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BEYOND INFRASTRUCTURE: GOVERNANCE, INSTITUTIONAL COORDINATION AND THE PARADOX OF SUSTAINABLE URBAN MOBILITY IN LAGOS, NIGERIA

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ABSTRACT

This article explores the paradox of sustainable urban mobility in Lagos, Nigeria, which has seen a significant investment in transport infrastructure, but has not contributed to the development of mobility status. Based on the survey data of 342 respondents at major transport hubs in Lagos and using multiple regression analysis, the study presents the counterintuitive results, whereby transport infrastructure quality, public transport efficiency and government policies revealed statistically non-significant effects on integrated sustainable urban mobility performance ($p > 0.05$). These insights contradict the dominant structure-and technology approach that constitutes the dominant form of infrastructure-first urban transport policy across African megacities. Based on Institutional and Governance Theory and the Sustainable Mobility Paradigm, this article makes the case for sustainable urban mobility to not be attained by infrastructure development. It demands profound institutional coordination, a multi-stakeholder framework of governance reforms, and integrated policy structures that link infrastructure investment with regulatory enforcement, modernisation of public transport, and inclusive planning. The study contributes to the emergent literature arguing for governance-led methods of urban mobility in the Global South by providing policy recommendations (informed by evidence) for policymakers, urban planners and transport authorities seeking to shift away from isolated infrastructure projects toward truly linked sustainable urban transport systems.

Keywords: Sustainable Urban Mobility, Transport Governance, Institutional Coordination, Infrastructure Paradox, African Megacities, Lagos, Integrated Transport Planning, Multimodal Transport.

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INTRODUCTION

Urban mobility has emerged as a crucial developmental challenge of the twenty-first century, particularly in the rapidly urbanising megacities of the Global South, where population growth consistently outpaces the provision of transport services and public infrastructure. As urban populations, economic activity, and the complexity of city life continue to expand, the need to move people and goods efficiently, safely, and sustainably, without exacerbating congestion, environmental degradation, or social exclusion, has become increasingly imperative. This challenge is reflected in the United Nations Sustainable Development Goal 11, which places inclusive, safe, resilient, and sustainable cities at the centre of the global development agenda and underscores the pivotal role of urban mobility in achieving sustainable urban development. However, in many African megacities, translating the principles of sustainable mobility into effective local practice remains constrained by persistent institutional, financial, and governance challenges that infrastructure investment alone cannot resolve.

Lagos, Nigeria, epitomises the transport and governance challenges associated with rapid megacity growth. With an estimated population of more than 20 million, the city is Nigeria's socio-economic hub and one of the economic centres in Africa (African Cities Research Consortium, 2021). Further, it is commonly reported to account for more than 60% of the country's industrial and commercial activities, while the majority of Nigeria's foreign trade is conducted at its ports (Lagos State Ministry of Economic Planning and Budget, 2019; Vanguard, 2023). But this economic prominence is undervalued by a crippling mobility crisis, marked by chronic traffic jams, lack of public transportation, rampant reliance on informal transport modes, poor road safety and environmental pollution. The economic impacts of congestion in Lagos are considerable. Estimates indicate that commuters collectively lose approximately 14.12 million productive hours daily, resulting in annual economic losses of about ₦3.83 trillion (Danne Institute for Research, 2021). A previous study has similarly pointed to congestion as a major barrier to urban productivity, economic efficiency, and quality of life in Lagos and other fast-growing African cities (Aderamo & Magaji, 2010; Oyesiku, 2017).

The governance context of these infrastructure investments is complex and contested, with the historical background. Transport is governed in Lagos by the state, federal, and local levels, in which the Lagos Metropolitan Area Transport Authority (LAMATA), the Federal Ministry of Works, the Lagos State Ministry of Transportation, and local government councils have overlapping mandates. LAMATA was created in 2002 in the light of an institutional diagnosis of disintermediation and fragmentation of duties between agencies, poor inter-agency coordination and lack of coherence in coherent strategic policy as major impediments to effective transport service delivery at the center of the metropolis (LAMATA, 2023). For more than two decades the continued presence of these exacts of structural situation despite the establishment of a specialised coordinating body presents a bigger question this research attempts to answer: Are the very design of institutions sufficient for overcoming embedded fragmentation or is it really the function of the operational powers, financial and enforcement means of coordinating bodies in contrast with the sectoral and federal agencies with which these are in competition?

Successive Lagos State governments have responded to persistent mobility challenges through major infrastructure interventions, including the Lagos Bus Rapid Transit (BRT) system, the Lagos Rail Mass Transit (Blue and Red Lines), ferry services, and road construction and rehabilitation projects. Such investments help in demonstrating transport infrastructure development's essential role in driving competitiveness, accessibility and more sustainable urban growth in the Lagos area. Yet, in spite of the massive investment, the problem of mobility is still

acute. Congestion remains high, and public transport coverage is not sufficient. Also, informal modes of travel continue to prevail, and there continues to be significant geographic distance between urban core and peri-urban areas.

This paper responds to the question: Why has so much infrastructure investment not succeeded in providing satisfactory mobility in Lagos? Through the integration of the results of a total of 342 transport stakeholders' primary survey data analysed in multiple regression, the research presents a paradoxical but empirically substantiated conclusion that neither transport infrastructure quality, public transport efficiency, nor government policy were significant predictors of connected sustainable solutions for urban mobility outcomes. These findings refute the common model that infrastructure is the first step and call for governance, coordination of institutions, and inter-stakeholder approaches to be core.

This study is significant in repositioning the policy discourse on urban mobility in African megacities. By showing that if infrastructure development does not have complementary governance reforms and appropriate institutional coordination, limited mobility benefits are generated, the paper suggests a shift in paradigm from infrastructure-led to governance-led sustainable urban mobility. That reorientation has implications not just for Lagos but for other, fast-urbanising African cities with comparable mobility crises.



Figure 1: Study area. Source: Canadian Pacific Consulting Services, 2026

Figure 1 presents the study area within the wider Lagos State transport system and illustrates the proposed 2032 investment plan for passenger and freight movement. The map shows the spatial relationship between metropolitan Lagos, its mainland and island districts, surrounding peri-urban settlements, the Lagos Lagoon, and major transport corridors extending towards Ogun State and neighbouring areas. It identifies planned passenger Bus Rapid Transit (BRT) routes, proposed passenger light-rail transit routes and stations, proposed inter-state bus terminals, major airports, and ferry and waterway routes across the lagoon and coastal corridors. The figure also

distinguishes passenger-oriented and freight-oriented water routes, indicating the importance of multimodal integration in addressing Lagos's road congestion and supporting movement between mainland, island, waterfront, and outer metropolitan communities. The map demonstrates that the study area is characterised by a complex and expanding transport network in which road, rail, bus, and water transport infrastructure must be coordinated to improve accessibility, reduce travel delays, and promote sustainable urban mobility.

LITERATURE REVIEW

The Infrastructure-First Paradigm in Urban Transport

Historically, the principal response to urban mobility challenges in developing countries has been the expansion of physical infrastructure. This infrastructure-first paradigm rests on the assumption that increasing road capacity, developing public transport facilities, and improving associated physical infrastructure will automatically produce better mobility outcomes. Growth pole theory, originally advanced by Perroux (1950) and later elaborated by subsequent scholars, similarly proposes that strategic infrastructure investments can create centres of economic activity whose benefits diffuse outward through industrial linkages, employment generation, and regional development. In the transport sector, this logic has historically justified substantial investment in road networks, rail systems, ports, terminals, and other large-scale mobility infrastructure across developing regions.

Tomczyk (2020) emphasised that transport infrastructure can reduce travel costs, improve regional competitiveness, and stimulate economic development through more efficient movement of people and goods. Similarly, Komornicki et al. (2018) through their Road Transport Accessibility Index, demonstrate that infrastructure quality strongly shapes spatial accessibility, territorial connectivity, and the ability of regions to participate in wider economic networks. In Europe, the Trans-European Transport Network (TEN-T) has supported economic integration among member states by improving cross-border accessibility and facilitating trade. Large-scale Asian initiatives, including China's Belt and Road Initiative, likewise illustrate how infrastructure-led development can reposition cities and regions within global production and supply-chain networks.

However, recent scholarship increasingly challenges the assumption that infrastructure expansion produces automatic or universally shared benefits. Eckersten, Gunnarsson-Östling, and Balfors (2023) argued that growth-pole effects are not inherently inclusive because the gains from infrastructure investments may be unevenly distributed, particularly where projects are poorly aligned with local needs or implemented without strong equity-oriented governance arrangements. Prus and Sikora (2021) further contend that transport projects may deepen exclusion when they bypass underserved settlements, displace vulnerable groups, or reinforce existing patterns of spatial inequality. Luz and Portugal (2022) similarly observed that highways and expressways can function as physical and social barriers, separating communities rather than integrating them.

A growing body of scholarship characterised these limitations through the lens of urban statecraft, which refers to the everyday practices through which African states construct, contest and reorganises authority over urban infrastructure. Cirolia and Harber (2022) identified three common sites of institutional fragmentation in African cities: ring-fenced national road agencies that separate transport functions from city-level governance; metropolitan transport authorities

created to address coordination failures; and informal forms of oversight surrounding paratransit systems that often operate outside formal planning structures. Their analysis suggests that fragmentation in African transport governance is not simply a consequence of administrative weakness but a structural feature arising from the division of authority among sectoral agencies, local governments, national institutions, and emergent metropolitan bodies. This interpretation is particularly relevant to Lagos, where the Lagos Metropolitan Area Transport Authority (LAMATA) was deliberately established as a metropolitan-scale institution to address coordination challenges, yet continues to operate alongside federal road agencies and local councils whose mandates have not been fully subordinated to metropolitan coordination.

The importance of this institutional dimension is reinforced by Dike et al. (2026), whose study on transport infrastructure deficits and AfCFTA cross-border logistics in West Africa showed that infrastructure gaps cannot be understood solely as shortages of roads, rail lines, ports, or terminals. Their findings indicate that poor road connectivity, port congestion, inadequate rail integration, prolonged border-clearance processes, and weak multimodal logistics systems continue to constrain trade efficiency across the region. More importantly, the study demonstrates that infrastructure investments generate stronger outcomes when accompanied by policy alignment, trade facilitation, digital logistics systems, and coordinated governance. The evidence from the Abidjan–Lagos Corridor is particularly instructive, as the corridor serves a substantial share of West African trade but remains affected by congestion, fragmented border procedures, multiple checkpoints, and inconsistent institutional coordination. Thus, even where large-scale infrastructure investments are made, their developmental impact may be diminished by weak governance, regulatory inconsistency, security risks, and insufficient integration across transport modes.

These cautionary insights are particularly relevant in the African context. Despite decades of investment in roads, ports, and transport corridors, many African cities continue to experience severe mobility deficits. Ngcobo et al. (2024) identified weak governance, limited political commitment, and inadequate investment in clean transport technologies, low public trust, and insufficient public transport services as major barriers to sustainable urban mobility in Johannesburg. Behrens et al. (2016) demonstrated that informal paratransit systems can both empower and constrain urban residents, providing flexible and accessible mobility while also reproducing uncertainty, weak regulation, safety concerns, and uneven service quality.

Dike et al. (2026) further showed that West African transport systems remain constrained by high freight costs, poor road and rail connectivity, inefficient port operations, security threats, and fragmented policy implementation. Their analysis indicates that infrastructure investment must be complemented by institutional reform, digitalisation, coordinated corridor management and stronger regional governance if transport systems are to support inclusive economic integration. Although their study focuses on cross-border logistics rather than intra-urban mobility, its central conclusion is highly relevant to urban transport planning: physical infrastructure alone is insufficient where governance systems, regulatory institutions, service coordination mechanisms, and technological capacity remain weak.

Taken together, these studies indicate that infrastructure is necessary but not sufficient for improved mobility outcomes. Roads, rail systems, terminals, ports, and public transport facilities can enhance accessibility and economic opportunity, but their effectiveness depends on institutional capacity, coordinated governance, policy coherence, social inclusion, affordability, and the integration of formal and informal transport systems. The infrastructure-first paradigm therefore requires reconsideration, particularly in rapidly urbanising African cities such as Lagos,

where mobility outcomes are shaped not only by the quantity of infrastructure available but also by the quality of governance through which transport systems are planned, regulated, financed, and operated.

Urban Mobility – Governance and Institutional Coordination

Governance theory also focuses on the role that institutions, policy frameworks, and multi-level coordination play in the capacity of urban mobility systems to improve their effectiveness. And transport governance is about more than infrastructure provision; it's decision-making mechanisms, accountability, and institutional capacities that govern how resources are distributed, how policies are implemented, and how stakeholders in each urban jurisdiction come together in the interests of urban transport sustainability. Pierre and Peters (2000) contend that for good governance to succeed, collaboration at various layers of government must take place involving the participation of private operators, civil society organisations, and communities.

In relation to global cities that have successfully promoted sustainable transportation and mobility-in-use, there are good governance mechanisms worldwide. Vienna's public transport system is managed by a regional transport authority to standardise fares, service, service quality level and planning across the region and in each community. Transport for London (TfL) in London is a living exemplar of metropolitan-level governance of planning and policy that centralises action planning and policy execution in an area within a metropolitan setting, with congestion charging, integrated ticketing and multimodal planning. These cases underscore the point that effective governance not only vary across institutional designs but also depends on adequate financing of, openness of and inclusiveness around policy-making processes.

Governance challenges are, however, pervasive in African megacities. Fragmented institutions, overlapping functions, and weak regulatory enforcement frequently erode service delivery (Dike, 2023; Dike & Otto, 2024). Transport responsibility in Lagos lies with the Lagos Metropolitan Area Transport Authority (LAMATA), Lagos State Ministry of Transportation, local councils and federal institutions, creating duplication of functions, inconsistencies in policy and inefficiency. While BRT systems and rail projects have been invested in, the effectiveness of these reforms is still challenged by weak enforcement of policy, inadequate funding and political interference.

As Chmielewski et al. (2022) noted, because public transport is organized in fragmented systems, there is a major constraint for users, especially when high school students or workers journey across municipal boundaries. The lack of cooperative institutional arrangements at the local level contributes to exclusion and serves as a barrier for communities that are marginalised. Sachs et al. (2019) argued that corruption, ineffective coordination and lack of policy implementation impede an effective, practical translation of sustainable urban mobility projects. The new discovery highlights that governance failure is not simply something extra but one of the key deterrents; it takes away the potential gains from infrastructure investments at every step (Dike et al., 2026).

Integrated sustainable urban mobility: infrastructure, as well as other aspects

Banister (2008) outlined the Sustainable Mobility Paradigm as part of a paradigm shift, moving away from a linear, predict-and-provide approach to transport planning towards integrated strategies that address automobile dependency, embrace public transport and emphasises active

travel modes. A core dimension to this concept is the “avoid-shift-improve” framework: not making an unnecessary trip by improving land use, transitioning from private vehicles (car owners) to public and non-motorised vehicles and improving vehicle technology and operational efficacy.

In this broader context, the goal can be achieved through an inclusive approach that doesn’t just eliminate emissions but also enhances accessibility, equity, and quality of life. Geels’ (2011) Multi-Level Perspective towards sustainability transitions is a complementary paradigm for analysis. You are a network of niche innovations (BRT systems, electric mobility, digital platforms), socio-technical regimes (especially the prevalence of informal minibuses and motorcycles) and the larger socio-political environment (rapid urbanization, climate change and governance structures) and make the point how they all come together. Transitions take place when the pressures generated by the landscape destabilise current regimes, generating opportunities for niche innovations to scale and reconfigure urban mobility systems.

In Africa, Wolny, Ogryzek and Zrobek (2017) investigated sustainable mobility in working urban areas and observed that car dependency, suburban sprawl, poor accessibility to public transport, and inequitable transportation services persist despite developments in multimodal transport projects and GIS-based planning tools. Vassallo & Bueno (2019) identified that Latin American cities are able to mitigate congestion and ill-prepared levels of informal transport, with Bus Rapid Transit systems, integrated fare and multimodal planning, including Bogota’s TransMilenio, as well as Bogota’s, as one of the most commonly quoted cases of an intervention in low-cost and high-capacity public transport delivery.

The integration dimension of land use particularly merits this focus from the literature. Oyalowo, Udoma-Ejorh, Muraina, Lawanson, and Nubi (2024) studying urban infrastructure and transit-oriented development in Lagos, report that the city’s transport structure is still heavily road dependent, and there was poor integration of BRT and rail corridors with the built environment, finding synergy, overlap and outright conflict between the agencies concerned with the planning and investment of transport in the city. Their examination supports the claim articulated in the present review that this gap between construction provision and mobility outcomes in Lagos should not be seen as a failure of physical construction, but of coordination among the three factors of the state of infrastructure investment, land use planning and the institution responsible for them. The result will be isolated or fragmented investments, unless all transportation corridors at the station-area development, housing and job location are purposefully harmonized with transport corridors.

Dike and Eke’s (2025) study demonstrated that sustainable urban mobility depends not only on physical transport infrastructure but also on the efficient coordination of freight movement through project scheduling, resource allocation, and AI-based optimisation. Their findings show that Lagos performs comparatively better in digital logistics and last-mile delivery efficiency because of its stronger commercial, technological, and logistics base; however, persistent challenges, including fragmented data systems, weak policy coordination, limited intelligent transport investment, and poor integration between urban planning and logistics operations, continue to constrain sustainable outcomes. The study therefore suggests that reducing congestion, emissions, duplicated delivery trips, and inefficient use of road space requires smart logistics systems, adaptive routing, real-time data, and coordinated planning across passenger transport, freight operations, land use, traffic management, and institutional governance. Thus, for Lagos, sustainable mobility cannot be achieved through roads, BRT, rail, and terminals alone, but through an integrated system that connects infrastructure provision with

digital innovation, freight management, public transport reform, and equitable urban development.

THEORETICAL FRAMEWORK

Insight into the sustainability of infrastructure investment for this study is derived from institutional and governance theory as it relates to governance and sustainability, as well as governance and the sustainable mobility paradigm. Together, these frameworks elucidate how infrastructure development, governance quality and institutional coordination intersect and impact mobility outcomes and why investments in infrastructure programs alone might not be able to provide optimal mobility dividends in countries with weak institutions and fragmented governance.

The theories, based on the research of Pierre and Peters (2000), Rhodes (2012) and Gwilliam (2003), asserted that the delivery of services, urban transport and the like, depend crucially on the quality of these institutions and governance arrangements. Institutions set the norms, rules and organisational structures in which transport systems function, while governance describes the processes involved in deciding which actions or resources to allocate and how accountability is measured. Where institutions are weak, fragmented, or captured by vested interests, infrastructure investments are unlikely to lead to the expected outcomes while the proper governance mechanisms to plan, coordinate, regulate, and maintain transport systems are deficient.

The Sustainable Mobility Paradigm (Banister, 2008; 2011) is a normative framework for assessing a set of urban transport systems as they relate to sustainability in the environment, society, and economy. It criticizes the car-centric model of urban growth and promotes integrated approaches that foster public transportation, walking and cycling and discourage reliance on private vehicles. Crucially, this paradigm underscores sustainable mobility in a broader view as that needs to be included beyond the provision of infrastructure but also policy, behaviour and governance. The logic of this paradigm, based on "avoid-shift-improve", makes sense and closely reflects findings in this work that mobility gains in Lagos need systemic enhancements other than upgrading infrastructures.

Further complementary lens A third explanatory lens is provided by Matland's (1995) ambiguity-conflict model of policy implementation, which contributes to the interpretative gap observed in this study between perceived policy effectiveness and measured mobility effects. Matland (1995) pointed out that the success of policy implementation depends on how much the level of ambiguity between policy goals and policy implementation and conflicting factors interplay together with the level of conflict between implementing agents. Where policy aims are ambiguous and implementing actors clash in their interests, this occurs more frequently in multi-agency transport governance contexts in Lagos, implementation is more symbolic than substantive, in that policies are agreed upon and publicly declared, but concrete implementation work, coordination, monitoring and enforcement that could translate policy intent into measurable results, is left unaddressed. This model refines the explanatory force of Institutional and Governance Theory in identifying how institutional fragmentation leads to the type of statistically insignificant policy effects discovered through this study's regression analysis.

Incorporating these two theoretical lenses will create a strong, explanatory framework for explaining the Lagos mobility paradox. The Institutional and Governance Theory provides a plausible account of why investments in infrastructure do not lead to an increase in mobility if

there are fragmented governance frameworks, inadequate implementation of policies and a lack of institutional integration. The normative perspective, that real sustainable mobility comes from integrated, multi-pronged interventions that bring together infrastructure, policy, technology, and governance to collectively advance shared sustainability goals, is that offered by the Sustainable Mobility Paradigm. These two theories and Matland's model of failure to get the program to work, under conditions of ambiguity and conflict, indicate that the way forward for sustainable urban mobility in Lagos is not only in additional infrastructures but in governance reform that would make available and future infrastructure works in an integrated, coherent, participatory way in an integrated and inclusive mobility system.

METHODOLOGY

Research Design and Study Area

Researchers used a cross-sectional survey design with a mixed-methods approach – combining quantitative questionnaire responses with qualitative views from key informant interviews. The study was based in the Lagos Metropolis, Nigeria's largest and most urbanised metropolis. Lagos was chosen because it embodies the mobility barriers in African megacities, such as high traffic congestion, dominance of informal transport systems, inadequate infrastructure, and weak institutional frameworks, and as a key city for continuing transport reforms.

Population, Sampling, and Data Collection

The participants of the study involved transport stakeholders based in Lagos and consisted of commuters, transport operators, management and policy makers. In total, 350 copies of a structured questionnaire called the Transport Infrastructure and Integrated Sustainable Urban Mobility Questionnaire (TI-ISUMQ) were administered in the major transport hubs in Lagos, namely Ojota, Oshodi, Jibowu, CMS/Obalende, Mile 2, and Berger. Among them, 342 copies were retrieved, which corresponds to a retrieval rate of 97.7%. Most of the respondents were male: 51.2% and female: 48.8%, and in most cases, 55.1% completed tertiary education. For the stakeholder segments, 36.5% were commuters and clients, 33.1% were operational staff, and 30.4% were management staff.

The questionnaire was broken into two sections. Section A compiled demographic and organisational information such as sex, age, educational level, years of stay in Lagos, stakeholder positions and frequency of travel, as well as preferred mode of transport. Section B included items measured via a five-point Likert scale (Strongly Agree = 5 to Strongly Disagree = 1), including three independent variables identified in the literature review as central to the governance critique of the infrastructure-first paradigm: quality and access to transport infrastructure, the efficiency of public transport provision, and government policies and institutional frameworks. Different Likert-scale items from the analysed literature were operationalised as constructs for each of the constructs mentioned above; quality and accessibility of transport infrastructure, for example, were measured via the items affecting the condition of roads and terminals, the associated effects of poor infrastructure on time spent in traffic, the contribution of infrastructure investment on access to urban transport facilities and the connection that infrastructure improvements make with public transport patronage. Based on the multidimensional conceptualisation of sustainable mobility proposed by Banister (2008), the

dependent variable was Integrated Sustainable Urban Mobility (INUM), including accessibility, efficiency, environmental sustainability and inclusiveness.

In terms of content validity and face validity, validity was established for this research instrument. The questionnaire came out of an extensive search in the literature and then expert review with the two academic supervisors and three transport planning professionals. This was confirmed via a pilot test with a tiny group of respondents. Reliability was assessed using a two-week follow-up and test-retest with 30 participants, which confirmed a good consistency. SPSS version 25 was used as a statistical package to analyse data. Respondent characteristics and perceptions were summarised using descriptive statistics (frequencies, percentages, means, and standard deviations). Data analysis of multiple regression was used to test the hypotheses and analyse the association between the independent variables and the dependent variable of integrated sustainable urban mobility. The significance level was set at $p < 0.05$

The qualitative component of the study, through Key Informant Interviews with selected transport officials, operators and planning professionals, supplemented the survey data. Qualitative insights, instead of being examined as a separate and parallel dataset, were applied iteratively to interpret and contextualise the quantitative findings, particularly in the context of articulating why perceived policy effectiveness failed to map onto significantly more meaningful mobility outcomes. This sequencing aligns with explanatory mixed methods designs in which qualitative data explicates the processes underlying quantitative findings rather than testing them independently. This investigation was approved by the institutional review process of the Centre for Logistics and Transport Studies, and all respondents in the study volunteered to participate following informed consent with guarantees of anonymity and confidentiality consistent with social science research ethics.

RESULTS AND DISCUSSION

Descriptive statistics — Perception of transport infrastructure

Table 1 shows some summary statistics pertaining to the impressions of respondents towards the impact of transport infrastructure on accessibility and mobility in Lagos. Mean scores on the four items were between 2.87 and 3.05, and standard deviations were between 1.41 and 1.46. These figures show that on average, respondents held moderately neutral or slightly positive opinions as to the impact of infrastructure on mobility. The median score of 3 across all items underlines this neutral to positive orientation. The high standard deviation suggests substantial variability among respondents in their opinions; some respondents thought infrastructure was positive in nature, but others believed the infrastructure was inadequate or ineffective.

Table 1: Descriptive Statistics for Transport Infrastructure Perceptions (N = 342)

Item	Mean	SD	Interpretation
State of roads and terminals affects mobility	2.87	1.44	Moderate
Poor infrastructure increases travel time	2.98	1.46	Moderate
Infrastructure investment improves accessibility	3.05	1.41	Moderate
Improved networks encourage public transport use	2.94	1.44	Moderate

The evidence is consistent with the literature on urban mobility in LDCs more generally. Poor transport infrastructure is a significant barrier among the factors preventing sustainable urban

mobility (Pojani and Stead, 2015); Litman (2013) highlights that improvements in infrastructure are insufficient without accompanying measures such as better governance and technology integration. Neutral-to-positive mean scores in this study indicate that Lagos dwellers appreciate the value of transportation infrastructure yet also admit its limitations in the context of mobility issues.

Regression Analysis: The Non-Significance of Infrastructure Effects

The analysis of the effect of transport infrastructure quality on the aggregate mobility outcome showed a very different finding. Table 2 summarizes that the coefficient of transport infrastructure is -0.0092 with a standard error of 0.057 with a t-statistic of -0.162 . The comparable p-value of 0.871 vastly surpasses the customary p-value threshold of 0.05 that has been established for significance, which suggests that transport infrastructure quality does not significantly impact mobility outcomes in Lagos.

Table 2: Regression Analysis - Transport Infrastructure and Mobility Outcome

Variable	Coefficient	t-Statistic	p-Value
Intercept (constant)	3.0676	17.733	0.000***
Transport Infrastructure Quality	-0.0092	-0.162	0.871

From the context of the infrastructure-first paradigm that perceives an intuitive positive relationship between infrastructure quality and associated mobility outcomes, this finding is not expected. In this light, Institutional and Governance Theory helps to understand the explanation. Infrastructure is being developed in Lagos and other megacities across Africa, and one that has been implemented in an environment marked by institutional fragmentation, poor regulatory enforcement and lack of inter-agency coordination. Roads are constructed without appropriate investments in the integration of public transit, traffic control, or maintenance systems. BRT corridors do not have sufficient feeder connections and no intermodal infrastructure. Consequently, infrastructure does not remain as part of an integrated mobility system, but rather as a collection of standalone physical structures.

That interpretation is corroborated by the results of regression results using public transport efficiency and government policies. As presented in Tables 3 and 4, public transport efficiency (coefficient = -0.0092 , $p = 0.871$) and policy and institutional framework (coefficient = 0.0519 , $p = 0.360$) did not reach statistical significance as predictors of mobility outcomes either. These findings, taken together, indicate that the integrated pieces of urban mobility in Lagos are functioning in a vacuum, as neither the infrastructure, public transportation service, nor governance structure by themselves are driving substantial mobility improvements.

Table 3: Regression Analysis - Public Transport Efficiency and Mobility Outcome

Variable	Coefficient	t-Statistic	p-Value
Intercept (constant)	3.0676	17.733	0.000***
Public Transport Efficiency	-0.0092	-0.162	0.871

Table 4: Regression Analysis - Government Policies and Mobility Outcome

Variable	Coefficient	t-Statistic	p-Value
Intercept (constant)	2.8812	16.210	0.000***
Government Policies and Institutional Frameworks	0.0519	0.916	0.360

The Governance Paradox: The Reason for No Transference of Policy to Results

The lack of importance attached to government policies and institutional frameworks ($p = 0.360$) is particularly revealing. While respondents agreed that government policy (75%) is doing relatively well in tackling the urban mobility question, and that better cooperation of agencies (75%) enhances the chances of mobility, these opinions aren't statistically significant for the outcome. This paradox of well-intentioned policies that don't yield any impact, as measured at the same time when their implementation fails, emphasises the centrality of implementation failure.

Matland's (1995) ambiguity-conflict model of policy implementation offers a clear theoretical explanation for this paradox. The model posits that the potential consequences of policy implementation depend on the interaction between goal ambiguity and the level of conflict among policy implementers. The dynamics of Lagos transport policy display both at once; for instance, in a setting in which the policies "integrated mobility" and "sustainable transport" are expressed at a level of generality that leaves substantial room for differing interpretation across agencies, and the actors who implement these policies, LAMATA, the Ministry of Transportation, federal road authorities, and local councils, often have divergent institutional priorities, competing for jurisdiction and resources. Matland's theory presumes what he terms symbolic implementation, whereby policies are formally adopted and publicly published, but the coordination, monitoring and actions necessary to achieve concrete impact are rarely followed or even implemented. This is in line with other research findings on policy implementation in developing-country settings, which have shown that the gap between policy statement and policy implementation is often due to misaligned administrative capabilities, externally copied policy models, and bureaucratic inertia, as opposed to a single identifiable failure (Brookings Institution, 2025). The lack of significant impact of government policies on mobility outcomes identified in this study is thus not a methodological puzzle alone, but a very real demonstration, which is the empirical signature that ambiguity-conflict theory would want to observe in a fragmented governance environment such as Lagos.

Sachs et al. (2019) suggested that institutional weaknesses, especially corruption, misalignment and ineffective enforcement, prevent the successful operationalisation of sustainable urban mobility. Policy fragmentation in Lagos has been compounded by a plethora of departments with multiple (and sometimes conflicting) mandates on the same or competing mandates in many of them. The Lagos State Ministry of Transportation, LAMATA, which was created to coordinate transport planning in the metropolitan area without any enforcement powers to enforce compliance both at the local level and federal level, at various sublevel agencies, has not been given. The Lagos State Ministry of Transportation determines where to develop policies, but it faces a lack of capability to comply implementation. Federal agencies control the most important roads and ports, but do not necessarily align investments with state interests, they said. Such institutional fissures guarantee that policy, even that of good design, is watered down, delayed or twisted in execution.

Moreover, 75% of respondents concurred those institutional deficiencies, such as poor regulation and corruption, are weak barriers at the state level to sustainable transport in Lagos. Such a perception is in line with the governance literature focused on African cities. Ngcobo et al. (2024) identified inadequate governance, inadequate investment in clean energy vehicles, and low public confidence in public transport as major barriers in Johannesburg. Chmielewski et al. (2022) noted that fragmented public transport responsibility has led to massive constraints for cross-boundary travelers in Polish municipalities. These results, along with the regression results from this research, indicate that governance reform is needed before meaningful mobility improvements can be made to address the previous perspectives, the latter being just a complement to this priority.

Public Transport Efficiency: Moderate Gains, Limited Impact

The regression of public transport efficiency ($p = 0.871$) also supports the notion that separate system components cannot individually predict mobility results. Seventy-three per cent of the respondents believe public transport is inexpensive and reliable in Lagos, and 75 per cent agree that efficient public transport reduces congestion (the results of this regression show that these perceived efficiencies don't significantly affect the overall mobility outcome). This confirms the reality of Lagos' public transport system. Though the BRT system has received recognition on account of its positive intervention status, it is plagued by low coverage, poor fleet size and poor integration with other modes. Services are limited at best, so this rail system, on paper, does not provide access to most citizens. There are many potential transformative features of ferry services, especially given Lagos's lagoon geography, though they only take up a tiny fraction of the total passenger payload. On the other hand, informal transport modes (for example, danfo minibuses, okada motorcycles and keke tricycles) remain predominant, providing necessary but unsafe, unreliable, and environmentally compromising services.

As Vassallo and Bueno (2019) noted, the success of public transport interventions is contingent upon how it integrates with land-use planning, fare policies, and feeder networks. In Latin America, cities with effective BRT systems have proved to thrive if they invest in station-area development, integrated ticketing for all residents, and multimodal connectivity. The Lagos experience shows that without such integration, even the best-conceived public transport investments provide little mobility reward. These findings are of special importance considering that informal paratransit continued to predominate in Lagos. Danfo minibuses, okada motorcycles and keke tricycles complement each other with the largest share of daily travel in the city, but the empirical public transport efficiency measures, including the ones considered in this research, mainly target BRT and rail services, which represent a narrow section of the total ridership. Cirolia and Harber (2022) note that the regulation of minibus and motorcycle taxis is, by its own nature, a central, but frequently overlooked, site of urban statecraft in the African metropolis with as much to do with everyday negotiation and everyday bargaining between practitioners and politicians as there is with formal policy. The formal sector improvements in efficiency will not likely even register as dramatic gains in mobility outcomes as long as the informal sector (that most residents are dependent on daily) is beyond the remit of coordinated planning and regulation.

Towards a Governance-Centred Model of Sustainable Urban Mobility

Together, the results of this study lead to a governance-centred vision for sustainable urban mobility in megacities of Africa. Infrastructure investment, public transport improvements, and policy, as per this model, can only yield meaningful mobility outcomes if they are embedded in effective governance frameworks marked by institutional coordination, regulatory enforcement, stakeholder participation, and transparent accountability.

A comparative literature about cities that successfully reformed transport governance further supports this paradigm. The experience of London's Transport for London (TfL) suggests that metropolitan-level governance, when conferred with adequate statutory power over planning, fares, and operator regulation, might translate infrastructure investment into integrated, multimodal outcomes via the introduction of such schemes as congestion charging and integrated ticketing (Pierre & Peters, 2000). Vienna's regionally directed transport authority also shows that a central authority with true authority to act (more than just an authoritative hand in recommending services) is needed to make fares and standards of services consistent across municipal borders. Its comparison to LAMATA serves as a guide; even though LAMATA is modelled in part on these case studies and has a formal coordinating authority, it is not legally empowered to get the federal road agencies to operate compliant or to enforce route franchising consistently across operators. The implications here are that the proposed governance-centred model does not only require a coordinating institution, but also the allocation of binding regulatory authority commensurate with the size of the coordination challenge.

This governance-centred model is reiterated from a complementary facet through the land-use evidence presented earlier. Oyalowo et al. (2024) show that infrastructure and land use planning in Lagos are largely disconnected from each other, since the area of the station (on BRT and rail lines) is underused for the mixed-use, higher-density development that would maximise the number of passengers and accessibility. A governance-centred model of sustainable urban mobility must thereby challenge our focus on these very specific transport agencies, to include land administration, urban planning and housing authorities, for the accessibility and inclusivity of this integrated solution of sustainable urban mobility is as much an issue of the place of lived-in space to work relative to transit corridors as the quality of these corridors. This suggests transit-led development, as detailed in policy suggestions of the following sections, as a complement to institutional coordination, and not as a standalone or supplementary strategy.

This line of reasoning is aligned with the Multi-Level Perspective of sustainability transitions (Geels, 2011; Geels & Schot, 2007). In Lagos, the current mobility regime is dominated by informal carbon intensive transport modes that are inefficient, unsafe and environmentally degrading. Niche innovations like the BRT, rail and digital mobility have risen, but there are still barriers, including vested interest groups, under-funding, fragmentation, and the public's unwillingness to adapt behaviour. But for these niches to grow and reshape the mobility system, pressure from the wider context, rapid urbanisation, imperatives of climate change, and governance reforms need to undermine the status quo and create catalysts for an agile transition.

Banister (2011) stated that sustainable mobility involves breaking social conventions surrounding transport across society and decreasing the use of private automobiles as symbols of social status. In Lagos, where forced car ownership has become a coping mechanism for unreliable public transport, policy interventions must combine infrastructure with financial incentives and education to promote public transport and non-motorised mobility. This

behavioural dimension also highlights the governance difficulty: transforming travel behaviour necessitates both physical infrastructure and policy consistency, public discourse, and participative planning processes that develop consensus about what a sustainable mobility future must look like.

CONCLUSION

This research aimed to investigate the determinants of integrated sustainable urban mobility and transportation infrastructure, governance, and mobility outcomes in Lagos, Nigeria. The results clearly challenge the infrastructure-first paradigm that has prevailed in urban transport policy in African megacities. While major investments were made in roads, BRT systems, and rail infrastructure, transport infrastructure quality failed to be a significant predictor of mobility outcomes. In the same vein, public transport efficiency and government policies appeared to be salient to respondents but did not reach statistical significance in the regression analysis.

These results suggest that sustainable urban mobility in Lagos cannot be achieved through infrastructure expansion alone. Rather, it requires deep governance reforms that address institutional fragmentation, strengthen regulatory enforcement, enhance inter-agency coordination, and promote inclusive stakeholder participation. The study's theoretical contribution lies in integrating Institutional and Governance Theory with the Sustainable Mobility Paradigm to explain why infrastructure investments fail to produce expected mobility dividends in contexts characterised by weak institutions and fragmented governance.

Policy Recommendations

Based on these findings, the following policy recommendations are offered:

- First, establish a unified metropolitan transport authority with statutory powers to coordinate all transport-related activities across municipal, state, and federal jurisdictions. This authority should have the mandate to set service standards, regulate operators, enforce compliance, and ensure that infrastructure investments are aligned with integrated mobility plans.
- Second, implement comprehensive inter-agency collaboration frameworks that bring together LAMATA, the Ministry of Transportation, local government councils, federal road agencies, private operators, and civil society organisations in regular coordination forums with clear mandates and accountability mechanisms.
- Third, enhance institutional capacity for policy implementation through investment in professional training, performance management systems, and anti-corruption mechanisms. Policies that are designed in good faith but inadequately implemented are wasteful and undermine public trust.
- Fourth, make informal transport operators' part of the formal mobility system through registration, training, route rationalisation, and gradual fleet modernisation programmes. In the case of Lagos, where informal modes are dominant, all sustainable mobility strategies must involve rather than exclude this sector.
- Fifth, apply transit-oriented development principles and invest in land use together with transport infrastructure to provide new infrastructure complemented by investments in housing, employment centres, and services, reducing travel demand and supporting the

multimodal approach. As the current evidence on land use near the current Lagos transit corridors illustrates, the implication is that both land administration and urban planning authorities should be involved with transport authorities, because station-area development decisions without mobility planning, and vice versa, recirculate the same kinds of institutional fragmentation that the present study identifies as the cause of the mobility paradox.

- Sixth, best the coordinating transport authority with actual statutory and binding powers, as opposed to advisory or recommendatory powers, over route franchising, service levels, and compliance with inter-agency agreements. The comparison of successful, albeit real, coordination achieved by metropolitan transport authorities suggests that the conflict and uncertainty characteristic of Matland's (1995) implementation model will not be mitigated by institutional design without a suitable regulatory authority.

This research is part of a growing literature which advocates governance-led frameworks for urban mobility in the Global South. While the findings are confined to Lagos, the ramifications for other rapidly urbanising African cities are significant: without reform in governance, infrastructure investments are not the solution to the mobility crisis. The road toward sustainable urban mobility crisscrosses institutions, not just asphalt.

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