PUBLIC TRANSPORTATION IN KENYA

(A PHENOMENOLOGICAL STUDY OF TRANSPORT ISSUES)

Joseph Kamau Muguro
Paul Waweru Njeri
Minoru Sasaki

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Authored by

Joseph Kamau Muguro
Electrical and Electronics Department
School of Engineering, Dedan Kimathi University of Technology
Private BAG - 10143, Dedan Kimathi
Nyeri, Kenya

Paul Waweru Njeri
Electrical and Electronics Department
School of Engineering, Dedan Kimathi University of Technology
Private BAG - 10143, Dedan Kimathi
Nyeri, Kenya

&

Minoru Sasaki
Center for Collaborative Study with Community
Tokai National Higher Education and Research System
Gifu University, 1-1 Yanagido
Gifu 501-1193, Japan

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Authors: Joseph Kamau Muguro, Paul Waweru Njeri & Minoru Sasaki

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CONTENTS

FOREWORD

The book, inspired by a doctoral dissertation takes a deep dive into the exploration of Kenya's public transportation system, undertaken through a phenomenological study. The multidimensional analysis encompasses safety, policy, law enforcement, infrastructure, traffic flow, and the role of Public Service Vehicles (PSVs). This detailed analysis demonstrates the linked nature of these aspects, offering a detailed insight into the challenges and possibilities that shape Kenya's transport landscape.

The significant lack of dependable, all-inclusive accident/traffic-related data availability has been highlighted in the literature. The work adopted alternative data sources augmented by advanced analytical techniques such as Natural Language Processing (NLP). Integrating many data sources and NLP approaches deepens the research by revealing patterns, correlations, and trends that are critical for understanding accidents and contextual variables that contribute to high mortality rates. The research emphasizes the need to use data to improve road safety. It stresses how a lack of data hinders efficient planning, policy formation, and informed decision-making.

The study goes beyond problem assessment and actively proposes transformational remedies. The work proposes an Intelligent Transport System (ITS) that integrates sensor technologies, AI, and other onboard units that seamlessly integrate with existing policing functionalities. The ITS as proposed would enhance monitoring and improve safety. Through this and other recommendations, the work engages in advocacy, proposing methods and initiatives to address the highlighted concerns. From calling for a data revolution in transport to emphasizing road safety programmes and embracing technology-driven solutions, the authors provide a road map for dramatic change. Each recommendation is made with a thorough understanding of the subtleties and complexity of Kenya's transport scene.

In conclusion, this book makes an outstanding addition to the discussion of transport in Kenya and beyond. It smoothly blends human stories, academic seriousness, and a call to action, making it a must-read for policy-makers, scholars, and anyone interested in public transportation's revolutionary potential. The authors have identified the issues and established the basis for a future in which mobility is safer, more efficient, and responsive to the demands of the public.

Ndirangu Kioni
Founding and Former Vice-Chancellor
Dedan Kimathi University of Technology
Kenya

PREFACE

On a fateful day, 12 February 2015, Fredrick Muguro did not resume his usual business after dropping his kid at Buruburu Primary School, Nairobi Kenya. He was knocked down from his motorcycle and run over by a Matatu operator. In his last moments, he was pleading with bystanders to take him to hospital, which never happened. Road accidents like this are all too common in Kenya and elsewhere in Africa. Breadwinners' lives are cut short in tragic incidences, some of which could have been avoided. This work, looking at transport issues in Kenya, is an attempt to, (1) underscore the plight of millions who have suffered through lost livelihoods, disabilities, and ultimately lost lives, and (2) propose a solution, that can save at least a life that would needlessly be another statistic in countries road traffic fatality counts.

The current work, emerging from a doctoral dissertation, is a phenomenological treatise of transportation issues that grip Kenya's general transport, emphasising public transportation. The issues discussed are nevertheless not unique to Kenya as the general practices and experiences resonate with all African countries. At the heart of the book's authorship is to point stakeholders (policymakers and any interested party) and researchers (grad. students, research firms) to the disproportionately huge issues that African countries have to grapple with to streamline the transport sector. That is, the work offers insights into Kenya's (and by extension, most African countries) transport situation as well as informs policy refinement and possible venture/investment opportunities.

From global metrics, African countries have the highest fatality index ranging from 25-34 per quota from Road Traffic Accidents (RTA). The World Health Organization estimates Kenya's fatality rate due to RTA at 28 per quota. Despite this, research towards RTA is minimal or insufficient compared to the impacts and trends in the country. Chief among the issues compiling the RTA challenge is the availability of traffic-related data. The country faces incomplete RTA data capturing, hindering effective planning and policy adjustments to curb the menace. To overcome the issue, the work employed data mining techniques from transportation agencies' statistical abstracts and user-generated sources to formulate a comprehensive view of the road traffic situation in the country.

The work collected all publicly available statistical abstract reports from the National Transport and Safety Authority (NTSA), the body overseeing and formulating transportation policies in Kenya, between 2015 and 2021. The objective is to assess the trends of road incidents to uncover prevalence concerning time, locality, affected groups, and main sources of collision and, most importantly, formulate a generalised causative agency from the reported data. Overall, police-reported data only touches on major incidents (accidents) since that is when motorists involve authorities; minor collisions and traffic flow go undocumented. Prevailing conditions of the traffic incidents (*e.g.*, drunk drivers) are unreported with a focus on the numerical reports (*e.g.*, number of fatalities). As such, alternative data mining methods become necessary to describe traffic policies and culture exhaustively with unbiased user-generated content. To this end, the study gathered 1,000,000+ traffic-related tweets describing Kenyan traffic for the same period (2015 – 2021) and performed natural language processing (NLP) and quantitative study of the data.

From the data analysis using NLP, the identified causes of fatalities point to preventable driver errors. Further, as reported through user-generated data, the main challenge is traffic rule observance in various aspects of road monitoring. As such, the most reasonable course of action would be to reform/enhance policing and road monitoring efforts in the country. The main takeaways of the study are:

1. Road safety concerns: Traffic accidents were identified as a major issue, with commuters reporting a lack of proper infrastructure and inadequate law enforcement as contributing factors.
2. Lack of infrastructure: Poor infrastructure was identified as a major challenge, exacerbated by prevailing weather patterns like rains and property damage to established infrastructure.
3. Inefficient policing, regulations, and enforcement: Commuters reported that regulations and laws were not being enforced effectively, leading to issues such as overloading of vehicles and unsafe driving practices.
4. Vandalism and security issues: Commuters, motorists, and general road users reported incidents of theft and harassment, as well as a general sense of insecurity on the roads, making many users feel unsafe and vulnerable.
5. Disaster preparedness: Commuters reported that there were no proper emergency protocols and that transport providers were ill-prepared to handle emergencies.
6. Poor passenger experience: Commuters/road users reported that the passenger service provided by public service vehicle operators was often poor, with constant complaints touching on noise pollution, recklessness, blatant disregard of traffic rules, and general conduct.
7. Lack of reliable and punctual services: Commuters reported frequent delays, congestion, improper redirection of traffic, and or cancellations of means of transportation, leading to significant inconvenience and wasted time.
8. Inadequate data collection: Incomplete data collection was identified as a problem, making it difficult to assess the situation and develop effective solutions accurately. A complimentary source of data (crowdsourced data) was adopted to formulate the study and draw conclusions.

The work recommends fortification of road policing, enhancement in traffic control, and data collection in the face of incidents to aid in modelling and analysis for future planning.

The work, which blended structured and unstructured data, points to the utility of data mining, which would greatly benefit traffic research, particularly African-based studies, that suffer from data inadequacy. The hope is that the investigation and recommendations contained in the book would inform and sensitise policymakers and the greater public on the effects of driving behaviour and tendencies.

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Joseph Kamau Muguro
Electrical and Electronics Department
School of Engineering, Dedan Kimathi University of Technology
Private BAG - 10143, Dedan Kimathi
Nyeri, Kenya

Paul Waweru Njeri
Electrical and Electronics Department
School of Engineering, Dedan Kimathi University of Technology
Private BAG - 10143, Dedan Kimathi
Nyeri, Kenya

&

Minoru Sasaki
Center for Collaborative Study with Community
Tokai National Higher Education and Research System
Gifu University, 1-1 Yanagido
Gifu 501-1193, Japan

CHAPTER 1

Introduction

Abstract: The section introduces the complex array of challenges confronting transportation in Kenya, drawing on an extensive examination of existing literature. It highlights key issues such as safety, policing and policy regulations, infrastructure shortcomings, all crucial components of the transportation landscape. By contextualizing these challenges within the framework of sustainable development goals (SDGs), the chapter underscores the urgent need to align transportation practices with broader sustainability objectives. This foundational analysis sets the stage for subsequent discussions aimed at identifying actionable solutions and driving progress toward a more sustainable transport system in Kenya, ultimately paving the way for transformative change in the nation's transportation sector.

Keywords: Policy regulations and reforms, Sustainable transportation, Sustainable development goals (SDGs), Transportation issues in Kenya, Transportation resilience.

1. INTRODUCTION

1.1. Background

Transport drives the economic and social needs of the citizens by making mobility and movement of goods and services available, making it an indispensable aspect of any country's developmental agenda. Since the transport needs of a country are constantly shifting based on travel demands and population growth, transportation planning is a critical consideration. As such, recent trends have been towards realising sustainable transportation. Sustainable transport system targets low- and zero-emission, cost-effective, energy-efficient modes of transportation, which encompasses both public transportation (such as trains, trams, and electric / zero-emissions buses, among others) and private transportation (pedestrians, bikes, scooters, electric vehicles, among others). The targeted advantages of sustainable transportation include fuel and vehicle cost savings, less pollution and emissions from burning fossil fuels, employment growth due to new production systems and transit modes, and increased energy efficiency of the transit modes, amongst others.

Joseph Kamau Muguro, Paul Waweru Njeri & Minoru Sasaki

A safe and resilient transport system can entail three main blocks: road safety, policing, and road infrastructure. Besides these, policies and technology can be taken as enablers of the smooth operations of a transport system. In this case, policing is an outflow of policies formulated on the legal usage of roads, allocation of transport resources, and management, among others. Technology is an emergent field continuously shaping people's lives in all aspects. In this case, technology use is indispensable for a sustainable transport system to optimise all aspects of transport with issues like traffic, fleet, and monitoring management, among others. The relationship between the five pillars is described in Fig. (**1**) below. In this case, the most readily discussed aspect of transportation is safety, covering accidents and other collisions emanating from vehicle-human interactions. Road traffic accidents (RTA) are a global public health concern.

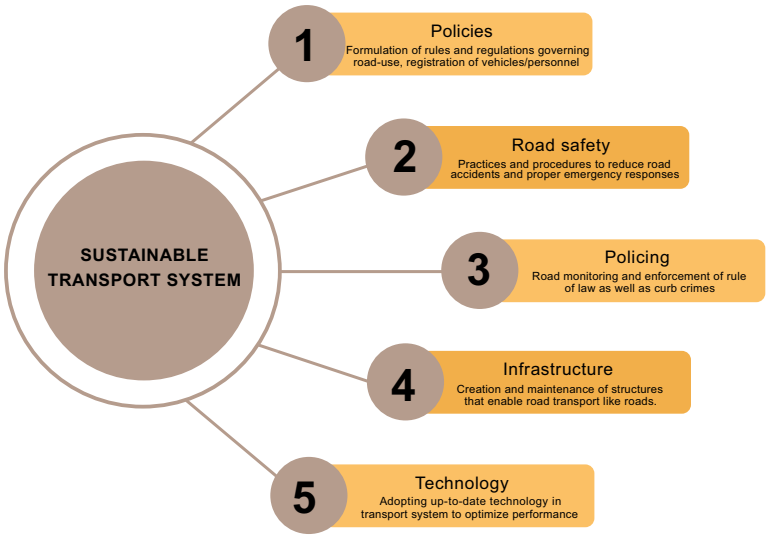

Fig. (1). Ingredients of sustainable road transport systems. Source authors.

According to the World Health Organization (WHO), 1.35 million people die annually due to RTAs [1]. As per the statistics by WHO and other sources, the fatality rate is the highest in African countries, with an indexed estimate between 25-34 per 100,000 population [2 - 4]. World Bank, through the Global Road Safety Facility (GSRF), estimated the fatality rate of the country to be 27.8 per 100,000 people as of 2016 [5].

According to the year 2020's RTA trend analysis, Kenya's fatalities and injuries have increased by 26% and 46.5%, respectively, compared to 2015 [6]. Incidences involving vulnerable road users (pedestrians, motorcyclists, cyclists, passengers, and pillion passengers) have reported an increase of over 300% over the same

period. RTAs are estimated to cost a country between 5 - 10% of the gross domestic product in terms of Medicare, repairs, and loss of productivity, with 93% of all world accidents occurring in low- and middle-income countries [1, 3, 5, 7]. The impacts make accidents a social issue worth considering for all stakeholders. Despite this, research on RTA is minimal or insufficient compared to the impacts and trends in most African countries. The chief issue among the issues compiling the RTA challenge is the availability of traffic-related data. Africa faces incomplete RTA data capturing, hindering effective planning and policy adjustments to curb the menace.

Proactive policing and quality data-gathering mechanisms are also central to improving road safety. From the literature, developing countries hardly have any traffic data and weak institutions, which leads to a deteriorating RTA situation [8]. The reported literature focuses on small-scale surveys with hardly any sensor data to validate the findings except surveys and hospital/police reports [9 - 12]. The data collected from hospitals and police reports only touches on major incidents (accidents) since that is when motorists involve authorities; minor collisions and or traffic flow are hardly documented [13]. Alternative data mining methods become necessary to quantify traffic trends and culture. A research paper looked at the traffic data available to the public through the police and transport agencies and found the data to be limited in its coverage and grossly underreported [6].

To further disintegrate the problem of road traffic and related studies, literature has focused on user-generated data, with Twitter data ranking the highest. In this regard, user data is perceived as a complementary source that enriches conventional modes of data gathering like cameras and inductive sensors with the advantage of ubiquity, that is, non-geo-limited live data [14]. Using user-generated data makes it possible to get inexpensive and widespread information on recurrent and non-recurring traffic conditions (*e.g.*, traffic trends and unpredictable incidents such as crashes).

In the section below, a historical state of transport in the country touching on policy, safety, infrastructure, and policing activities is investigated from the literature review.

1.2. Transport Issues in Kenya in the Last Decade

There is still a significant research need for inquiries to understand the intricacies of RTA in many African countries. There are no definitive answers as to what is at the heart of traffic issues and accidents in the country, and as such, more intensified inquiries that cut across all the facets of transport should be investigated.

CHAPTER 2

Data Collection Methods

Abstract: The section highlights significant shortcomings in the Kenyan data collection landscape, particularly as reported by the National Police Service (NPS) and the National Transport and Safety Authority (NTSA). Official sources of data are found to be lacking in quality, accuracy, and comprehensiveness, thus impeding a systematic approach to addressing transportation issues, particularly regarding accidents and fatalities. To overcome these limitations, the research proposes exploring alternative data sources such as social media platforms and surveys, combined with advanced analytical techniques like Natural Language Processing (NLP) and machine learning. This approach aims to gain deeper insights into the causes of accidents and factors contributing to high fatality rates. Recommendations include standardizing data collection schemes, implementing digital reporting and data integration, fostering interagency collaboration and mandatory reporting, establishing public awareness campaigns, adopting international best practices, and reviewing legislation and policies. These measures are essential for enhancing the quality and breadth of transportation data and improving road safety in Kenya.

" One Important Role for the City is to Conduct Studies to Document Areas of Greatest Need, and to Facilitate Coordination between our Public and Private Transportation Options to Weave it into a Dense Tapestry of Accessible and Reliable Transportation." — **Mark Noble.**

Keywords: Accident statistics, Kenyan transportation data, NLP, NTSA data, Twitter data, Topic modeling, User-generated data.

2. DATA COLLECTION METHODS

The lack of data poses a significant challenge in many African countries, particularly in transportation. This issue is further exacerbated by the multi-dimensional nature of transportation data, which involves various stakeholders and management agencies. Ideally, data on vehicle collisions should be sourced from police reports, hospitals, insurance companies, vehicle repair shops, and individuals. However, the collection process becomes fragmented and incomplete without well-defined approaches to streamline the data flow.

The literature review highlights several data-related problems in Kenya and other developing countries. These issues include:

1. Availability of quality data: There is a lack of reliable and comprehensive data regarding the extent and coverage of various transportation-related issues. Quality data hinders accurate analysis and decision-making.
2. Non-informative data: The available data often fails to provide detailed information about the prevailing conditions surrounding incidents, such as the involvement of drunk drivers. Instead, the focus is primarily on numerical reports, such as the number of fatalities, which may not provide a complete picture of the situation.
3. Manual data recording: Many data collection processes still rely on manual recording methods, which can be time-consuming, prone to errors, and limit the efficiency of data management and analysis.

Addressing these challenges is crucial to improving the quality and reliability of transportation data, enabling more informed decision-making and effective interventions in the field of transportation.

In conducting a descriptive study of transportation in Kenya, the section focuses on two key aspects: data acquisition processes and data processing methods. These aspects play a crucial role in obtaining and analysing transportation data.

- Data acquisition processes refer to the methods and sources used to collect transportation data. Primary data comes from government agencies, such as the National Police Service (NPS) and the National Transport and Safety Authority (NTSA), which provide data on road accidents, vehicle registration, and licensing, among other data types. Other sources may include structured and unstructured data, such as user-generated opinions and comments on different aspects of transport gathered either through surveys conducted among road users or collected from major social media platforms. The current work considers police abstract reports, surveys and user-generated content (from Twitter) to enhance the collected data's reliability, completeness, and representativeness, ensuring an accurate description of the issue.
- Data processing methods: Once the data is acquired, it needs to be processed and analysed to derive meaningful insights. In this case, processing involves cleaning and organising the data, performing statistical analysis, and using visualisation techniques to present the findings effectively. Various statistical techniques, such as descriptive statistics and regression analysis, are applied to explore patterns, trends, and relationships within the transportation data. Further, the collected data feature both numeric and textual information. Analysing this

requires some form of Natural Language Processing (NLP) to get a glimpse of the issue being discussed and a corresponding transformation to numerical representation for comparison or verification with other numerical data sources.

By examining the data acquisition processes and employing appropriate data processing methods, researchers can gain valuable insights into various aspects of transportation in Kenya, including road safety, traffic flow, public transport usage, and infrastructure planning. These insights can inform policy-making, decision-making, and the implementation of effective transportation strategies in the country.

2.1. Data Acquisition

2.1.1. NTSA Data

For the study, the researchers collected data from publicly[1] available daily reports (abstracts) provided by the NTSA; the data collection period spanned from 2015 to 2021. The collection focused on three types of data made available by the NTSA: daily reports, fatal accidents, and speeding reports for the entire country. These data were obtained by downloading the available entries from the NTSA website. The data were reported in Excel or Word documents, as illustrated in the provided examples (Tables **1**-**3**).

2.1.1.1. Daily Reports

The daily reports obtained from the agency provide information on fatalities and injuries categorised by different groups. Table **2** shows a sample form categorising fatalities and injuries into pedestrians, passengers, drivers, pillion passengers, pedal-cyclists, and motorcyclists.

Table 1. Sample daily report from NTSA (report as of 30th Dec 2019 data snippet).

NTSA COMPARATIVE STATISTICS TRENDS FOR 2018 AND 2019 AS OF 30TH DECEMBER 2019			
	Class of Victim	**1 JAN - 30 DECEMBER 2018**	**1 JAN - 30 DECEMBER 2019**
PEDESTRIANS	Dead	1202	1382
	Seriously Injured	851	1275
	Slightly Injured	256	282
DRIVERS	Dead	306	344
	Seriously Injured	495	648
	Slightly Injured	305	464

CHAPTER 3

Road Accidents and Safety Statistics

Abstract: The section provides a comprehensive overview of road accidents and safety statistics in Kenya, emphasizing the concerning rise in fatalities and injuries in recent years. It underscores the significant challenge posed by the lack of accurate data on road traffic accidents (RTAs), hindering the formulation of effective solutions. Moreover, it highlights the inadequate disaster preparedness in the country, particularly concerning RTAs, and identifies deficiencies in policy and road monitoring strategies as contributing factors to a culture of reckless driving. Key recommendations proposed include the development of robust safety infrastructure, utilizing modern technology, refining traffic laws and enforcement measures, and enhancing emergency response and medical care capabilities. These recommendations collectively aim to address the escalating risks associated with road accidents and foster a safer transportation environment in Kenya.

"***Transportation is the Centre of the World! It is the Glue of our Daily Lives. When it Goes Well, we Don't See it. When it Goes Wrong, it Negatively Colours our Day, Makes us Angry and Impotent, Curtails our Possibilities.***" — **Robin Chase.**

Keywords: Accident response, Causes of RTAs, Disaster preparedness, Emergency response, Kenya, Road traffic accidents (RTAs), Safety statistics, Vulnerable road users.

3. ROAD ACCIDENTS AND SAFETY STATISTICS

Road traffic accidents (RTA) are at the heart of every discussion in transportation issues. RTAs create challenging social-economic problems for individuals in the country. From a study conducted in 2020, Kenya's fatalities and injuries are worsening, with a reported increase of 26% and 46.5% for fatalities and injuries [1]. This section looks at accidents and safety from a phenomenological standpoint to provide a holistic understanding of linkage to other transport issues, causality, and preventive steps that can be implemented to improve the situation. The issues to be addressed in this section are listed as follows.

Joseph Kamau Muguro, Paul Waweru Njeri & Minoru Sasaki

- Statistics of accidents and fatalities
- Causes of road accidents
- The severity of road accidents
- Emergency responses and disaster mitigation steps
- Potential remedial actions

3.1. National Police Service (NPS) - National Transport and Safety Authority (NTSA) Accident Reports

Table **1** presents the statistics provided by the NTSA and the NPS *via* the Kenya National Bureau of Statistics (KNBS). According to the data, there was a 15.2% increase in pedestrian fatalities, rising from 3,186 in 2020 to 3,670 in 2021. Similarly, driver casualties experienced a 20.1% increase, rising from 1,753 to 2,105 during the same period. The data also indicates a 16.5% and 33.8% increase in casualties for pillion and motor vehicle passengers, respectively, reaching 2,716 and 7,587 in 2021 compared to the previous year. Motorcyclist casualties rose 13.6%, while pedal cyclist casualties remained unchanged.

Table 1. Traffic accidents/incidences in the country between 2017-2021. Source [2].

	Classes	***2017***	***2018***	***2019***	***2020***	***2021****
Reported traffic accidents		4,452	5,158	7,184	8,919	10,210
Pedestrians	Killed	1,060	1,205	1,390	1,383	1,557
	Seriously Injured	673	851	1,277	1,498	1,769
	Slightly Injured	203	256	283	305	344
	Total	**1,936**	**2,312**	**2,950**	**3,186**	**3,670**
Drivers	Killed	314	306	345	347	446
	Seriously Injured	459	496	651	824	987
	Slightly Injured	292	307	465	582	672
	Total	**1,065**	**1,109**	**1,461**	**1,753**	**2,105**
Passengers	Killed	773	746	704	580	767
	Seriously Injured	1,838	2,093	2,771	2,143	3,094
	Slightly Injured	3,513	4,087	3,705	2,947	3,726
	Total	**6,124**	**6,926**	**7,180**	**5,670**	**7,587**
Pillion Passengers	Killed	219	247	348	439	451
	Seriously Injured	403	499	836	1,319	1,594
	Slightly Injured	173	206	390	574	671
	Total	**792**	**952**	**1,574**	**2,332**	**2,716**

(Table 1) cont.....

	Classes	*2017*	*2018*	*2019*	*2020*	*2021**
Pedal Cyclists	Killed	57	63	74	90	87
	Seriously Injured	33	36	76	100	105
	Slightly Injured	15	6	22	21	19
	Total	**105**	**105**	**172**	**211**	**211**
Motor Cyclists	Killed	496	591	725	1,136	1,271
	Seriously Injured	544	698	1,341	2,142	2,501
	Slightly Injured	150	184	344	540	564
	Total	**1,190**	**1,473**	**2,410**	**3,818**	**4,336**
All	Killed	2,919	3,158	3,586	3,975	4,579
	Seriously Injured	3,950	4,673	6,952	8,026	10,050
	Slightly Injured	4,346	5,046	5,209	4,969	5,996
	Total	**11,215**	**12,877**	**15,747**	**16,970**	**20,625**

The table shows that the NPS reports data with three classes: fatal (killed), severe and slightly injured. From this, it is uncertain how the categorisation is arrived at. As discussed in Chapter 2, seriously and slightly injured classes were merged into one (Injured) for all the categories. The uncertainty of the gradation adopted is significant since the reported data potentially records fatalities on site, as opposed to international standards, *i.e.*, quantifying road traffic death as any death occurring within 30 days after the accident.

3.2. Causes of Road Accidents

One of the prerequisites in solving any problem is accurately identifying the causes. The diagnosis process determines the solution's quality to delineate between potential causes. According to the existing literature, RTAs can be attributed to three main factors: prevailing road conditions (infrastructure and environment), vehicular problems, and human factors [3]. In this section, we look at published accident briefs and other sources to identify the significant causes of accidents on Kenyan roads. The goal is to try and delineate how much of the three categories affect Kenyan RTA conditions and how to remedy those causes.

3.2.1. NTSA Reported Causes

A sample data published by NTSA is available in Table **2** for quick analysis as adopted from [1]. The data captures the time, and place, involving a motor vehicle and the victim's details, categorisation of the victim (driver, passenger,

CHAPTER 4

Policing (Law Enforcement) and Policies on Kenyan Roads

Abstract: This chapter delves into the landscape of Kenyan policies and policing activities concerning road safety, with a particular focus on the inadequacies of the Traffic Act, road monitoring strategies, and dynamics of police-public trust. It highlights the impediments to enforcing traffic laws (chief of which is corruption), including ineffective monitoring strategies and prevalent criminal activities targeting road users. Recommendations proposed involve strengthening traffic law enforcement through resource prioritization and technological integration, enhancing collaboration among agencies, fostering public engagement and education, and addressing criminal activities. Through these strategies, the chapter aims to address the identified shortcomings and promote safer roads in Kenya.

"Technology is rapidly changing our transportation systems, and if we craft smart regulations, these changes can be for the better." -- **London Breed**

Keywords: Kenyan transport policy, Monitoring strategies, Police-public trust, Policing, Road criminal activities, Traffic law enforcement, Technological integration, Traffic Act.

4. POLICING (LAW ENFORCEMENT) AND POLICIES ON KENYAN ROADS

Transportation issues in the country encompass many challenges, including road traffic accidents (RTAs), infrastructure deficiencies, environmental concerns, flawed policing, and more. The literature shows that traffic violations can be categorised into three main groups: environment-mediated violations, human behavioural patterns, and vehicular insufficiency (violations) [1].

Environment-mediated violations refer to violations that are influenced by the surrounding conditions. For example, certain road sections may be prone to speeding, overlapping, or low visibility (no lighting) while driving at night. These violations are often linked to the environmental factors present in those specific areas.

Human behavioural patterns play a significant role in traffic violations and accidents. Whether good or bad, the driver's decisions and actions can directly impact road safety. Factors such as reckless driving, aggressive behaviour, distracted driving, and drunk driving contribute to traffic violations and collisions.

Vehicular violations focus on the mechanical soundness of vehicles and adherence to roadworthiness standards. These violations are related to the vehicle's condition as defined by the law. Operating an unroadworthy vehicle is considered a vehicular violation, although it may also reflect a behavioural aspect in the driver's decision-making.

It is essential to recognise the interconnectedness of these categories, as they often influence each other. For instance, the combination of a vehicle in poor condition (vehicular violation) and reckless driving behaviour (human behavioural pattern) can significantly increase the likelihood of an accident. Suppose an unroadworthy vehicle encounters an unmarked road hazard like a speed bump (an environmental factor). In that case, it may lack the necessary braking torque to safely navigate that section of the road. This situation can exacerbate existing violations and potentially lead to new ones, posing a heightened risk to road safety.

The following section focuses on policy-related issues and their interaction with the broader transportation challenges. Specifically, the section examines the following key aspects of policing in Kenya:

1. Transport policing authorities: This addresses the entities responsible for enforcing transportation regulations and maintaining road safety. It explores the roles and responsibilities of these authorities in ensuring compliance and minimising traffic-related incidents.
2. Traffic act (in)sufficiency: This highlights the effectiveness and adequacy of existing traffic laws and regulations. It discusses any shortcomings or gaps in the current legislative framework and the potential impact on addressing transport issues.
3. Road monitoring methodologies: This section examines the methods for monitoring road conditions, traffic flow, and regulation adherence. It evaluates the efficiency and accuracy of these monitoring systems in identifying violations and improving overall road safety.
4. The (Mis)Trust of authorities amongst road users addresses the prevailing lack of trust or skepticism towards law enforcement agencies among road users. It explores the factors contributing to this mistrust and its implications for compliance with traffic regulations.
5. Crimes targeting motorists: This section focuses on criminal activities aimed explicitly at motorists, such as robberies, carjackings, and other forms of

violence. It discusses the impact of these crimes on road safety and the measures taken to address such security challenges.

By examining these policy-related issues, this section aims to shed light on their influence on the overall transportation landscape and highlight areas where improvements or interventions may be needed to enhance road safety and address the concerns of both road users and law enforcement agencies.

4.1. Major Players in Policing Related Issues

The major players involved in policing-related issues in Kenya include various agencies and organisations with specific roles and responsibilities. These players can be categorised into different groups:

1. Safety licensing and regulation agencies:
   - Law courts: Responsible for handling legal matters related to traffic offenses and violations.
   - National Transport and Safety Authority (NTSA): The primary agency overseeing and regulating transport activities, including licensing, vehicle inspection, and road safety enforcement.
   - National Police Service (NPS): The law enforcement agency responsible for maintaining public order, including traffic management, enforcement of traffic laws, and handling road-related incidents.
   - County Governments: Each county in Kenya has its own government, which may have departments or agencies responsible for transportation, traffic management, and road safety within their jurisdiction.
   - Ministry of Interior and Coordination of National Government: This ministry oversees various aspects of internal security and law enforcement in Kenya, which includes the overall coordination of policing efforts.
   - Ministry of Transport, Infrastructure, Housing, and Urban Development: This ministry is responsible for formulating transport policies, planning and developing transport infrastructure, and ensuring compliance with transportation regulations.
   - Kenya Revenue Authority (KRA): Although primarily focused on revenue collection, KRA also plays a role in transportation-related matters such as vehicle registration, taxation, and importation of vehicles.

2. Environmental regulation agencies:

- National Environment Management Authority (NEMA): Responsible for environmental conservation and management, including monitoring and regulating activities that may impact the environment in the context of transportation and infrastructure development.

CHAPTER 5

Road Infrastructure and Traffic Flow

Abstract: The section looks at the state of road infrastructure in the country and the consequences stemming from the use/abuse of the same by different players. Key aspects explored in this analysis include the state and management of road construction, the intricate relationship between roads and traffic dynamics, as well as the usability and accessibility of road networks. Various road infrastructural challenges are addressed, ranging from illegal unmarked obstacles and unauthorized structures to the confiscation of road resources by informal businesses, illegal parking, among others and below-par road provisions for persons with disabilities (PWDs). Additionally, factors such as accidents, vandalism, garbage accumulation, and weather effects further compound the degradation of road infrastructure. Proposed solutions advocate for measures such as regulating Central Business District (CBD) access through designated transport associations (SACCOs), fostering public engagement in road development initiatives, and promoting alternative modes of mobility alongside pedestrian-friendly urban planning.

"***Building more roads to prevent congestion is like a fat man loosening his belt to prevent obesity***" – **Lewis Mumford**

Keywords: Informal businesses, Inclusive road designs, Kenyan road infrastructure, Persons with disabilities (PWDs), Road management, Traffic flow, Vulnerable road users.

5. ROAD INFRASTRUCTURE AND TRAFFIC FLOW

Roads and road networks have been seen as impediments to transportation in African countries, bringing about traffic flow challenges and other emergent issues like road-related injuries. From literature, however, transport embodies more than just having capacity, in that more roads are not synonymous with less traffic. It has been reported that building new roads increases traffic, referred to as the induced traffic effect [1, 2]. When a new road is constructed, traffic is diverted onto it, allowing individuals to make new, longer trips that they would not have taken otherwise, and they may go greater distances just because of the new route. On the other hand, new roads create a platform for the country's development with regional integration, efficient delivery of goods and services, and economical

nurturing of the people, amongst others [3 - 5]. As such, roads and emergent traffic flows should be carefully planned and executed to ensure the intended outcomes are achieved in line with what the policy-making process had in mind. The section looks into the country's status of roads and traffic with a focus on the following points.

- State and management of road works
- Interlink between roads and traffic
- Usability and accessibility of roads

5.1. Road Construction Works

5.1.1. Management of Roads

Road matters are handled by The Kenya Roads Board (KRB), established in 1999 and got presidential permission in January 2000. The board was formulated as an executive roads board, working with various road agencies to deliver an efficient road transport system for road users in Kenya. It is mandated with funding, overseeing, and coordinating road maintenance, rehabilitation, and road network development. At the moment, there are works with the following road agencies.

- Kenya National Highway Authority (KENHA)
- Kenya Urban Roads Authority (KURA)
- Kenya Rural Roads Authority (KERRA).

KENHA is in charge of national trunk roads, KURA manages national urban trunk roads, and KERRA is mandated with a national secondary trunk road network. These authorities work in unison with national and local governments to maintain and upgrade the quality of road networks in the country.

5.1.2. Road Inventory

As of 2020, the country had a total of 177,800 kilometres of road networks, classified and unclassified, with 16,902 kilometres paved [6]. The country's distribution is shown in Table **1**, highlighting the populations and road size. Population data is from the 2018 census by the Kenya Bureau of Statistics (KBS) [7]. In this case, paved roads are asphalt roads, as described in the Kenya Roads Board report for 2018 [8].

Table 1. Kenya demographics showing population and road inventory report as of 2018. Source [8].

County	Population (@ 2018)	Area (Km^2)	Total Roads (Km)	Paved (Km)	County	Population (@ 2018)	Area (Km^2)	Total Roads (Km)	Paved (Km)
Nairobi	4,397,073	704	4,558.25	1780*	**Nandi**	885,711	2,856	3340.415	290
Kiambu	2,417,735	2,539	7927.54	1158	**Bomet**	875,689	2,531	3863.448	207
Nakuru	2,162,202	7,462	15902.87	1063	**Mandera**	867,457	25,940	3649.754	87
Kakamega	1,867,579	3,020	5292.237	281	**Kwale**	866,820	8,267	5,455.46	193*
Bungoma	1,670,570	3,024	5218.076	251	**Garissa**	841,353	44,736	4,646.40	38*
Meru	1,545,714	7,006	8570.895	635	**Wajir**	781,263	56,773	7435.635	25
Kilifi	1,453,787	12,540	5,888.49	356*	**Nyeri**	759,164	3,325	5356.244	777
Machakos	1,421,932	6,043	9,181.26	509*	**Baringo**	666,763	10,976	3829.591	500
Kisii	1,266,860	1,323	3127.237	342	**Nyandarua**	638,289	3,286	4855.894	312
Mombasa	1,208,333	220	1,493.85	424*	**West Pokot**	621,241	9,123	2551.789	182
Uasin Gishu	1,163,186	3,392	5761.615	470	**Kirinyaga**	610,411	1,478	3146.063	250
Narok	1,157,873	17,950	7,145.76	242*	**Embu**	608,599	2,821	3989.511	297
Kisumu	1,155,574	2,085	3786.595	434	**Nyamira**	605,576	897	1698.531	12
Kitui	1,136,187	30,430	13,313.44	263*	**Vihiga**	590,013	564	1042.503	153
Homa Bay	1,131,950	3,153	4241.071	245	**Laikipia**	518,580	9,532	4635.294	326
Kajiado	1,117,840	21,871	9,076.21	585*	**Marsabit**	459,785	70,944	5654.896	389
Migori	1,116,436	2,614	3967.712	216	**Elgeyo-Marakwet**	454,480	3,032	2195.314	204
Murang'a	1,056,640	2,524	5480.144	763	**Tharaka-Nithi**	393,177	2,564	2706.617	108
Siaya	993,183	2,530	4271.545	367	**Taita Taveta**	340,671	17,152	6,126.31	336*
Trans Nzoia	990,341	2,495	2778.846	197	**Tana River**	315,943	37,951	4,422.06	365*
Makueni	987,653	8,170	11,999.16	387*	**Samburu**	310,327	21,065	2836.786	111
Turkana	926,976	68,233	6190.443	483	**Isiolo**	268,002	25,350	3033.414	34
Kericho	901,777	2,436	4299.328	388	**Lamu**	143,920	6,253	1,306.69	93*
Busia	893,681	1,696	3233.455	167	-	-	-	-	-

Notes: * represent only the classified roads according to KRB.

5.1.3. Completed and Ongoing Road Projects

Infrastructure is a significant impediment to traffic flow in any country. In Kenya, the conditions are no different. Since 2005, the Kenyan government has embarked on upgrading the road infrastructure. At present, Nairobi-Thika Superhighway, JKIA–Westlands Highway, Eastern, Southern and Western Bypass, and other

CHAPTER 6

Public Service Vehicle - Matatus and Bodabodas

Abstract: This chapter investigates the multifaceted challenges confronting public transportation in Kenya, with a particular focus on Matatus (mini-buses) and Boda-bodas (motorcycle taxis). It delves into various dimensions of the transportation industry, including the pervasive use of second-hand vehicles which significantly contributes to fatalities and pollution, passenger mistreatment, and the alarming increase in criminal activities linked to Boda-bodas, among others. Moreover, it analyzes the economic ramifications of public transportation. The recommendations encompass enhancing road user safety, mitigating pollution, promoting alternative transit modes, incorporating modern technologies, and fostering public participation.

" ***The Failure to Invest in our Public Transportation and Public Life, I Think, is a Scandal and a Shame, and it Should be a National Embarrassment*****." — Mark Shields**

Keywords: Boda-bodas, Criminal activities, Economic output, Matatus, Public service vehicles (PSVs), Pollution, Second-hand vehicles, Vehicle age.

6. PUBLIC SERVICE VEHICLE - MATATUS AND BODABODAS

According to the Traffic Act, motor vehicles shall be divided into motor omnibuses, heavy commercial vehicles, commercial vehicles, tractors, motor cars, motorcycles, invalid carriages, particular types of motor vehicles, and matatus. In application, Matatu refers to cars used for public transport in the country. The following section examines public transport, related issues, and interlinks between the players (matatu operators, passengers, and other road users).

In the country, public transportation is predominantly facilitated by privately owned vehicles utilised as public service vehicles (PSVs). In this case, an individual willing to convert their vehicle to public use has to get relevant licensing. Licensing bodies, such as the National Transport and Safety Authority (NTSA), are responsible for issuing licenses, conducting inspections, and enforcing regulations to maintain safety and quality standards in the public transport sector.

Joseph Kamau Muguro, Paul Waweru Njeri & Minoru Sasaki

Efforts to improve the public transportation system in the country involve working closely with licensing bodies, transport authorities, and relevant stakeholders to enhance regulations, promote safety standards, and address issues affecting the quality and efficiency of public transportation services [1]. Currently, a PSV in Kenya refers to any licensed vehicle authorised to transport the public. This category encompasses various types of vehicles, including buses, mini-buses, vans, mini-vans, three-wheel motorcycles, motorcycles, taxis, and others.

Vans and mini-buses are the most widely used of the different types of PSV vehicles. These vehicles can carry a passenger capacity ranging from 14 to 29 people. In the local context, the term "Matatu" typically refers to this particular category of PSV vehicles. Following this, motorcycles, commonly known as "Boda-bodas," and tricycle taxis, known as "tuk-tuks," are popular choices. These vehicles are legally allowed to transport 1 to 3 passengers.

The lack of an efficient public transportation system, inadequate road infrastructure in emerging economic zones, and chronic traffic congestion have contributed to the increasing use of motorcycles as an alternative mode of transportation in response to the country's growing demand for transportation services [2, 3].

The NTSA has implemented several regulatory policies with varying degrees of success in Kenya. These policies aim to enhance safety and improve the operations of PSVs. Some of the current regulations and policies in place include:

1. Seat belt requirement: All seats in PSVs must be fitted with seat belts to ensure the safety of passengers.
2. Speed limiters: PSVs must be fitted with speed limiters set at 80 km/h maximum speed. This regulation aims to control speeding and reduce the risk of accidents.
3. Yellow band painting: PSVs must have a 150-millimeter-wide yellow band painted on their bodies. The band helps to distinguish them from non-PSVs of the same maker easily.
4. Uniform and badges: PSV drivers and conductors must wear uniforms and display badges that indicate their registration. The badges promote professionalism and accountability among PSV staff.
5. Full-time employment: PSV operators must employ drivers and conductors full-time. The employment ensures that drivers are adequately trained, familiar with their routes, and committed to providing safe transportation services.
6. Membership in a SACCO or registered company: PSV owners must belong to a Savings and Credit Cooperative (SACCO) or a registered company with a

defined route. The SACCO promotes organised and regulated operations within the PSV sector.

However, the effectiveness and implementation of these interventions and regulations have been inconsistent. Reports from various sources indicate sporadic enforcement and challenges in achieving full compliance. Efforts are being made to address lax enforcement and improve the overall reach and impact of these regulations in enhancing road safety and the quality of public transportation services [1, 4, 5].

In contrast, PSVs, particularly matatus, have historically operated with relatively fewer regulations in Kenya. The government has been cautious about imposing excessive regulations on this sector [6, 7]. Matatus are recognised as the most affordable public transportation for lower-income residents who may not have the financial means to utilise alternative modes of transport.

A significant characteristic of PSVs, including matatus, motorbikes, and tricycles, is their utilisation for door-to-door transport by low-income residents. The localised, flexible nature of PSV operations often prioritises convenience over reliable scheduling [8]. As a result, the focus on adhering to strict timetables and fixed routes may be less pronounced in this context.

The government's approach to regulating PSVs strikes a balance between ensuring public safety and acknowledging the affordability and accessibility these vehicles provide to a significant portion of the population. This nuanced approach recognises the importance of public transport affordability while aiming to address safety concerns and improve the overall quality of PSV services.

6.1. Prevalence of PSVs on the Roads

According to the Kenya National Bureau of Statistics (KNBS), the country had approximately 12 million households based on the 2019 census data. Table **1** provides insights into the ownership of various transportation modes among these households. The ownership distribution is as follows: 15% own a bicycle, 9.2% own a motorcycle, 6.3% own a car, 0.9% own a commercial vehicle (trucks and others), and 0.5% own a three-wheel motorcycle (tuk-tuk) [9].

The table also highlights the ownership distribution of transportation modes in significant cities for 2019. Nairobi has the highest percentage of car ownership per household, with 12.9% of households owning a car. Kiambu County leads in commercial vehicle ownership, with 1.5% of households having a commercial vehicle. Makueni County has the highest percentage of motorcycle ownership, while Mombasa County tops the chart in tuk-tuk ownership at 1.5%. Bicycle

CHAPTER 7

Integrating an Intelligent Transport System

Abstract: This section proposes the Integrated Intelligent Transport System (ITS) as a comprehensive solution to address major transportation challenges in Kenya. By conducting a thorough assessment of the country's transport system, the ITS aims to enhance road monitoring efficiency, safety, and sustainability. It integrates cutting-edge features like in-vehicle sensors and external monitoring units to monitor driver behavior, identify accident-prone areas, and streamline emergency collaboration and reporting processes. Emphasizing data transparency and evidence-based policymaking, the ITS seeks to create a safer and more efficient transportation ecosystem. Through these initiatives, the ITS lays the groundwork for long-term resilience and sustainability in Kenya's transport sector.

"The Reality About Transportation is that it's Future-oriented. If We're Planning for What We Have, We're Behind the Curve." - Anthony Foxx (U.S. Secretary of Transportation 2013-2017)

Keywords: Digitalized data collection, External sensing units, In-vehicle sensors, Intelligent Transportation System (ITS), Road safety, Real-time monitoring.

7. INTEGRATING AN INTELLIGENT TRANSPORT SYSTEM

The section explores the concept of intelligent transport systems (ITS), how they can be integrated into Kenya, and some potential cost-benefit analyses that such a system may present. In brief, the chapter summarises what has been discussed in the outgoing section in an actionable solution-oriented packaging for its realisation.

An ITS is a collection of advanced technologies and communication systems designed to improve transportation networks' efficiency, safety, and sustainability. ITS integrates various elements, including hardware, software, data, and communication infrastructure, to provide real-time information and management of transportation systems. The primary goals of an ITS are to enhance traffic management, reduce congestion, improve road safety, and promote sustainable transportation options, all discussed in the preceding chapters. As such, the section combines all the recommendations detailed in the

work into a proposed solution, which would go a long way in enhancing Kenya's transportation systems.

The section looks at the following items.

- Needs assessment of Kenyan transport as outlined in different sections of the work.
- Implementation details of an ITS.
- Infrastructural needs of an ITS.
- Funding.
- Stakeholders and policy refinement.

The conclusion shows the potential benefits such an approach would provide to Kenya's public and managing authorities.

7.1. Needs Assessment of Kenyan Transport Systems

The work has looked at different issues affecting the transport sector in the country. Below is a summary of the challenges presented and how adopting an ITS would remedy the problem. Table **1** summarises the challenges and lists some potential solutions to each situation. The challenges have been discussed in detail in Chapters 2-5.

Table 1. Challenges in the transport sector and the proposed solutions.

Category	Challenges and Problems	Proposed Solution
Data availability (Chapter 2)	- Inefficient/unstandardised data collection. - Inexistent multidepartment/multi-organisation data collection. - Inexistent data analysis.	- Enforcement of data collection models - Automated collection schemes through digital platforms - Digitized and automated data analysis
Accidents/ Emergency Response (Chapter 3)	- Incomplete/unstandardised reporting and data capturing. - Inefficient intervention mechanisms. - -Emergency response and preparedness.	- Enforcement of data collection models - Data-backed R&D on interventions - Optimized and specialised solutions targeting regional needs.

(Table 1) cont.....

Category	Challenges and Problems	Proposed Solution
Policing and Policies (Chapter 4)	- Traffic Act and policies - Insufficient/overstretched police force. - Malpractices (corruption) and abuse of power by police. - Insufficient/ineffective vehicle inspections	- Updating policies with technological advancements. - Supplementing police activities with assistive technologies. - Introduce objectivity through the use of technology. - -Continuous monitoring using technology
Road infrastructure (Chapter 5)	- Inefficient/ineffective development of roads. - Public-private partnerships (PPP) and other community engagement. - - Equality and inclusivity.	- Prioritized road network development. - Well-researched PPPs and community engagement. - Data-backed inclusivity efforts.
Public Service Vehicles (PSV) (Chapter 6)	- Regulation and streamlining of PSV - Harassment/recklessness and unruly behaviour of operators. - Alternative modality of transit.	- Formulation of the digitised mechanism of tracking and fleet management. - Reporting mechanism of offenders. - Isolation/profiling of repeat offenders. - Digital solutions for a commute, like carpooling.

7.1.1. Data Collection and Reporting Challenges

The efficient functioning of any modern transport system heavily relies on the availability and analysis of accurate data. Here, we identify common data problems faced in transport systems and propose practical solutions to address them:

Problem 1: Inefficient/inexistent data collection strategies

Solution: Implement automated real-time data reporting mechanisms

One of the primary challenges faced in transport systems in Kenya and other LMICs is the inefficiency or absence of data collection strategies. Automated real-time data reporting mechanisms should be implemented to overcome data reporting challenges. These mechanisms can include sensors, cameras, and IoT devices strategically placed throughout the transportation network. These devices continuously collect data on traffic flow, vehicle movements, road conditions, and other critical parameters, providing a steady stream of real-time information.

CHAPTER 8

Conclusion and Recommendations

Abstract: This concluding chapter draws upon our extensive journey through Kenya's intricate public transportation landscape. Our exploration, conducted through a phenomenological study, aimed to unravel the lived experiences, perceptions, and challenges faced by individuals who depend on public transportation across this diverse nation. By adopting this unique approach, we have sought to shed light on the human aspects of transportation issues, and in doing so, we now present our conclusions and recommendations for a brighter future in Kenyan transportation.

Keywords: Infrastructure challenges, Kenyan transportation, Public transportation, Road safety, Safety, Transportation issues.

8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

The exploration of public transportation in Kenya has revealed the challenges and the potential for transformation. By embracing these recommendations and fostering collaboration among government agencies, private sector stakeholders, and the public, Kenya can embark on a journey toward a transportation system that is safer, more efficient, and more responsive to the needs of its people.

This book also serves as a testament to the resilience and adaptability of Kenyans in the face of transportation challenges. The insights gained from this study can inform policy refinement and investment opportunities within Kenya and across the African continent, where similar transportation issues persist. As we conclude our journey, let us remember that the power to effect positive change lies within each of us, and together, we can shape a brighter future for Kenya's public transportation system. The following are some itemized conclusions drawn from the discourse.

1. A Multidimensional Perspective

Our journey has been marked by applying a multidimensional lens, allowing us to view transportation holistically. Issues such as safety, policy, law enforcement,

infrastructure, traffic flow, and the role of public service vehicles (PSVs) have been explored in-depth. Through this comprehensive lens, we have gained a profound understanding of the complex web of challenges and opportunities that define transportation in Kenya.

I. Our journey has underscored the profound interconnectedness of the challenges faced within Kenya's public transportation system. Issues such as road safety, infrastructure, law enforcement, and passenger experience are not isolated silos but are tightly woven threads in the fabric of this intricate tapestry. Addressing one aspect means acknowledging its ripple effects on the others.
II. Through the phenomenological approach, we have gained a deeper understanding of the human aspects of public transportation in Kenya. Transportation is not just a logistical challenge but a profoundly personal and emotional experience for many Kenyans. Lost lives, pollution, thuggery, assaults, and many other issues discussed are not only emotion-laden but also leave lasting traumas to the people of Kenya.

2. Kenya in a Global Context

While our focus has been on Kenya, we must recognise that the issues and experiences we've unearthed resonate within the borders of this nation and across the entirety of the African continent. The lessons learned and recommendations made here can potentially offer insights into the transportation situations of neighbouring African countries.

3. Data Deficiency

The gap in our understanding of transportation issues lies in comprehensive, reliable data availability. This deficiency cripples effective planning, policy formulation, and informed decision-making. Incomplete data capture is a barrier we must urgently overcome to pave the way for meaningful change.

Traditional data sources, such as police reports, often focus on significant incidents and numerical statistics, failing to capture the nuances and underlying causes of transportation issues. The deficiencies emphasise the necessity of alternative data mining methods, particularly those involving unbiased user-generated content. Incomplete data collection and analysis hinder the development of targeted policies and solutions. The data provided by authorities in Kenya lacks explanation power and insights into the underlying causes and issues linked to the high and increasing fatality rates.

The work employed alternative data sources and methods, including collecting and analysing traffic-related tweets from social media platforms and surveys to gather specific information and public opinions. These methods provided a more comprehensive description of traffic problems and captured qualitative information that the reported data could not offer.

By integrating diverse data sources and employing natural language processing (NLP) and machine learning techniques, the study sought to identify patterns, relationships, and trends in the data. The goal was to understand the causes of accidents and uncover the contextual factors contributing to the high fatality rates. However, it is essential to note that further analysis and research are required to gain a deeper understanding of the complex factors influencing road accidents, including driver behaviour, road conditions, infrastructure deficiencies, and enforcement of traffic regulations.

4. Road Safety

A prominent concern that reverberates throughout the narrative is the issue of safety and security. From road accidents to vandalism and harassment, the public transportation system falls short in ensuring the well-being of its users. Safety on the roads and at transportation hubs remains an issue of paramount importance.

From the work, it is obvious that accidents and road-related fatalities and injuries are rising with worsening conditions for vulnerable road users. In this case, a holistic approach is recommended, looking at safety from all levels: motorists, hospitals, emergency service providers, and policy refinement. Chief of the remedy is the development of safety infrastructure in the country. Safety infrastructure includes regulated speed controllers, safety gear, and efficient policing. Infrastructural considerations like determining suitable speed limits based on road function and design and adequately visible and appropriately positioned signages can reshape the transport industry.

5. Regulation Enforcement and Policing

The effectiveness of regulations and law enforcement practices in the transportation sector is a critical factor. The shortcomings in implementing the Traffic Act have been examined in the discussion, including the lack of effective monitoring and enforcement of traffic violations. The discussions on policing issues in Kenya have shed light on various challenges related to enforcing traffic laws, monitoring strategies, and the effectiveness of combating criminal activities. The reliance on static checkpoint systems and the predictability of monitoring methods have limited their effectiveness in deterring behavioural violations such

SUBJECT INDEX

E

F

G

H

I

K

L

M

N

P

R

S

T

V

W

Joseph Muguro

Prof. Joseph Muguro is a lecturer in the School of Engineering, Department of Electrical and Electronic Engineering at Dedan Kimathi University of Technology (DeKUT). He holds a Ph.D. in production and systems development engineering from Gifu University, Japan (2021), a master's in electrical engineering and computer science from Shibaura Institute of Technology, Japan (2017). His research interests encompass AI and IOT applications, transportation systems, robot and biosignal control systems, and VR/AR. In the current work "Public Transportation in Kenya: A Phenomenological Study of Transport Issues," he utilized NLP and data mining techniques to analyze the complexities of Kenyan roads.

Waweru Njeri

Waweru Njeri is a senior lecturer in the Department of Electrical and Electronic Engineering at the Dedan Kimathi University of Technology. He holds a bachelor's and a master's degree in telecommunication engineering from JKUAT in Kenya and a Ph.D. in system and production engineering from Gifu University in Japan. His research interests include robotics, biosignal acquisition and application, machine learning controller design and microelectronic engineering.

Minoru Sasaki

Minoru Sasaki is a renowned educator and researcher in control engineering, mechanical vibration, intelligent machines, and robotics. He served at Gifu University, Japan, from 1993 until his retirement in 2022. He also served as the executive director of the Society of Instrument and Control Engineers, director of the AEM Society of Japan, branch president of the SICE Chubu Branch, and IEEE life senior member. He has successfully organized many conferences and symposia on various technical subjects, contributing significantly to the advancement of his fields of expertise. He has mentored numerous international academicians and collaborated with a number of institutions, such as Seoul University of Science and Technology (Korea), University of Brunei Darussalam (Brunei), etc. which awarded him an honorary degree of doctor of engineering.