Models:** Public-private partnerships of that nature that include ride-sharing companies and transit agencies have the potential to facilitate the joining-up of services. For example, companies from the on-demand walking and BRT operators can join up to start in the first mile and last mile together, share data of transport planning, and co-design together with the pulse supply chain of public transport the modal transport hubs.
 - iv. **Public Awareness Campaigns:** Passengers are likely to be more convinced to use rideshare services as part of public transport if they are made aware of the advantages of integrated transport systems. The communicative endeavour must be pointed to the rideshare services with a lucid description of how it is advantageous to the environment and economy while at the same time promoting the reduction of car usage and managing safety issues. Such an approach is required to change traveller behaviour and move forward.
 - v. **Infrastructure Development:** Investments in transport infrastructure, such as dedicated lanes for BRT and ride-sharing vehicles, can be the way to almost multiply the efficiency and reliability of the systems in a single action. Moreover, the implementation of multimodal transport hubs will be a platform for free-flowing transfers between private ride-sourcing and public transportation means.

POLICY AND PLANNING IMPLICATIONS

The alarmingly fast rise of ride-hailing platforms has marked Nigeria's urban mobility landscape. The discussion of these should be comprehensive to address them and should not only be confined to the regulation, the development of infrastructure, and the integration of future technologies. The intricate nature of the regulation of the city, changes in urban planning, and future innovations provide a platform for the improvement of Nigeria's transport systems through the prudence of efficiency, safety, and sustainability of transport systems.

Regulatory Considerations

Licensing of Ride-Sharing Operators: Ride-sharing is an example of the possible policy implications of this technological innovation, such as robust licensing frameworks for the operators. Legitimately, licenses make sure that ride-sharing companies adhere to the regulation of the country and the local transport, leading to accountability, and the uniformity of the service delivery system. For example, cities such as Lagos and Abuja are the places which introduced licensing fees and operational regulations for ride-sharing companies such as Uber and Bolt (Adewale & Bankole, 2021). The purpose of these measures is to secure the advantages of the intensive competition in the urban transport market. In this context, the local governments will benefit from the revenue generated from the licensing fees. However, the efficacy of the licensing programs will depend on their fairness and the ability of the officials to enforce them. If high licensing fees or over-regulations are imposed, the current thriving innovation that is less costly to the people will be completely robbed of entrepreneurs who have good ideas. Therefore, to avoid this, the regulatory authority should approach the issue in a

manner that does not ignore the opinions of the involved parties, including the ride-sharing companies, the passengers, and classic transporters.

Traffic Regulations and Safety Standards: Uber-like companies greatly improve traffic in cities, thus updated traffic regulations that can control their effect must be made. The provisions of traffic rules should cover problems like congestion, vehicle parking, and zoning for pickups and drop-offs. Setting outright rules about where vehicles are allowed to park can be the answer to the problem of overcrowded roadways and at the same time, makes the transportation process easier in densely populated areas. Also, safety rules are mandatory and their observance is also very active in all public sectors because this is an important issue. Legislators should take the necessary measures to have the safety protocols of ride service vehicles and drivers stipulated. The measures include frequent vehicle inspections as well as background checks and the proper training of drivers. The issue of public trust in the successful inclusion of ride-hailing services into their cities is quite dicey, especially in the case of inadequate security provided by informal transportation providers.

Urban Planning Adjustments

Infrastructure Developments to Support Ride-Sharing: To support ride-sharing, towns should start planning for the needs of rideshare companies by factoring them into city planning. One of the most prominent upgrades is the creation of demarcated lanes for pickups and drop-offs, where these zones are dedicated to ride-hailing operations. The areas, which are conveniently located near business centres, residential neighbourhoods, and other public transport stops, can simplify the ride-sharing process and decrease congestion on the roads. Also, the ride-sharing brand may gain in the case of smart city infrastructure investments. For instance, virtual screens and the applications attached to GPS could help tourists find the nearest ride-sharing pick-up and thus reduce overcrowding and the speed of the vehicle. Furthermore, by coordinating ride-sharing services with private transportation options such as Bus Rapid Transit (BRT), users can access additional mobility services and, in turn, cut the number of private cars on the road. The erection of park-and-ride facilities is one more important urban planning issue. These facilities will enable workers to leave their cars at desired locations and take shared rides to town. This tactic will, in turn, reduce traffic jams in the centre of the city and promote greener travel behaviour.

Informal Transport Systems: A convoy of vehicles made up of vans known as danfos, running cars (okadas), and tricycles (keke napep) is Nigeria's informal transport system. The combination of ride-sharing with these systems is difficult and promising at the same time. City planners must ensure that carpooling does not serve as earth-shattering traffic jams or even obliterate informal operators in the event they are unable to find other lines of work. A symbiosis scheme between the rideshare company and the informal transport sector could lead to the emergence of mixed models that exploit the advantages of both transport models. For example, the linkage of ride-sharing firms and irregular operators can be the channel for the latter to become legal, increasing both service quality and safety, but at the same time maintaining low transportation costs for low-income users.

Innovations Awaiting

Electric Vehicles (EVs): The use of electric vehicles (EVs) in the ridesharing service can have a major impact on the transportation system in Nigeria. Electric vehicles are the best choices for people who do not pollute and goods that do not use conventional internal combustion engines which are very harmful to the environment. Some ride-sharing platforms from all over the world are shifting to electric fleets, mainly because of the environmental concerns and the available opportunities for cost saving. Policymakers in Nigeria are pressed with challenges such as a lack of charging infrastructure, the high costs of electric vehicles, and the fact that there are not many people who know how to use them. And so, we can spend money by building charging stations for electric vehicles and give incentives to transport companies that are ready to adopt electric cars, this looks like the rebates and subsidies for EV purchases making it cheaper for ride-sharing drivers.

Autonomous Ride-sharing: The emergence of autonomous ride-sharing services has opened huge opportunities for the future of city transport in Nigeria. Autonomous vehicles (AVs) are a turning point in the means of efficient, safe, and low-cost but humanless driving. Although AV technology is still in its earlier stages, it is merging into ride-hailing platforms that might alleviate some of the predicaments that the sector is currently facing, such as driver shortages and improvisation of quality services. However, the implementation of AVs in Nigeria is affected by several difficult matters, such as poor road infrastructure, regulatory ambiguities, and public distrust. Policymakers and city planners need to be ready for this technology breakthrough by investing in infrastructure updates, for example, smart traffic management systems, and developing a regulatory regime which considers the new challenges of AVs. Public awareness programs in addition to pilot experiments can be implemented to generate trust among citizens and promote the use of autonomous ride-sharing services.

CONCLUSIONS AND RECOMMENDATIONS

The integration of ridesharing platforms into the urban transportation system of Nigeria has had positive and negative effects on the urban traffic flow. One of the advantages of ridesharing is that it can be used to reduce car ownership and provide a reliable substitute for some of the less populated areas. In addition, this can be the origin of carpooling, which is one of the solutions to the congestion problem. Be that as it may, the contradictory issues of more camions, deadheading, and the wretchedness of road infrastructure in Nigeria are far from settled.

The research has concluded that the ridesharing services in megacities like Lagos and Abuja are prosperous because of the high population density and the high demands for transportation, whereas the new markets like Port Harcourt are lively and show growth potential. The present state of the informal transportation systems has notable challenges in the carpool services in Nigeria, for example, a situation where minivans, motorcycles, and tricycles are all used, which is an obstacle. The ride-sharing mechanism, however, is an avenue for the creation of innovations and the sustainability of the urban landscape, thus the necessity to have the proper regulation, infrastructure, and technology to maximize the aforementioned pros.

Stakeholders` Recommendations

Policymakers: Policymakers are key to enabling a regulatory environment for innovation that would maintain a fair competitive balance between the community-based transportation networks like minibuses and tricycles versus the new sharing-economy ones such as ride-hailing. Controlled and feasible licensing systems are mandatory for the removal of barriers to entry and for the enhancement of small business development, thus, a competitive marketplace that is favourable to customers will be built. Moreover, safety is a hot issue, so stricter vehicle and driver safety checks as well as mandatory training courses should be put in place to guarantee high operational standards and public trust in the sector. Policymakers are also required to take up their part in the environmental actions to develop electric mobile policy to get the benefits of reductions of the use of fossil cars and the involvement of the electric vehicle in shared fleets through tax cuts and subsidies. The government does that; thus, it moves to the point of cutting back on emissions, making air better and putting Nigeria as the leader in global sustainability in the transportation sector. Sure, here is the revised content that adheres to the guidelines and remains the HTML structure of the original text:

Local Governments: Local councils are required to enforce effective urban mobility options. A certain parking and drop-off area should be in place in the crowded zones which can neon light the traffic jam, resulting in safe pedestrians and at the same time it's these that come up. Great traffic management systems can be used to coordinate traffic lights and to make the best use of technology hence getting traffic moving along the network. Co-operation which is reached between local authorities and taxi companies in the field of transport can bring up new and more innovative options e.g. connecting ridesharing with mass transit and thereby organizing informal transport systems. For example, these cooperations that would solve urban mobility problems and would solve both operators and commuters, are unique public transportation projects that would make public transportation a desirable option instead of a necessity for people of all ages.

Ride-Sharing Companies: Making shared transportation options popular among customers is one of the specific tasks for ride-sharing companies to align themselves with the goals of urban development. Moreover, encouraging share-riding can as well reduce the number of cars on the street, thereby, saving on resources, and abating congestion. Closer cooperation with paratransit can be one way in which the companies would be able to seize neglected areas as well as prolong operations while at the same time promoting inclusivity. Moreover, one of the critical and valuable innovations is sharing the de-identified data about traffic and usage with the urban planners the result is the intermediaries can analyse and get the information and plan traffic patterning and commuter behaviour. With the aid of this tech-centred technique for planning, developers, and legislators will make efficient decisions that will interlock the ride-sharing mode and urban mobility of Nigeria.

Urban Planners: Urban planners play a very important role in the development of transport systems that can accommodate new technologies and mobility trends. Multimodal transport systems, which involve the usage of ride-hailing for the last mile together with public modes of transport, such as Bus Rapid Transit (BRT), can improve connectivity and lessen traffic jams. The planning for the future should be based on the existing infrastructure for newly emerging technologies like autonomous and electric vehicles, the goal of which is to achieve alternative urban mobility technologies that are sustainable. EV charging points and the setting up of lanes

and roads reserved for the more advanced transportation modes are the major imperatives of the city governing authorities to keep them on track for the future. An effective and sustainable urban transport system in Nigeria can be only achieved by combining the efforts of city planners, policymakers, city councils, and ride-hailing companies. The fruition of these arrangements are most definitely and 100% efficiency, sustainability and inclusivity that are important for large urban populations to be served properly.

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