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Assessment of Management Practices Among Operators of Public Transport: Evidence From a Developing Country

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Abstract

This study explores the management practices employed by transport operators in the Greater Kampala Metropolitan Area (GKMA), a region surrounding Uganda's capital city. The study employed a qualitative hermeneutical phenomenological approach to explore the experiences of road transport operators in GKMA. Using purposive sampling, data were collected from 33 key informants and analyzed thematically with QSR NVivo 9. Verbatim excerpts were included to support and illustrate key themes. The study identifies stage management, real time coordination, customer care service, regulatory compliance and operational compliance as key management practices that enable firms in the road transport industry to navigate their volatile operating environment. The study provides a pioneering exploration of the diverse management practices in a unique transport sector which has received limited attention in prior research.

Keywords: Management practices, transport sector, road transport, Uganda

Introduction

Globally, public transport plays a paramount role in improving the mobility of people in an economy (Ndibatya and Booysen, 2020). It is crucial in achieving equity for a country's economically and socially disadvantaged sections by increasing their economic and social opportunities and allowing them to access public services, education and employment opportunities (Ghosh et al., 2023). The development of any public transport system expands labour and capital productivity as direct inputs, cost savings through increased transportation efficiency, accelerated industrial agglomeration and influence the economy by changing aggregate market demand (Yin et al., 2023; Njoya and Nikitas, 2020). Recognizing its role in development, the United Nations, through SDG 11.2, urges countries to ensure access to safe, affordable, and sustainable transport systems by 2030, with special attention to vulnerable groups. Consequently, many nations are investing in coordinated and efficient public transport infrastructure. In sub-Saharan Africa, public transport remains the primary means of improving urban mobility. However, transport authorities in most of these countries struggle to fulfil the mobility needs of rapidly growing populations, especially the urban poor. The transport systems that are supposed to connect commuters to jobs, services and markets have limited capacity and are loosely regulated and inefficient (Agbiboa, 2023 In Uganda, the public transport system is widespread but predominantly informal and has grown organically created by individual actors. Kampala, like many African cities, relies on this informal system comprised largely of taxis (14-seater minibuses) and Boda-Bodas (motorcycle taxis) to provide much-needed connectivity to

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opportunities (Ministry of Works and Transport [MoWT], 2022). A study by the World Bank revealed that commuters and travelers in the Greater Kampala lose over 24,000-man hours each day due to inefficient public transport systems and traffic jam caused mainly by the increased use of private cars and continued dependence on low capacity systems such as the 14-seater minibus taxis (Matatus) and commercial motorcycles (BodaBodas) (World Bank, 2017).

Empirical research on public transport has attracted considerable attention in recent years, with a growing focus on issues of social equity. (Muhoza et al., 2023), strategy execution in transport firms (Ssekiziyivu et al., 2023a), digitalization trends (Martin et al., 2023), and the development of informal modes like boda boda (Howe, 2003). However, little work has examined the management practices in public transport, especially from a developing country's perspective like Uganda. Yet, over 90% of Uganda's goods and passengers rely on road transport due to the limited development of rail and water transport. For instance, studies like that of Muhoza et al. (2023) explore equity outcomes of transport systems and Martin et al. (2023) focus on technological transformations in mobility, both primarily take a systems-level view and do not engage with how individual operators manage resources or respond to operational challenges. Similarly, Booysen et al. (2022) center on energy efficiency in electric transit, offering limited insight into firm-level decision-making or managerial adaptation. These studies provide important macro and sectoral perspectives, but they overlook the internal management dynamics such as planning, coordination, and resource reconfiguration that are essential for understanding the performance of informal and semi-formal transport operators. This study addresses that gap by examining internal management practices from the perspective of Dynamic Capabilities Theory (DCT), particularly in the context of Uganda's largely informal road and fragmented transport sector, lacking formal governance structures, codified procedures, and institutional support systems. The DCT is particularly appropriate, as it focuses on how firms adapt, integrate, and reconfigure resources and routines in rapidly changing or poorly regulated environments (Teece et al., 1997). Unlike theories that assume structured, stable environments, DCT captures the entrepreneurial, improvisational, and adaptive behaviours that informal operators must deploy to survive and thrive amidst uncertainty, competition, and regulatory ambiguity. Yet, its contribution in the context of transport research, especially in informal or low-income settings, remains underexplored.

While many private players are joining the road transport business in Uganda, managing operations is still challenging (Ssekiziyivu et al., 2023b). Many of the owners delegate their children and relatives to run the business who have limited knowledge, skills and experience in the implementation of unique strategies in transport (East African Family Business Survey report, 2021). Moreover, the limited number of transport companies are typically operated by owner-managers who lack a functional board to supervise the strategic decisions made within these companies (Agiresaasi, 2023). Whereas existing laws in Uganda address licensing requirements for transport operators and guide traffic regulations, they overlook the crucial management and governance aspects within these operators (Uganda Traffic and Road Safety Act, 2020). Yet, effective management and governance are fundamental to the success of transport businesses. This challenging environment has hindered the effective management of transport business in Uganda despite Uganda's reliance on road transport as a landlocked country. The public transport sector in the Greater Kampala Metropolitan Area (GKMA) is predominantly informal, with taxis and boda-bodas operating alongside formal services such as buses, all within a constrained and

congested road network. (Kampala Capital City Authority [KCCA], 2021). Similar patterns are observed in other rapidly urbanizing East African cities. For example, Nairobi, Kenya, relies heavily on Matatus (privately owned minibuses) which, like boda-bodas in Kampala, operate with minimal regulation and coordination (Salon & Gulyani, 2019; Galuszka et al., 2021). In Dar es Salaam, Tanzania, informal Daladala services have long dominated urban mobility, although recent efforts to formalize transit through the introduction of Bus Rapid Transit (BRT) systems highlight comparable governance and infrastructure challenges (Mchome & Nzoya, 2023). These parallels suggest that insights from the GKMA context may have broader relevance for other cities facing similar informal transport dynamics and urban pressures. Therefore, this study aims to contribute to filling such knowledge gaps using primary data collected from different stakeholders in the Greater Kampala Metropolitan Area (GKMA). The central research question explored is:

RQ. What are the management practices exhibited by operators of public transport in GKMA?

The study holds significant relevance for various stakeholders. Firstly, it provides transport operators with critical insights into effective management practices, aimed at enhancing operational efficiency, profitability, and service delivery within volatile environments. Secondly, it offers policymakers and regulators in developing countries valuable data to inform targeted policies that streamline operations, enforce safety regulations, and optimize traffic management, fostering sustainable urban transport systems. Lastly, the study addresses gaps in the existing literature on transport management, contributing to research on urban mobility, public transport efficiency, and sustainability. The rest of the paper is organized as follows: Section 2 is a literature review providing the study setting, a theoretical framework and a review of existing empirical literature forming a basis of our research question. Section 3 provides the methodology, while Section 4 provides the findings of the study that are discussed under Section 5. The final section provides conclusions, implications and limitations of the study.

Theoretical review

This study has been anchored on the Dynamic Capabilities Theory (Teece, Pisano, & Shuen, 1997). This theory emphasizes an organization's ability to sense opportunities and threats, seize opportunities, and reconfigure or transform resources to remain competitive in rapidly changing environments. Teece (2018) highlights that higher-level dynamic capabilities include sensing, seizing, and transforming. Sensing involves environmental scanning to bring disorganized information and unstructured data from the external environment into the organizational system. Seizing determines how quickly the firm can respond to opportunities and threats, involving activities such as investing in commercializing new technologies and designing business models. Transforming capabilities are responsible for keeping organizational elements aligned with strategy to maintain competitive advantage. The theory assumes that firms operate in dynamic, uncertain, and competitive markets where static capabilities alone cannot ensure long-term success. A key assumption is that organizations with strong dynamic capabilities such as the ability to adapt, innovate, and reallocate resources are better positioned to achieve sustainable competitive advantage. Eisenhardt and Martin (2000) extended this by showing that dynamic capabilities are embedded in identifiable, repeatable processes rather than being entirely unique. Teece (2018) further refined DCT by highlighting that effective dynamic capabilities are essential for innovation, organizational renewal, and strategic alignment in complex environments. Paylou

and EI Sawy (2011) emphasized that dynamic capabilities also rely on tacit knowledge, improvisation and learning the theory relevant in uncertain, fast-changing, and even informal contexts. This perspective acknowledges that success lies not in resources alone but in the ability to continuously evolve and strategically adjust processes and practices to match environmental demands (Eisenhardt & Martin, 2000).

In the context of this study, the DCT highly relevant as public transport operators in developing cities like the GKMA face constant challenges, such as congested infrastructure, regulatory changes, competition from informal operators, and technological disruptions. In applying this theory, transport firms need to develop dynamic capabilities to adapt to such changes. The goal is to outmaneuver competitors by leveraging internal strengths and market opportunities. For instance, they need to sense emerging trends, like the need for digital fare systems or eco-friendly transport solutions; seize opportunities by adopting technologies such as route optimization software; and reconfigure resources by upgrading vehicle fleets, retraining drivers, or reorganizing routes to improve efficiency and service delivery. Through this lens, management practices in GKMA's public transport sector can be understood as efforts to innovate, adapt, and streamline operations to navigate volatility and improve sustainability. By leveraging dynamic capabilities, transport operators can address operational inefficiencies, meet customer expectations, and align with urban development policies, ensuring resilience and long-term competitiveness in an evolving urban mobility landscape.

Operational management practices of public transport
Operational management practices play a critical role in enhancing the efficiency, safety, and adaptability of road transport firms, especially in volatile and informally governed urban environments in developing countries. These practices are particularly vital in contexts where formal regulatory structures are weak, and day-to-day operations rely on adaptive strategies developed by transport operators. Stage management is one such practice that involves organizing designated points for passenger loading and offloading. Structured stage systems regulate operations, reduce congestion, and enhance route coordination. For example, in Nairobi, matatu stage coordination has proven essential for managing space and minimizing conflicts among operators (Nyachieo, 2018). Similarly, in Tanzania, the clustering of boda-boda riders at designated stages enhances operational order and promotes peer accountability. These localized governance structures are instrumental in establishing informal rules that substitute for formal regulatory enforcement. The adoption of digital tools has transformed operational practices in the sector. Technologies such as GPS-based fleet tracking, ride-hailing applications, and mobile dispatch systems enhance dispatch accuracy, enable route optimization, and increase responsiveness to passenger demand (Gaponenko & Hvoevskaya, 2022; Gumuskaya et al., 2020). In South Africa, Booysen, Pretorius, and Abraham (2025) used simulation-based models to show how digital coordination can support electrification and enhance planning in paratransit systems. In Uganda, partnerships with platforms such as SafeBoda have enabled operators to reduce idle time, improve route accuracy, and enhance responsiveness to changing demand (Kampala Capital City Authority [KCCA], 2023).

Customer care service has become a competitive differentiator. In urban transport, especially where multiple informal options exist, firms are increasingly prioritizing passenger safety, comfort, and responsiveness. Real-time feedback systems, driver etiquette training, and the

provision of comfortable seating and entertainment, such as local music, have contributed to improved passenger satisfaction and loyalty (Delgado et al., 2012; Liu, Cats, & Gkiotsalitis, 2021; Ssekiziyivu et al., 2023a). In Uganda, Ssekiziyivu et al. (2023a) found that taxi operators who invested in customer service practices, including timely resolution of complaints, enhanced their operational stability and reputation. Regulatory compliance, particularly with licensing, insurance, and traffic regulations, is also critical. Adherence to regulations reduces exposure to fines and disruptions and increases eligibility for government incentives or partnerships (Mfinanga & Curtis, 2019). However, in many informal transport systems, compliance is limited by financial and institutional barriers. Ssekiziyivu et al. (2025) propose phased licensing fee waivers and participatory policy development as ways to incentivize compliance among informal operators. Emerging research highlights informal governance in African urban transport. For example, in Kenya, matatu operators form associations and cartels that determine fares, control routes, and mediate disputes. Although regulated by the National Transport and Safety Authority (NTSA), daily operations remain largely in the hands of private actors. This has led to practices such as excess passenger loading through improvised seating ("sambaza"), reflecting the tension between profitability and safety (Nyachieo, 2018; Salon & Aligula, 2012). In Tanzania, urban transport is dominated by Daladalas and the formal Dar es Salaam Rapid Transit (DART) system, with growing integration of app-based services like Uber and Bolt. Despite road-widening efforts by the government, congestion persists, pushing drivers to rely on informal knowledge of alternative routes to bypass traffic (Kinyaga, 2021).

Methodology
This study was carried out in the GKMA, a region surrounding Uganda's capital city, Kampala. GKMA encompasses the city itself along with surrounding suburbs, satellite towns, and peri-urban extensions into Mukono, Wakiso, and Mpigi districts (KCCA, 2021). The area has experienced significant urban growth over many decades and is currently the second-fastest-growing urban area in Eastern Africa. It serves as Uganda's industrial, commercial, and educational hub, playing a vital role in the country's economic development (Kasimbazi, 2024). The urban public transport sector in the GKMA is predominantly informal, although both informal and formal operators coexist within the system (Kiggundu et al., 2021) . In this study, formal operators refer to those registered and licensed by the Ministry of Works and Transport (MoWT), including regulated bus services and certain taxi associations operating under formal route and fare structures. Informal operators include those who are not registered with MoWT or other regulatory bodies, such as many boda-boda riders and independent taxi drivers, who typically operate without licenses, permits, or adherence to standardized practices. SafeBoda Academy introduces a semi-formal dimension to the sector by providing boda-boda riders with safety training, branding, and digital coordination through a ride-hailing platform. However, many of its riders still function within an informal regulatory environment due to limited enforcement and sector-wide formalization challenges.

The study employed a qualitative hermeneutic-phenomenological approach to explore how individuals' experiences and cultural traditions inform their everyday practices (Ssekiziyivu, Takwi and Kabahinda, 2025). This approach was considered appropriate because it focuses on the lived experiences of participants, allowing for a deep exploration of how transport operators in Uganda interpret their roles, challenges, and operational realities (Creswell, 2009). In contrast, ethnography emphasizes prolonged immersion in a cultural setting to understand group norms

and behaviors, which was not feasible given the study's scope and time constraints. Grounded theory, on the other hand, seeks to generate theoretical models from systematically coded data, whereas this study aimed not to build new theory but to interpret meaning from existing experiences (Neuman, 2014). Given this objective, hermeneutical phenomenology offered the most suitable lens. An interpretivist perspective was adopted to reflect the complex, dynamic, and socially constructed nature of Uganda's informal transport sector (Saunders et al., 2023).

The study focused on the major players in the road transport sector in GKMA. These were Boda Boda riders, taxi operators and Safe Boda Academy. The total number of key informants was 33. These were divided into 3 clusters and 7 focus groups as indicated in table 1. In each cluster, different people with different management positions such as like stage chairperson, vice chairperson, treasurer, health, operations managers and drivers were considered because they were well positioned to provide accurate responses. Purposive sampling was employed to identify participants based on their relevance to the research topic, practical experience, and willingness to engage in the study (Ssekiziyivu et al., 2023a). The inclusion criteria required participants to: (1) have held leadership or operational roles (such as stage chairperson, treasurer, operations manager, driver), (2) have a minimum of five years of experience in the transport industry, and (3) express a willingness to participate (Ssekiziyivu et al., 2023a). These criteria ensured that participants could provide rich, contextually grounded insights into the sector.

Table 1. Clusters and focus groups

Cluster	Focus Group	Code	Position
Boda Boda	FG1	KI1	Stage Chairman
		KI2	Vice stage chairman
		KI3	Driver
		KI4	stage Health
	FG2	KI5	Secretary
		KI6	Chairman
		KI7	Stage Defense
		KI8	Coordinator
	FG3	KI9	Welfare
		KI10	Driver
	FG4	KI111	Driver
		KI12	Treasurer
		KI13	Driver
		KI14	Driver
		KI15	Driver
		KI16	Stage chairman
Taxi	FG5	KI17	Driver
		KI18	Driver
		KI19	Driver
		KI20	Stage Chairman
	FG6	KI21	Driver
		KI22	Driver
		KI23	Driver

		KI24	Driver
Safe Boda	FG7	KI25	Driver
Academy		KI26	Driver
		KI27	Quality assurance
		KI28	B2B manager
		KI29	Operations
		KI30	Marketing
		KI31	Country director
		KI32	CFO
		KI33	Financial services

Source(s): Primary data

To ensure the trustworthiness of the qualitative data, this study followed the four criteria proposed by Miles and Huberman (1994). First, credibility was enhanced through triangulation and prolonged engagement with participants during interviews (Miles & Huberman, 1994; Lincoln & Guba, 1985). Regarding transferability, this was supported by rich, thick descriptions to allow readers to assess applicability in other contexts (Bakibinga, 2012; Maxwell, 2008). To ensure dependability, we maintained a clear audit trail and engaging in regular peer debriefing with colleagues in the Faculty of Management (Creswell, 2003; Merriam, 2015). Finally, in terms of confirmability, the researchers documented each stage of the process, presented diverse perspectives, and took steps to minimize personal bias by maintaining neutrality in data interpretation (Loh, 2013; Ssekiziyivu et al., 2025).

Data were collected using semi structured interviews (attached in Appendix A). Interviews were conducted physically at the respondents' workplaces at a time that was convenient for respondents. Interviews lasted between 45- 60 minutes and this enabled the researchers to get deep insights. Interviews were taken until we reached at saturation which was considered to have been reached when no new themes or codes emerged from the data (Miles and Huberman, 1994). This point occurred by the 30th interview, after which three additional interviews were conducted to confirm the redundancy of information. The total interviews conducted were 33. This approach aligns with Guest, Bunce, and Johnson's (2006) finding that saturation often occurs within the first 12 interviews but is largely achieved by the 30th, particularly in homogeneous participant groups. In addition to note-taking, interviews were audio-recorded following the acquisition of both verbal and written informed consent from participants, in strict adherence to Uganda's Data Protection regulation. The study received ethical approval from the Research Ethics Committee of the Ministry of Works and Transport (MoWT) under reference number MoWT/REC/2024/03, approved on 12 August 2024. Institutional permission to publish was also granted. Prior to data collection, participants were fully briefed on the purpose of the study that it was to contribute to academic knowledge (Saunders et al., 2023) and were given the option to ask questions or withdraw at any time. The researchers explained the nature of participation, assured respondents of confidentiality, and obtained written consent. All personal identifiers were removed from the transcripts, and pseudonyms were used to report findings to protect participant identities (Heaton, 2022). Audio recordings and transcripts were securely stored on password-protected devices accessible only to the research team, in accordance with best practices recommended by Newman et al. (2021).

Data analysis followed a thematic approach consistent with Braun and Clarke's (2006) six-phase framework. Two researchers independently coded the transcripts to improve credibility and reduce individual bias in interpretation (Nowell et al., 2017). An initial codebook was developed inductively after a detailed review of five transcripts, allowing data-driven codes to emerge naturally (Guest et al., 2012). This codebook was refined iteratively through joint discussions and applied to the rest of the data set. Intercoder reliability was assessed using Cohen's Kappa, with an average score of 0.81, indicating substantial agreement (McHugh, 2012). Any discrepancies in coding were resolved through consensus meetings to ensure consistency in the interpretation of themes. As patterns emerged, axial coding was used to group similar codes, and themes were refined to ensure alignment with the research questions and the participants' lived experiences. NVivo 12 software was used to manage the data and support the organization of codes and themes. The research team reviewed and cleaned all transcripts to ensure quality control. Where the software could not transcribe the proper wording in some sections of the interviews, they were typed up manually.

Findings
Respondent characteristics
From Table 2, reveals that in terms of gender, the males (93.9%) dominate, with only 6.1% female participation. This gender imbalance may be attributed to cultural and occupational challenges that limit female involvement in the sector. In terms of education levels, they are generally low, with 45.5% of respondents having completed only primary education. This could be because the sector attracts individuals who may have faced barriers to securing formal employment in other industries. In terms of **experience, 33.3% of respondents** have **11-15 years** in the industry, highlighting transport as a **long-term livelihood**. Additionally, **boda-boda operators dominate,** making up **75.8% of respondents**, while **taxi operators account for 24.2%,** emphasizing the **prevalence of boda-bodas in public transport.**

Table 2: Respondent characteristics

Category	Item	Number (N=33)	100%
Gender	Male	31	93.9
	Female	2	6.1
Education	No formal education	2	6.1
	Primary	15	45.5
	ordinary level	9	27.3
	Advanced level	2	6.1
	Diploma	2	6.1
	Degree	3	9.1
Experience	1-5 years	9	27.3
	6-10 years	7	21.2
	11-15 years	11	33.3
	Above 15 years	6	18.2
Vehicle in operation	Boda Boda	25	75.8
	Taxi	8	24.2

Source: Primary data

Operational management practices of public transport in GKMA
To provide a structured analysis of the operational management practices identified from the data, Table 3 summarizes the themes, the specific practices associated with each, how respondents described these practices, and their alignment with the dimensions of dynamic capabilities.

Table 3: operational management practices in GKMA and their dynamic capabilities

Theme	Key Practices Observed	Respondent Insights (Summary)	Dynamic Capability
Stage Management	Use of formal/informal stage committees for access control, coordination, and enforcement.	Taxi drivers emphasized authority of stage managers; Boda Boda riders noted early settlers had gatekeeping powers.	Seizing, Transforming
Real-time Coordination	Flexible pick-up/drop-off points, informal signaling systems for enforcement and traffic info.	Both taxi and Boda Boda operators confirmed stopping anywhere; used headlights/hand signals to warn of traffic checks.	Sensing, Transforming
Customer Care	Maintaining direct contact with customers, assisting vulnerable passengers, structured feedback.	Riders received calls from repeat clients; drivers guided or helped passengers; SafeBoda institutionalized customer ratings.	Seizing, Transforming
Regulatory Compliance	Adherence to licenses, insurance, helmet use, passenger limits.	Operators cited fear of police as key motivation; emphasis on compliance to avoid arrest and maintain access.	Sensing, Seizing
Operational Efficiency	FIFO loading, route optimization, evasive tactics during enforcement, strategic congestion avoidance.	Stage leaders enforced loading order; drivers used alternative routes and evasive tactics to meet income targets.	Sensing, Transforming

The themes summarized in the table 1 are further elaborated below, with illustrative narratives from participants that highlight how these operational practices embody dynamic capabilities within the informal public transport sector of GKMA

Stage management
Public transport in GKMA is structured around stages, which are the primary units of coordination for both taxis and Boda Bodas. On average, each taxi stage accommodates between 25-40 vehicles, while typical Boda Boda stages host about 15-30 riders, depending on location and demand. Hotspots such as Clock Tower, Jinja Road and MUBS stages emerged as particularly active due to proximity to high-footfall areas like markets, universities, and commercial centers.

For taxis, operation is regulated through the MoWT, and access to a stage requires recommendation from elected stage leaders. Of the 8 taxi drivers interviewed, 6 emphasized the authority of stage managers in vetting and enforcing discipline among drivers. One of the chairpersons of a stage mentioned that "…*I am known by KCCA and our association is registered. So, when we tell you something to do on our stage and you do not comply we can refuse you to operate on our stage and our decision is final.*" Among Boda Boda riders, 19 out of 26 reported operating within organically established stages, where leadership typically arises from early settlers of a particular zone. As one rider from the MUBS stage (KI20) noted*, "...I created my own stage here (MUBS stage) long time ago and all these people (riders) found me here. So, am the one with authority to accept them to operate from here."* Whereas KCCA tried registering Boda Bodas and gazzete their stages, this exercise is yet to be concluded. This practice reflects seizing capability by capturing value through structured coordination and transforming capability as operators reshape informal systems into recognized, functioning structures.

Real time coordination

The study revealed that public transport operators in the GKMA rely heavily on real-time coordination mechanisms to navigate the operational demands of the sector. This coordination takes the form of flexible stopovers (waypoints) and informal communication techniques (signaling) that enable continuous responsiveness to passenger demand, road conditions, and enforcement presence. Both Boda Boda riders and taxi drivers were found to operate with a high degree of spatial flexibility, stopping wherever necessary to pick up or drop off passengers. Boda Boda operators, in particular, demonstrated an informal, agreement-based system for determining waypoints. Out of 26 Boda Boda riders, 25 reported picking and dropping passengers at any agreed point rather than relying solely on stages. One rider shared, *"I pick and drop a passenger from anywhere as long as we have agreed on the prices."* Another noted, *"... I do not have a specific stage where I operate, so I just move on the road and take passengers from any point and drop them at an agreed location."* Similarly, 8 of 10 drivers acknowledged stopping at non-official points to fill seats, particularly during off-peak hours or when bypassing traffic. Common pick-up points included roadside hotspots like Kibuye Roundabout, Bwaise junction and Nakawa market. One of the drivers operating on the Kampala–Jinja road explained, *"... If you wait to only pick from known stages, you will not fill the taxi. So, I stop anywhere to pick a passenger because that's why I came to work."*

In addition to flexible waypoints, drivers employed informal signaling systems to communicate vital information among themselves. These included the use of hand gestures and vehicle headlamp flashes to warn others of traffic congestion, enforcement officers, or to indicate travel direction. All the taxi drivers interviewed confirmed using double headlight flashes to signal the presence of traffic officers or enforcement checks, while 6 drivers out 10 used upward-pointing fingers or thumbs to indicate direction. A taxi driver operating on Kampala–Gayaza route mentioned that, *"... when I use a double headlight flash signal, I warn my colleague about the presence of traffic officers or mobile speed trap camera ahead, alerting the other driver to reduce speed or drop off any excess passengers in case he has them."* This theme reflects sensing capability through continuous awareness of environmental cues and transforming capability through real-time adaptation of routes and communication techniques.

Customer care Service

Customer satisfaction is integral to operational success. Of the 26 Boda Boda riders interviewed, 17 mentioned that regular customers often call them or they call directly for transport, appreciating consistent communication. Key informant 1 had this to say *"...when am busy, I communicate to my customers and explain to them to wait for me. It makes me very responsible and I am always busy with many orders.*" Among taxi operators, 6 of 10 drivers stated they offer directions or carry elderly passengers without additional charges. KI18 mentioned that "*...I help many passengers to direct them where they are going without charging them. they appreciate our services and always come back to the taxi park to use our taxis*". Similarly, SafeBoda, a structured Boda Boda service, institutionalizes customer service through post-ride ratings and feedback. According to Key Informant 33, "…We *have customer care numbers which customers can call in case they have any problem. We quickly respond to their complaints to remain with good relationship. Besides training all our drivers in customer care, we ask all our customers to rate the trip at the end of it. Those drivers who get low rating are always summoned and if found guilty, they face disciplinary charges.*" KI33. The above excerpts show that through good customer care services, operators of public transport in KGMA are able to manage efficiently their clients. This practice reflects seizing capability by building customer trust and loyalty, and transforming capability through institutionalizing service standards and feedback mechanisms that enable transport operators improve operations well.

Regulatory Compliance

Compliance practices were widely reported. All 10 taxi drivers and 19 of 26 Boda Boda riders confirmed adherence to regulatory requirements such as third-party insurance, PSV licenses, and valid driving permits. 15 riders specifically cited wearing helmets and carrying one passenger to avoid police intervention. Key informant 1 mentioned that *"...you have to wear helmet, pay 3rd party and also carry one passenger at ago if you do not want police officers to arrest you."* Another key informant 16 mentioned that *"...we ensure that we pay 3rd party insurance, PSV license and park user fees to access the park. on top of this, all our drivers hold a valid driving permit to be allowed to transport passengers"*. The above narratives reflect a regulatory management practice driven primarily by public transport operators' fear of penalties rather than proactive compliance. Such theme reflects sensing capability by recognizing and responding to institutional requirements needed by MoWT that enable transport operators to keep themselves in business. Additionally, the theme reflects the seizing capability through compliance that allows uninterrupted access to operating zones and avoids penalties.

Operational efficiency

Structured loading systems such as the First In, First Out (FIFO) method are common in large taxi parks. All the stage chairpersons interviewed reported using FIFO to maintain order and prevent conflicts. For instance, KI20 explained, *"... here we use First in First Out (FIFO) method to load the vehicle. We have a book where each taxi is recorded as it enters in the park and that is the list we follow when we are loading these vehicles."* Such systems foster order and reduce disputes, promoting smoother operations within congested park environments. Outside parks, operators rely on route optimization to avoid delays. 9 out of 10 taxi drivers reported taking longer but less congested alternative routes. One key informant shared, *"... in case of traffic jam, I use other alternative routes though they are usually longer and in poorer conditions."* Meanwhile, 20 out of 26 boda boda riders confirmed using pavements or narrow passageways to bypass

traffic. A Boda Boda rider echoed this adaptability by stating, *"… I get a way of passing through the cars or pass from the pavement to avoid traffic."* Although not formally allowed, 7 out of 10 drivers admitted to using evasive tactics such as asking excess passengers to alight briefly when passing police roadblocks. KI24 noted, *"… sometimes I can load up to four passengers per sit instead of the mandatory 3 passengers. When I see traffic police, I tell them (excess passengers) to first get off and when we pass the police officers, they can jump on again and we continue the journey."* These practices reflect operators' efforts to meet daily revenue targets by sensing operational inefficiencies and transforming routines as needed.

Discussion of Findings
The study underscores the pivotal role of stage management specifically the stage committees in organizing and regulating daily operations within Uganda's informal public transport sector. These committees, which vary in structure and authority by route, oversee stage establishment, management, and dissolution, ensuring order and discipline among operators. This practice exemplifies a seizing capability, where actors institutionalize governance mechanisms to reduce conflicts, manage competition, and coordinate collective action, thereby stabilizing the operational environment (Teece, Peteraf, & Leih, 2016). By controlling loading sequences and enforcing rules, stage committees foster predictability and cooperation among drivers and riders, which enhances operational efficiency and reduces transaction costs associated with disorderly competition. This aligns with Kerzhner (2023), who found that stage authorities are central to maintaining order in Uganda's informal transport sector. Moreover, stage management represents a transforming capability, as operators and committees continuously adapt governance structures to address changing operational challenges, regulatory requirements, and stakeholder expectations. Such adaptive governance reflects the dynamic reconfiguration of routines and organizational boundaries critical for long-term resilience in informal urban transport (Teece, 2018). This finding also resonates with Ssekiziyivu et al (2023a), who argued that effective coordination mechanisms are vital to the sustainability of transport operations in developing country contexts.

Findings indicate that public transport operators in GKMA rely on real time coordination mechanisms to navigate daily operational demands. This includes flexible stopovers (waypoints) and informal signaling systems that enable continuous responsiveness to fluctuating passenger demand, road conditions, and enforcement presence. The high spatial flexibility observed among boda-boda riders and taxi drivers reflects their sensing capabilities through continuous monitoring environmental cues and passenger needs (Teece et al. 1997). Similarly, informal signaling such as double headlamp flashes and hand gestures exemplifies operators' transforming capabilities adapting communication techniques in real time to mitigate risks like traffic enforcement checks and traffic congestion. This coordination practice underscores the ability to reconfigure operational routines to maintain efficiency and responsiveness in an informal transport ecosystem. These findings align with Schimkowsky (2024), who found that visual communication influences passenger behavior, though this study extends the understanding to operator-to-operator signaling in Uganda. additional findings revealed pickup and stopover points in the GKMA vary based on passenger demand and the type of public transport. Passengers across all transport modes can request stops at their convenience, enhancing accessibility and flexibility. This finding aligns with Sorensen et al. (2021), who found that demand-responsive transport systems in rural Germany

improved mobility by allowing passengers to book rides at any time, unlike fixed-route public transport options.

Moreover, the study revealed that operational efficiency practices such as scheduling are key among taxis, ensuring order, fairness, and reduced conflicts contrasting with the more flexible operations of boda-bodas. In Uganda, taxis and coasters follow a manual registration system at parks, where drivers adhere to set schedules to improve journey planning for both operators and passengers. These findings align with Mo et al. (2020), who highlighted that scheduling reduces time wastage, and Andrade-Michel et al. (2021), who found it enhances reliability among bus drivers in Mexico. Additionally, operational efficiency is demonstrated through the use of the FIFO loading method within taxi parks, reflecting systematic efforts to foster order and minimize conflict. This illustrates the transforming capability, where organizational routines are structured to optimize throughput and reduce disputes. These findings complement those of Yue et al. (2022), who emphasized route optimization to reduce operational costs, with this study providing qualitative insights into such practices. By continuously sensing environmental and institutional conditions and seizing emerging opportunities to improve service and compliance, operators sustain and evolve their businesses within the challenging and dynamic urban transport landscape which is consistent with Teece's (2018) dynamic capabilities framework.

Customer care emerged as a critical operational practice reflecting seizing capabilities, whereby operators build trust and loyalty through consistent, personalized communication and assistance. The fact that boda-boda riders reported maintaining regular contact with customers, coupled with taxi drivers offering complimentary assistance to elderly passengers, illustrates the deliberate efforts to capture and retain clientele. Structured services like SafeBoda institutionalize these practices further, transforming customer care into standardized protocols reinforced by feedback and disciplinary mechanisms. These efforts foster good passenger relationships, improve service quality, and enhance feedback for operational improvement. Such findings align with Etuk et al., 2021), who found that service quality influences passengers' willingness to use public transport. However, while their study used an online survey in Spain, this study contributes to the literature by offering new insights from focus group discussions in Uganda, a developing country context. The findings are also in line with Kohli and Singh (2021), who argued that customer care is relevant in satisfying customer needs.

Additionally, compliance with government regulations is another salient theme that reflects dual aspects of dynamic capabilities. Operators sense institutional demands by recognizing the need for licenses, insurance, helmets, and passenger limits, primarily motivated by fear of penalties rather than voluntary adherence. Nevertheless, the act of complying represents a seizing capability, allowing operators to maintain uninterrupted access to operating zones and avoid costly fines or arrests. This reactive yet functional approach underscores the importance of institutional awareness and alignment for business continuity in a highly regulated but informally governed sector. These results concur with Finarti et al. (2024), who found that adherence to operational rules improves customer satisfaction and trust, thereby increasing public transport usage.

Conclusion and Implications

This study identifies critical management practices that underpin the survival and resilience of road transport firms operating within Uganda's volatile environment, particularly in the GKMA. These practices include structured stage management, real-time coordination, customer care service, regulatory compliance, and operational compliance. Using the lens of DCT, the study demonstrates how transport operators develop and apply sensing, seizing and transforming capabilities to improve their operations and adapt to shifting environmental conditions. Structured stage management, especially among taxi operators, has led to notable improvements in operational efficiency. However, efforts to formalize Boda Boda stages remain constrained by political contestation and financial barriers. To address these challenges, the study proposes a set of actionable policy recommendations. These include phased licensing fee waiver (100% in the first year, 50% in the second, and full implementation in the third year) to incentivize compliance and encourage formalization. Additionally, the MoWT should organize regular stakeholder workshops involving transport operators, local authorities, digital platform providers, and community leaders. This will go along way in digitalizing the transport sector to match with already developing cities standards. Co-developing governance and operational frameworks through such forums would also enhance legitimacy and stakeholder buy-in. Moreover, KCCA should partner with institutions like Safe Boda Academy to develop and pilot accessible digital tools that support the ongoing digitization of Kampala's transport system.

While this study centers on the GKMA, its findings are broadly applicable to other East African cities with similar informal transport systems, such as Nairobi, Dar es Salaam, and Kigali. Structured stage management and digital coordination tools could significantly improve operational oversight and efficiency in these cities provided there is sufficient political will, institutional capacity, digital infrastructure, and engagement from local authorities and national leaders in these countries. Therefore, this study offers not only a contextualized understanding of urban transport management in Uganda but also transferable insights for rapidly urbanizing African cities facing similar governance and operational challenges. To ensure inclusivity, the Government of Uganda through KCCA and MoWT should also design an SMS- based dispatch and communication system with local language support. This can enable non-smartphone users to access scheduling information, safety alerts, and customer feedback mechanisms, thereby expanding the reach and impact of digital innovations. Furthermore, the formal recognition and integration of informal governance mechanism such as stage committees, can serve as critical transforming capabilities. These tacit institutions embody experiential knowledge, community legitimacy, and social capital, allowing them to reconfigure routines, manage uncertainty, and fill institutional voids especially in resource-constrained settings.

References

Agbiboa, D. E. (2023). Urban Taxi Slogans: The People's Arts. *African Arts*, *56*(1), 42-61. doi: https://doi.org/10.1162/afar_a_00697

Agiresaasi, A. (2023), "Bus companies warn of collapse without government intervention", Global Press Journal, available at: https://globalpressjournal.com/africa/uganda/bus-companies-warn-collapse-without-government-intervention/

Andrade-Michel, A., Ríos-Solís, Y. A., & Boyer, V. (2021). Vehicle and reliable driver scheduling for public bus transportation systems. *Transportation Research Part B: Methodological*, *145*, 290-301. https://doi.org/10.1016/j.trb.2021.01.011

Bakibinga, D. (2012). *Research methods for business and social science*. Uganda Printing and Publishing Corporation.

Booysen, M. J., Abraham, C. J., Rix, A. J., & Ndibatya, I. (2022). Walking on sunshine: Pairing electric vehicles with solar energy for sustainable informal public transport in Uganda. *Energy Research & Social Science*, *85*, 102403. https://doi.org/10.1016/j.erss.2021.102403

Booysen, M. J., Pretorius, B., & Abraham, C. (2025). *Planning for electric paratransit in developing countries using simulation*. SSRN. https://doi.org/10.2139/ssrn.5172287

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101, https://doi.org/10.1191/1478088706qp063oa

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Sage.

Delgado, F., Munoz, J. C., & Giesen, R. (2012). How much can holding and/or limiting boarding improve transit performance?. *Transportation Research Part B: Methodological*, *46*(9), 1202-1217. https://doi.org/10.1016/j.trb.2012.04.005

East African Family Business Survey Report (2021), "From trust to impact", available at: https://www.pwc.com/ug/en/assets/pdf/east-africa-family-business-survey-2021.pdf on June.23.2023.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, *21*(10-11), 1105-1121. https://doi.org/10.1002/9781405164054.ch21

Etuk, A., Anyadighibe, J. A., James, E. E., & Mbaka, R. (2021). Service quality and passengers' loyalty of public transportation companies. *British Journal of Management and Marketing Studies*, *4*(4), 82-98. https://doi.org/10.52589/BJMMS-LRQ7JAVX

Finarti, N., Abidin, Z., Arubusman, D. A., & Setiawan, E. B. (2024). The Influence of Behavioral Intentions, Service Quality, And Satisfaction on the Loyalty of Public Transport Users in Jakarta and Bekasi. *Economics and Digital Business Review*, *5*(2), 652-659.

Galuszka, J., Martin, E., Nkurunziza, A., Achieng'Oginga, J., Senyagwa, J., Teko, E., & Lah, O. (2021). East Africa's policy and stakeholder integration of informal operators in electric mobility transitions—Kigali, Nairobi, Kisumu and Dar es Salaam. *Sustainability*, *13*(4), 1703. https://doi.org/10.3390/su13041703

Gaponenko, T., & Hvoevskaya, L. (2022). Digital transport platforms: reality and prospects. *Transportation Research Procedia*, *63*, 1185-1191. https://doi.org/10.1016/j.trpro.2022.06.123

Ghosh, T., Kanitkar, T., & Srikanth, R. (2023). Affordable and sustainable transportation: Key drivers and policy choices for a megacity in India. *Case studies on transport policy*, *13*, 101061. https://doi.org/10.1016/j.cstp.2023.101061

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods*, *18*(1), 59-82. DOI: 10.1177/1525822X05279903

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. Sage.

Gumuskaya, V., van Jaarsveld, W., Dijkman, R., Grefen, P., & Veenstra, A. (2020). A framework for modelling and analysing coordination challenges in hinterland transport systems. *Maritime Economics & Logistics*, *22*, 124-145. https://doi.org/10.1057/s41278-019-00139-1

Heaton, J. (2022), "'Pseudonyms are used throughout': a footnote unpacked", Qualitative Inquiry, 28(1), 123-132. https://doi.org/10.1177/10778004211048379

Howe, J. (2003) 'Filling the middle': Uganda's appropriate transport services, *Transport Reviews*, 23:2, 161-176, DOI: 10.1080/01441640309890.

Kampala Capital City Authority (KCCA) report (2021). "Kampala Road Safety Annual Report". Available at http://kcca.go.ug/media/docs/KampalaRoadSafetyAnnualReport2021.pdf

Kampala Capital City Authority (KCCA). (2023). *Urban mobility report: Enhancing smart transport systems in Kampala*. Kampala: KCCA Publications.

Kasimbazi, E. (2024). Urban Expansion in the Greater Kampala Metropolitan Area, Uganda. Retrieved from https://unhabitat.org/sites/default/files/download-manager-files/Uganda%20Case%20Study.pdf on April 14, 2024.

Kerzhner, T. (2023). How are informal transport networks formed? Bridging planning and political economy of labour. *Cities*, *137*, 104348. https://doi.org/10.1016/j.cities.2023.104348

Kiggundu, A. T., Nyakwebara, C., Eriaku, W., & Nakanwagi, O. (2021). An Assessment of Stage Bus Transit Operations in the Greater Kampala, Uganda. International Refereed Journal of Engineering and Science, Vol.10, No.6, PP. 26-50

Kinyaga, B. (2021). Chaos and disruptions as the challenge to urban transportation in Tanzania. *J Traffic Transp Eng*, *9*, 73-80. Doi: 10.17265/2328-2142/2021.02.004

Kohli, A., & Singh, R. (2021). An assessment of customers' satisfaction for emerging technologies in passenger cars using Kano model. *Vilakshan-XIMB Journal of Management*, *18*(1), 76-88. DOI 10.1108/XJM-08-2020-0103

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage

Liu, T., Cats, O., & Gkiotsalitis, K. (2021). A review of public transport transfer coordination at the tactical planning phase. *Transportation Research Part C: Emerging Technologies*, *133*, 103450. https://doi.org/10.1016/j.trc.2021.103450

Loh, J. (2013). Inquiry into issues of trustworthiness and quality in narrative studies: A perspective. *The Qualitative Report*, 18(33), 1–15. http://www.nova.edu/ssss/QR/QR18/loh65.pdf

Martin, E., Courtright, T., Nkurunziza, A., & Lah, O. (2023). Motorcycle taxis in transition? Review of digitalization and electrification trends in selected East African capital cities. *Case studies on transport policy*, *13*, 101057. https://doi.org/10.1016/j.cstp.2023.101057

Maxwell, J. A. (2008). *Designing a qualitative study*. In L. Bickman & D. J. Rog (Eds.), *The SAGE handbook of applied social research methods* (pp. 214–253). Sage.

Mchome, E. E., & Nzoya, U. W. (2023). Users' perception on operation and performance of Public Transport Systems in African developing countries: the case of Bus Rapid Transit (BRT) in Dar Es Salaam City, Tanzania. *Open Journal of Applied Sciences*, *13*(12), 2408-2420. https://doi.org/10.4236/ojapps.2023.1312188

McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica*, *22*(3), 276-282**. https://doi.org/10.11613/BM.2012.031**

Merriam, S. B. (2015). *Qualitative research: A guide to design and implementation* (3rd ed.). Jossey-Bass.

Mfinanga, D. A., & Curtis, C. (2019). Planning for informal transport in Sub-Saharan African cities: Policy and institutional implications. *Transportation Research Procedia*, 41, 594–610.

Miles, M.B. and Huberman, A.M. (1994), Qualitative Data Analysis: An Expanded Sourcebook, Sage, London, pp. 1-119.

Ministry of Works and Transport (MoWT) report (2022), "Intergrated transport infrastructure and services program performance report", available at: https://www.works.go.ug/policies-

regulations/sector-performance-reports/96-intergrated-transport-infrastructure-and-services-program-performance-report-fy-2020-21/viewdocument/96

Mo, D. Y., Lam, H. Y., Xu, W., & Ho, G. T. S. (2020). Design of Flexible Vehicle Scheduling Systems for Sustainable Paratransit Services. *Sustainability*, *12*(14), 5594. https://doi.org/10.3390/su12145594

Muhoza, C., Larsen, R. K., & Diaz-Chavez, R. (2023). Equity on the road in Uganda: How do interface bureaucrats integrate marginalized groups in the transport sector?. *Journal of Transport Geography*, *113*, 103738. https://doi.org/10.1016/j.jtrangeo.2023.103738

Ndibatya, I., & Booysen, M. J. (2020). Minibus taxis in Kampala's paratransit system: Operations, economics and efficiency. *Journal of Transport Geography*, *88*, 102853. https://doi.org/10.1016/j.jtrangeo.2020.102853

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Pearson.

Newman, P.A., Guta, A. and Black, T. (2021), "Ethical considerations for qualitative research methods during the COVID-19 pandemic and other emergency situations: navigating the virtual field", International Journal of Qualitative Research Methods, 20(1). https://doi.org/10.1177/16094069211047823

Njoya, E. T., & Nikitas, A. (2020). The role of air transport in employment creation and inclusive growth in the Global South: The case of South Africa. *Journal of Transport Geography*, *85*, 102738. https://doi.org/10.1016/j.jtrangeo.2020.102738

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1–13. https://doi.org/10.1177/1609406917733847

Nyachieo, G.M.M (2018). Exploring Public Road Passenger Transport in Kenya. Retrieved from https://t2m.org/exploring-public-road-passenger-transport-in-kenya's road network serveS both domestic and,informal sector commonly referred as Paratransit.

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. Decision sciences, 42(1), 239-273. https://doi.org/10.1111/j.1540-5915.2010.00287.x

Salon, D., & Aligula, E. M. (2012). Urban travel in Nairobi, Kenya: analysis, insights, and opportunities. *Journal of Transport Geography*, *22*, 65-76. https://doi.org/10.1016/j.jtrangeo.2011.12.004

Salon, D., & Gulyani, S. (2019). Commuting in urban Kenya: Unpacking travel demand in large and small Kenyan cities. *Sustainability*, *11*(14), 3823. https://doi.org/10.3390/su11143823

Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Pearson Education.

Schimkowsky, C. (2024). Visual communication and the management of passenger conduct: A visual analysis of transit etiquette posters by Japanese railway companies. *Visual Communication*, *23*(4), 723-744. https://doi.org/10.1177/14703572231179497

Ssekiziyivu, B., Bagire, V., Ngoma, M., & Nkurunziza, G. (2023b). The Role of Firm Resources in Strategy Execution. Evidence from Uganda's Road Transport Firms. *ORSEA JOURNAL*, *13*(2). https://doi.org/10.56279/orseaj.v13i2.4

Ssekiziyivu, B., Bagire, V., Ngoma, M., Nkurunziza, G., Abaho, E., & Hassan, B. (2023a). How do transport companies execute strategies in a volatile environment? A qualitative inquiry.

Journal of Work-Applied Management, *16*(1), 127-141. https://doi.org/10.1108/JWAM-06-2023-0056

Ssekiziyivu, B., Nkurunziza, G., Ecel, A., & Kisseka, R. (2025). Strategy execution among transport firms: Examining the role of organizational learning. *Vilakshan - XIMB Journal of Management*. Advance online publication. https://doi.org/10.1108/XJM-01-2025-0004

Ssekiziyivu, B., Takwi, F. M., & Kabahinda, E. (2025). Challenges Facing Women Entrepreneurship: A Developing Country Perspective. *Journal of Entrepreneurship and Innovation in Emerging Economies*, *11*(1), 37-48. https://doi.org/10.1177/23939575241277333

Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, *51*(1), 40-49. https://doi.org/10.1016/j.lrp.2017.06.007

Teece, D. J., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), 13–35. https://doi.org/10.1525/cmr.2016.58.4.13

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, *18*(7), 509-533.

Uganda Data Protection and Privacy Act (2019), available at: https://ict.go.ug/wp-content/uploads/2019/03/Data-Protection-and-Privacy-Act-2019.pdf.

Uganda Traffic and Road Safety Act (2020), available at: https://www.uace.or.ug/wp-content/uploads/2020/10/Traffic-Road-Safety-Am-Act-2020-FINAL-mirrored.pdf.

World bank (2017). the role of city governments in economic development of greater Kampala. Available at https://documents1.worldbank.org/curated/en/860311505816462189/pdf/119806-REVISED-PUBLIC-The-wb-Book-2017-Report-web-Individual-Page-Layout.pdf

Yin, G., Huang, Z., Yang, L., Ben-Elia, E., Xu, L., Scheuer, B., & Liu, Y. (2023). How to quantify the travel ratio of urban public transport at a high spatial resolution? A novel computational framework with geospatial big data. *International Journal of Applied Earth Observation and Geoinformation*, *118*, 103245. https://doi.org/10.1016/j.jag.2023.103245

Yue, Y., Gai, W. M., & Deng, Y. F. (2022). Influence factors on the passenger evacuation capacity of cruise ships: modeling and simulation of full-scale evacuation incorporating information dissemination. *Process Safety and Environmental Protection*, *157*, 466-483. https://doi.org/10.1016/j.psep.2021.11.010