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The Effect of partnership collaboration on road safety: a case of the National Transport and Safety Authority and the Kenya Police at the Coastal Region of Kenya.

Munyao, Maryanne Nduku
Strathmore Business School
Strathmore University

THE EFFECT OF PARTNERSHIP COLLABORATION ON ROAD SAFETY: A CASE OF THE NATIONAL TRANSPORT AND SAFETY AUTHORITY AND THE KENYA POLICE AT THE COASTAL REGION OF KENYA

MARYANNE NDUKU MUNYAO

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree to this or any other university. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the thesis itself.

MARYANNE NDUKU MUNYAO

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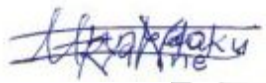
Signature  Date **May 2022**

Supervisor's Approval:

This dissertation has been submitted for examination with my approval as the university supervisor

DR. OLGHA ADEDE

LECTURER, STRATHMORE UNIVERSITY

Signature .  Date: **May 2022**

DEDICATION

To my dearest mother, Lt Col Angela Munyao and grandfather, Joseph Munyao for their unconditional love and prayers. To my role models uncle and aunt, Anthony and Caroline Muthama for continuous encouragement and support. Above all to God Almighty for His strength, courage, time and wisdom in realization of this work. I am truly thankful.

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ACRONYMS AND ABBREVIATIONS

CSOs:	Civil Society Organizations
FDA:	Food and Drug Administration
HIS:	Health Information System
ICT:	Information Communication Technology
IP:	Intellectual Property
NTSA:	National Transport and Safety Authority
PSV:	Public Service Vehicles
SPSS:	Statistical Package for the Social Sciences
UNGA:	United Nations General Assembly
U.S:	United States
USARAF:	United States Army Africa

DEFINITION OF TERMS

Collaboration	This is defined as a systematic process in which groups or teams work together to analyze and improve their working activities in order to achieve intended goals.
Distribution of labour	Distribution of labour is used to refer to the ability of the allied groups or the organizations to divide labour for the agreed task with the main aim of succeeding.
Feedback	This is an action of presenting back what an individual has been tasked to do.
Standard for interoperation	Standard for interoperation is used as a process through which the allied persons or groups convey particular information, what they use and the extent to which the information is used effectively

ABSTRACT

There is overwhelming evidence of increased road mortalities within Kenya which has led to the Kenyan government setting up various agencies to enhance road safety. Despite the various measures adopted by both the NTSA and the Kenya Police, there has been minimal improvement of road safety within the country. This research sought to examine whether collaboration between the NTSA and the Kenya Police influences road safety within the coastal region of Kenya. The study specifically reviewed whether standard interoperation, feedback and distribution of labor has an effect on road safety. The research was grounded on the collaboration theory and the three phased model. The study was anchored on the positivism research paradigm with a quantitative descriptive design being utilized in the research. The target population for the survey was 263 officials drawn from the NTSA and the Kenya Police. The sample size for the survey was 207 participants from both institutions. The research adopted a structured research questionnaire in the data collection process. The collected responses were analyzed in the Statistical Package for Social Sciences (SPSS) using descriptive and inferential techniques. The overall regression results established that a positive change in the road safety within the coastal region of Kenya, was predicted by the level of collaboration between the NTSA and the Kenya Police. The study concluded that standard interoperation and feedback had a significant effect on road safety in the region. However, it was found out that distribution of labor does not significantly predict road safety in the region. The study recommends that the NTSA and the Kenya Police in collaboration with other agencies should strive to modernize with the use of ICT, road safety measures, have a larger work force thus adequate deployment of officers and improve community participation in reporting and identifying road offenders that can enhance road safety. The study was limited to three practices that are anchored on the collaboration theory; standard interoperation, feedback and distribution of labor.

Keywords: *Collaboration, feedback, standard interoperation, distribution of labor, road safety*

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The increased use of road transport by different groups has made safety one of the compromised concerns to the developed and developing nations. According to European Commission (2015) lack of safety on the road made traffic injuries become the 11th cause of mortality in 2002 and it was asserted that unless competent interventions are put in place, mortality from the road would be higher than those due to HIV/ AIDS, malaria and wars by 2020. James et al.'s (2019) report also shows that between 30 and 45 injuries occurring on every road, result in people being permanently disabled while others incur high healthcare costs and loss to earnings. Developing countries were and are still the most affected (Odonkor, Mitsotsou-makanga, & Dei, 2020). Apart from unsafe roads which lead to direct injuries on humans, the European Union (2011) shows that there are dangers arising from motorized oil on road which increase climate change and account to 14% of the global greenhouse gas emission reduction. This negatively affects human health through air pollution and directly to the respiratory system.

In 2009, the need for safety on roads was spearheaded by the Commission for Global Road Safety under United Nations Assembly, in which the member states were called to support the Decade for Road Safety under the United Nations Road Safety Collaboration. It was confirmed that road safety is an approach to accelerate investments and sustainable development across the globe since it is linked to proper management of road infrastructure. In order to achieve safety, collaborative structures by international players, Civil Society Organizations (CSOs) and government agents were meant to interact in the management of the roads with main emphasis being to protect lives. In March 2010, the United Nations General Assembly (UNGA) resolution proclaimed a Decade of Action for Road Safety 2011 – 2020 (A/64/255)1, which aimed at increasing safety activities. The resolution attracted member states to implement various activities like safety management, increased road infrastructure, vehicle safety, road user behaviors, road safety education and post-crash response.

As a result, private sector, multinational companies, and government agencies started various approaches towards road safety to reduce traffic accidents. In fact, the scope of a

multisector partnership addresses issues on road safety in a more effective and pro-active manner than individual players. Despite suggested partnership on roads, nations have been facing challenges in implementing multisector, multidisciplinary and multi-intervention partnerships at national and local levels. This therefore attracted different studies to evaluate the success of implemented partnerships. In Turkey, Gupta, et al. (2017) carried out an evaluation into the effect of the five-year Bloomberg Global Road Safety Program and reported increased improvement in seatbelt wearing and uneven improvement in speeding. The researchers affirmed that the collaboration between the institution, political leaders and strong enforcement contribute to successful realization of Road Safety Programs. This finding was reiterated in the study by Bhalla, et al., (2015) which determined that global road safety programs implemented by the Bloomberg Philanthropies (BP) and its partner organisations in low- and middle-income countries have resulted in a significant reduction in the number of road fatalities. The researchers found that the policies and legislations promoting reduced drink driving, and social marketing campaigns and other road safety activities in conjunction with police enforcement accounted for 57% of the total estimated lives saved.

Hysing (2020) ascertained that designing collaborative governance policies that are fit for purpose has been key to improving road safety in Sweden. The study determined that these governance policies have to incorporate stakeholder insights into strategically thought out and policy driven mandates. A Chinese study by Azami-Aghdash, Sadeghi-Bazargani, Saadati, Mohseni and Gharaee (2020) sought after experts' perspective on the effect of the application of public-private partnership (PPP) policies on traffic injuries and ascertained that such partnerships are key to preventing road traffic injury (RTI). The study ascertained that creating a common language between public and private parties, developing sustainable PPP policies and legal frameworks would significantly reduce road injury occurrences. Kauffman, et al. (2020) study provides evidence that a community-supported, student-run campaign had resulted in increased safety consciousness among secondary school students in Southwest Florida. The study concluded that students were more responsive to peer-generated content.

Jacoby, Kollar, Ridgeway and Sumner (2018) conducted a scoping literature review on the effect of the collaboration between healthcare providers and law enforcement (LE) officers on injury surveillance, control and emotion and affirm that such partnerships have been

essential to reducing the impacts of road accidents. Morley, Morris, Semaan and Hancox (2017) identified three main characteristics of a successsful road safety strategy; a holistic strategy, good data management and an effective and inclusive partnership which share objectives with a clearly designed plan. Morford, Ramirez, Romano and Curtis (2016) report evidenced the importance of a collaboration between the media, a national traffic highway administration agency and a liquor law enforcement association in improving the quality of crackdown enforcement. The study by Chiroma, Shah and Shittu (2017) called for a more intensified and concerted partnership between the public and private sector players, NGOs, and citizens that are guided by principles of Corporate Social Responsibility to have an impact on the number of road traffic crashes (RTCs), injuries, and fatalities in Nigeria. In attempting to providing future directions for promoting road safety in low income states in Africa, Heydari, Hickford, McIlroy, Turner and Bachani (2019) identified effective partnerships between vehicle manufacturers, road engineers, traffic enforcers, the public and policy developers as key ingredients.

In Kenya, collaboration has been one of the approaches on the roads and is supported by the Government of Kenya between its agencies for effective, efficient and responsive services to the public. This led to collaboration between National Transport and Safety Authority (NTSA) and the Kenya Police for effective management of the roads, educating road users and control other ill - behaviours for safety. According to Bartone, Bernstein, Leitmann and Eigen (1994), managing road transport enhances availability of road network according to stated objectives in a prevailing local policy. Road transport in Kenya is used by over 93% of the passengers on foot, motor-bikes, private and public vehicles (Muiruri, 2015). Despite the big percentage, Kenya's mass public transit system has remained chaotic, exploitative and inefficient (Muiruri, 2015). It therefore becomes necessary to measure the effect of collaboration between the NTSA and the Kenya Police.

1.1.1 Collaboration

According to Glèlè-ahanhanzo et al. (2018) collaboration is a systematic process in which groups or teams work together to analyze and improve their working activities in order to achieve intended goals. Slack and Lewis (2011) further defines collaboration as a strategic alliance wherein, skills and resources are used and shared to achieve a certain goal that cannot be realized individually. Sayogo and Gil-Garcia (2014) state that such an alliance becomes important when crucial information which has been scattered is centralized and

shared amongst agencies involved. Simatupang and Sridharan (2008) state that collaboration is applied to portray teaming of participants in competitiveness and information sharing, joint decision making and enjoying results together with customers. Collaboration is normally implemented through communication networks and a variety of emerging technologies have been key to effective inter-agency collaboration (Losurdo, Dileo, Siergiejczyk, Krzykowska, & Krzykowski, 2017).

As a terminology, collaboration is not a new phenomenon, rather it exists as a joint approach between two or more people working to complete a task or achieve certain goals within a defined locus (Ackaah & Afukaar, 2010). The term is always used interchangeably with cooperation, teamwork and partnership. Cao and Zhang (2011) note that in order to enhance competence and understanding of partnerships, there is a need to harness resources and knowledge of service suppliers and clients. Indeed, the researchers identify strong leadership as key to strategic goal realization among partners. In collaborative endeavors, teams seek to access and utilize available resources to achieve the specific set of objectives (Driskell, Salas, & Driskell, 2018). Fawcett et al. (2012) state that collaboration is an essential capability that provides differential results at different periods to those who engage in it. Nyaga et al. (2010) argue that collaboration is a form of association between certain defined teams to provide services through creative and flexible operations. They underline that to realize the essence of collaboration, members within organizations must come together in a team or network to share information, approaches and activities which they operate in (Hillestad et al. 2010).

Glenn (2009) sought after the dimensions of collaboration in seeking after a critical theory of coordination and interoperability in documentation. The researcher affirmed that collaboration is applied differently in different fields such as ICT, humanities and in language documentation, but that distribution of labor, standards of inter-operation and feedback were key in project coordination success. These sentiments are echoed in the study by Lewis (2011) who defined collaboration as a strategic alliance that enables members to use skills and resources to achieve a certain goal that cannot be realized individually. Lewis (2011) also operationalizes collaboration as an avenue of coordination, distribution of labour, standard for interoperation, authorship and authority, and feedback. This study adopted these three dimensions; distribution of labour, standard for interoperation and feedback dimensions since they were most applicable to the study's scope and in relation to

road safety programs. This study investigated the effect of these dimensions on successful collaboration between agencies that seek to improve road safety in Kenya.

Distribution of labour is allocation of human capital to specific areas of operation in order to achieve planned and targeted goals (Fanderclai, 2004). Distribution of labour is used to refer to the ability of the allied groups or the organizations to divide labour for the agreed task with the main aim of succeeding. In collaborative engagements, partners have different strengths and expertise and will contribute according to their what their training, expertise, and interests dictate. Collaborative theory entails collaborators distributing their skills and expertise need a clear understanding of their roles and contribution to project success. Ćwik, Olkowska and Kowalski (2018) study showed the importance of proper distribution of labor and resources on rapid work performance, noting that a correct assessment would improve project managers' ability to determnine the labor necessary to perform road repairs. Further, it helped in identification of the optimal distribution of specialist equipment and labour. Chami, Kabatereine and Tukahebwa (2019) provided evidence that effective distribution of labor is key to meeting community development goals in rural Uganda. The researcher showed a positive influence of division of labor between experts and volunteers on mass drug administration.

Interoperability is the ability of different systems to readily connect and exchange information without restriction. Standard for interoperation define the extent to which allied persons or groups convey particular information through similar or connected systems. Simon (2007) defines standard interoperation as the ability of two or more systems to exchange information or services, and each system to make satisfactory use of what has been exchanged. Standards define how different entities operate and understand each other, discover resources and interoperate systems. Cooperative entities often come together to form means to understand each other' communication and Gichaga (2017) asserts that moving towards a collaborative model of language documentation eases inter-agency tensions. In labor-intensive projects, the ability of humans to work together is essential. Heydari, Hickford, McIlroy, Turner and Bachani (2019) asserts that training is a central aspect of labor interoperability, while according to Ćwik, Olkowska and Kowalski (2018), communication on proposed standards and divisions of labor increase team members' willingness to perform their role. Mariani, Maor, Athavale and Gay (2021) stressed that it is important to develop interoperable and functional road safety standards that codify safe

driving components to promote rule enforeceability. Msahli, Labiod and Ampt (2019) affirm that security interoperability is key for cooperative intelligent transportation systems since it protects against sector-wide system threats.

Feedback is an action of presenting an observation. Feedback is a behavioural tendency to respond to various needs in the domain of learning, health behaviour intervention, and human resource management (Laakmann, 2016). Laakmann (2016) goes on to state that feedback is a useful technique to enhance the understanding of new knowledge or behaviour, improve task performance, and facilitate beneficial changes in daily behaviour. Collaborations involve the continuous evaluation of data to determine its meaning, value, and significance. Therefore, feedback on observed data is just as important feedback of the analysis. Feedback can occur between individuals, groups and the implementers. Makarova, et al. (2020) identify feedback on severity of accidents was helpful to developing policies to improve road safety. Soriguera Martí and Miralles (2017) identified a driver feedback app as a useful technological development that could be utilized to influence driver behaviour and promote safe driving by preventing phone usage and providing advice on when to prevent bad driving practices. This study sought after the effect of distribution of labor, standards interoperatoin and feedback on road safety in the coastal region.

1.1.2 Road Safety

The word road is used to refer to a wide way starting from one destination to another, especially one that is well prepared to be used by vehicles and accessed by the public (WHO, 2015). The main types of roads which are normally referred to while using the term road include footpaths for pedestrians, bridle ways for use by pedestrians and animals (Santani et al. 2015). Modern roads in developing nations combine the three and are accessed by pedestrians, vehicles and cyclists. Safety is used to refer to a state in which an individual or groups of people are free from dangers (WHO, 2013). According to Zimmerman et al. (2015), road safety is a state under which measures and methods are used to prevent road users (pedestrians, cyclists, vehicles, passengers and the motorists) from unsafe actions like being killed or seriously injured in the course of using the road. Road safety is therefore achieved when there is effective management of roads, road users are educated about using the road (like reading road signs, proper driving and riding along pedestrian movements) and controlling ill – behaviour on the road that normally result into injuries, accidents and deaths (Koppel, 2007).

Al-zekri, Assoumane et al. (2020) state that road safety measures aim to reduce the risk of being killed or seriously injuring a person using the road. The best practice road safety strategies focus on prevention of serious injury and death crashes. According to Schermers, Small, and Niekerk (2019), safe road designs are used to ensure vehicle speed limits are within human tolerance to reduce injury and death. This study will adopt Al-zekri, Assoumane et al. (2020) definition which conceptualizes road safety as a state with reduced risks of being killed or seriously injuring a person while using a road and incorporates preventing fatal crashes. He operationalizes road safety based on reduced fatalities, reduced number of accidents and driving while following road traffic rules. Road safety is achieved when operations of the key road transport departments are harmonized thus help in effectively managing the road transport sub-sector and minimizing loss of lives through road crashes. (NTSA, 2019).

1.1.3 National Transport and Safety Authority

The National Transport and Safety Authority (NTSA) is a state corporation formed through National Transport and Safety Act 2012 (NTSA Act, 2012). It is mandated to; advise and make recommendations on matters relating to road transport and safety; implement policies relating to road transport and safety; plan, manage and regulate the road transport sector in accordance with the provisions of the Act, and; ensure the provision of safe, reliable and efficient road transport service, and administer the Act of Parliament set out in the First Schedule and any other written Law.

The main duties of the NTSA include registering and licensing motor vehicles in Kenya; conduct motor vehicle inspection and certification, regulate public service vehicles; advise the Government of Kenya on national policy with regard to road transport sector; develop and implement road safety strategies; facilitate the education of members of the public on road safety, conduct research and audits on road safety; compile inspection reports relating to traffic accidents; establish systems and procedures for, and oversee the training, testing and licensing of drivers; formulate and review the curriculum of driving schools; and coordinate the activities of persons and organizations dealing in matters relating to road safety and perform such other functions as may be conferred on it by the Cabinet Secretary or by any other written Law (NTSA,2019).

The formation of NTSA in Kenya came in the aftermath of the 2011 United Nations' Decade of Action for Road Safety which aimed at raising political awareness of road safety and to address the unacceptably high levels of death and injuries that result as a consequence of road traffic crashes (UNGA, 2018). Prior, the responsibility of the roads in Kenya was under several different Government Agencies and limited collaboration was common. The formation of NTSA was therefore one of the interventions to bring collaboration among road safety agencies. The approaches which NTSA has applied is fusing reactive to proactive and integration. This was meant to enable the traffic system with its vulnerable and fallible users, become inherently safe. NTSA was also created to oversee the implementation of the Road safety Strategy and associated Action Plan (Azetop, 2010).

The implementing partners that NTSA collaborates with include the National Police Service, Ministry of Health (MoH), Ministry of Transport, County Governments, Infrastructure, Housing and Urban Development, National Government, Road Authorities, Ministry of Interior and Coordination of National Government (Institute for Transport and Development Policy, 2015).

1.1.4 The Kenya Police

The Kenya Police being one of the implementing partners of NTSA, fall under the Ministry of Interior and Coordination of National Government is responsible for enforcing traffic laws and regulations for safety purposes. The NTSA was established by act 33 in Parliament proceedings in 2012 to conduct research and audits on road safety among other duties. In collaboration with the NTSA, the traffic police department is required to enforce traffic rules, examine driver behavior and issue certificates of good conduct on the road (Manyara, 2013). The Kenya Police collaborates with NTSA to implement road safety measures to reduce death and injuring persons on the roads. They are the main implementing partner as they enforce the traffic act (NTSA, 2019). This is done through erecting roadblocks to deter against over speeding against over speeding, checking driving permit per driver, overloading, state of insurance on a vehicle and the condition of the vehicle.

According to Bennett (2012), traffic management has progressively deteriorated in Kenya and this precipitated the birth of NTSA to coordinate with the Kenya Police to bring safety to the users. The Kenya Police enforce the Traffic Act and aid in road safety by enforcement of all Laws, Rules and Regulations with which the department is charged, ensuring free flow

of traffic, investigation of accidents and initiate road safety sensitization to the members of the public.

The NTSA and the Kenya police use collaboration as one of the approaches to make roads in the county safer by reducing fatalities and the number of accidents. As a professional agency on Kenyan roads, the NTSA has formulated the best initiative schemes, strategies, plans, traffic design and rules to restore public trust. The importance of involving the Kenya police in the whole process of road transport is outlined in the National Action Plan for 2015 – 2020 in which the Kenya police must act in the mainstream leadership to enforce traffic regulations together with government agencies like NTSA. This collaboration came in the aftermath for launching Vision 2030 and promulgation of the 2010 constitution, in which the Ministry of Transport and Infrastructure perceived an Integrated National Transport Policy that could bring stakeholders on the road to work in teams for the benefit of Kenyans and other nationals using Kenyan roads.

1.1.5 Coastal Region of Kenya

The Coastal region has six counties, namely: Mombasa, Kwale, Kilifi, Tana River, Lamu and Taita-Taveta. This study adopted the counties where the NTSA and the Kenya Police collaborate in and has segregated into the Coastal Region; Mombasa, Kwale, Kilifi and Kwale (NTSA, 2019). Mombasa is one of the coastal areas of Kenya, along the Indian Ocean. The coast of Mombasa is historically known as a port in Kenya with magnificent coral beaches and sites for local and international tourists (Mombasa County, 2013). The coastal town is highly populated with over 1.2 million people in 230 km sq and attracts different groups of people since it is an entry point from the Indian Ocean; a route that has been liked by both Europeans and Asians entering into the nation (Njuguna, 2013). Access to paved roads in Mombasa is at 28.6% and good roads at 32%.

The coastal areas include Kwale County with a population of 649,931 and is mainly an inland county, but it has a coastline south of Mombasa (Bachani et al., 2012). Kilifi County was formed in 2010 as a result of a merger of Kilifi District and Malindi District. The county has a population of 1,453,787 (KPHS, 2019). Lamu County is also on the coast, located in the Northern Coast of Kenya. Among the challenges facing Lamu County, is reduced services as the population is growing owing to migration into the county from other parts of the country, fuelled partly by the anticipated opportunities accruing from the Lamu Port.

Most of these people come from South Sudan and Ethiopia using the South Sudan – Ethiopia Transport (LAPSSET) Corridor, which accounts for 22 percent of the 3000 annual deaths experienced in Kenya.

The Coastal region of Kenya has a diverse economy based on trade and commerce, tourism with a well-established industrial sector, comprised of six large and over 400 medium and small-scale manufacturing enterprises. Most of the industries engage in agro-processing, with oil refining, cement production, textiles and clothing. Its population is over 700,000 and majority employed formal sector. Its economic sectors therefore include tourism, industry, transport, water sports and fishing (Bachani et al., 2012). The county is covered by 923.07 Km of road network (Kenyan National Bureau of Statistics, 2019). Road transport in the coastal region of Kenya displays minimal characteristics of normative expectation of a public transit system owing to the small carrying capacity of most vehicles, high cost per head, non-timed schedules, compromise on road safety/etiquette resulting into traffic- jams and accidents (Azetop, 2010).

The NTSA has a regional office in Mombasa town. This office covers operations in the coastal region of Kenya. It works hand in hand with various agencies, the Kenya Police being the major implementing partner. The Kenya Police has identified certain traffic offences that contribute to fatal accidents, and impact on the seriousness of injuries. These are over speeding, driving while drunk and the non-wearing of seat belts. The NTSA regional manager noted increased risk of traffic offenses and accidents during festive seasons especially in coastal highways between the towns. Tsavo-Maungu-Voi, Wundanyi-Mwatate, Maungu-Tsavo East Gate and Maktau-Taveta were all identified as dangerous routes. Mazeras-Bonje-Miritini, Rabai-Ribe section, Kaloleni-Dzitsoni and Kilifi-Vipingo routes were identified as hazardous areas, while the Kibarani-Changamwe stretch, and the Kwale - Matuga junction are recognized as nightmare routes for motorists entering and exiting Mombasa Island. An NTSA (2021) survey noted an increase in nationwide road fatalities of 18.5 per cent in 2021, with 4,121 people succumbing to various accidents by November 2021, compared to 3,478 in 2020.

Measures to increase road safety in the Coastal region of Kenya focus on six major activities. One, is enforcement of seatbelt usage as they reduce injury by preventing the vehicle occupant from hitting the interior - arts of the vehicle or ejection from the vehicle. It is mandatory to enforce the usage of seatbelts to reduce the toll of death of road traffic collisions (Abbas & Abu Zidan, 2011). Secondly, in collaboration with NTSA the Kenya

Police uses new technology to improve road safety by using the modern breathalyser to nab those drinking and driving, profiling drivers based on their behaviour and driving history using the new smart driving licence and installation of an Intelligent Traffic System (ITS) that includes intelligent traffic lights, road markings and enforcement measures such as violation of traffic lights and speed limit.

Thirdly, the Kenya Police mounts roadblocks on major roads to ensure road users adhere to traffic laws and arrest and prosecute those who do not. Mass communication campaigns on road safety on all media channels to create awareness and alert people on revised regulations is the fourth measure. A fifth measure is enhanced capacity building of the Kenya Police officers to address corruption and finally there are frequent and random checks for compliance of Public Service Vehicles (PSV) and Commercial vehicles.

1.2 Statement of the Problem

Thousands of people die in Kenyan roads each year and according to the NTSA (2018), there has been a sharp increase in the volume of fatalities in Kenyan roads. The Ministry of Interior and Coordination of National Government (2021) shows that more than 4000 Kenyans died by November 2021. Gichaga (2017) reports increased accident occurrences in the Northern Corridor which links the rest of the interior and neighbouring countries to the port of Mombasa, with 49 percent of accidents on the transportation corridor being caused by drivers, and 24 percent leading to death. The study by Gichohi and Muna (2018) reported that 21 percent of road accidents can be attributed to pedestrian mistakes, although most of these lack basic education and training on road safety. The Kenyan government has tried to address the road troubles through a variety of cooperative initiatives aimed at improving the geometric design of roads, training and re-training drivers, conducting vehicle assessments, among others. Despite this, and the rehabilitation of the Northern Corridor, the number of road offenses have been on the rise, especially in urban centres (Gichaga, 2017).

Research conducted on inter-agency collaboration for road safety in different cities of the world shows that if it is implemented well, the effect is long lasting. Malaysisa's Hughes et al. (2016) showed that the government had adopted a holistic approach to improve road safety. Onyancha and Maluleka (2011) found a high degree of collaboration between sub-Saharan states to meet safety needs, calling for increased regional conferences to enhance continental collaboration. India's Assbeihat (2016) found criminal behavior among road users such as overloading passengers could be tamed by collaboration built on positive

relationships. Conclusions were that team collaboration enhances the outcomes of joint efforts. Tanzania's Mnzawa (2013) stated that collaboration between road agencies has improved the frequency of vehicle inspections and installation of roadside cameras. Eusofe (2017) shows that collaboration on the road involves approaches such as resource sharing, process interoperability, interdependence and community involvement especially when the programs are designed to influence school-going children safety.

Gachengo (2018) studied courier firms in Nairobi City and found that resource based, cost based and relational based collaborations have a positive significant effect on performance of courier firms. Recommendations were for re-thinking of the configuration of resources utilized during collaborations to enhance performance. Löfgren (2020) reaffirms this and argues that cross-disciplinary collaboration enhances the plannning and design of transport infrustructure. Barasa (2013) reports that since the collaboration between the traffic department of the Kenya police and NTSA, more drivers have been legally assessed and certified to provide public transport services. However, Mogambi and Nyakeri (2015) state that without proper allocation of resources, no significant benefits can be reached. Kipngetich (2017) attributes the increase in the frequency of accidents to careless driving and lenient laws which result in most offenders retaining their licenses. Kabue (2018) reported consensus that the road safety audits carried out by NTSA had led to the development of policies and practices that had increased road safety in Kenya. Although instituting road side features and intersections reduced accidents, adherence to traffic policies and ensuring road surface markings are present did not reduce accidents.

According to Aondo (2019), the current government approach to enhance traffic safety has emphasized the importance of feedback mechanism between the NTSA authorized to audit Kenyan roads and traffic police authorized to enforce their recommendations. The researcher noted the need for increased adoption of emerging technologies such as smartphones to facilitate better feedback on details on traffic accidents and associated safety issues such as speeding. These studies provide empirical evidence on the importance of collaboration between different stakeholders when it comes to reducing traffic accidents and improving safety on roads. However, there is limited empirical exploration into the effect of the partnership between traffic police and the NTSA. This study sought to fill this gap by investigating this relationship and by focusing on the Coastal region of Kenya where increased economic activity has increased road infractions and reduced civilian safety on the major roads.

1.3 General Objective

The general objective of this study was to establish the effect of collaboration between the National Transport and Safety Authority and the Kenya Police on road safety along the coastal area of Mombasa.

1.3.1 Specific Objectives

i. To determine the effect of standard interoperation between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa.

ii. To establish the effect of distribution of labour between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa.

iii. To determine the effect of feedback between the Kenya Police and the National Transport and Safety Authority on road safety along the coastal area of Mombasa.

1.4 Research Questions

i. What is the effect of standard inter-operation between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa?

ii. What is the effect of distribution of labour between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa?

iii. To determine the effect of feedback between the National Transport and Safety Authority and the Kenya Police on road safety along the coastal area of Mombasa?

1.5 Scope of the Study

This research was conducted at the coastal region of Kenya. The area was selected due to the increasing cases of crime, accidents and injuries on the road despite collaborative approach by the NTSA and the Kenya police (Barasa, 2013). Participants came from 263 NTSA and the Kenya Police officers working at major road stops and police stations within Mombasa, Kilifi, Kwale and Lamu counties. The study was founded on the collaboration theory and the Three Phased Model of Change Management. The study adopted a descriptive cross sectional research design and conceptualized collaboration into standards for interoperation, distribution of labour and feedback between the National Transport and Safety Authority and the Kenya Police. The study was carried out between August and

November 2021. This time was selected since it falls within the frame through which the UN wants partner states to take rigorous approach to ensure road safety to the public. The study used quantitative approaches and a descriptive cross sectional research design. Data was collected using close ended structured questionnaires.

1.6 Significance of the Study

The study is of significance to several stakeholders. To policy makers, the findings of this study will help in the implementation of road safety strategic plans. Its findings will shed light on the impact of the collaboration between the Ministry of Transport and Interior and the National Government in promoting road safety and make proposals on how policy development would enhance the effectiveness of future arrangements. Further, the study findings will make recommendations on how partners in road safety can best utilize available resources, whether material of personnel to realize the full effects of the partnership. It will help the Government to improve and enhance the impact of government policies on its citizens by stimulating debate on the current strategies of enhancing the collaboration between the Kenya Police and NTSA.

The Kenya police which is one of the implementing organs of the policies and regulations on the road will be able to identify various gaps that have never been fulfilled by different stakeholders. Critical issues will be determined so they are included when the Kenya police are discharging their duties. This will set a new beginning so as to eliminate crimes on the roads, reduce accidents and increase safety on the roads especially in the coastal region of Kenya.

The academicians will benefit from this addition of knowledge to the theories, as it provides insight into collaboration in road safety measures and generate solutions for better collaboration between other agencies. This study will also generate academic debate and encourage further studies. Future studies could explore the effect of inter-agency collaboration in other industries.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review on literature relevant to the study. The section will start with the theoretical review and presents empirical literature based on the topic to this study. It shall also present the conceptual framework and operational definition of key terms.

2.2 Theoretical Review

The study was guided by two theories; theory of collaboration by Glenn (2009); and Three Phased Model by Lewin (1958). These theories demonstrate the benefits of collaboration and how they aid in achieving planned goals or objectives of safety on the roads.

2.2.1 Collaboration Theory

Collaboration Theory was advanced by Glenn (2009) as a process rather than an action. The theory states that collaboration which occurs among two or more persons must pass through a process rather than an action for a short period. Glenn (2009) states that collaboration has five dimensions (coordination, distribution of labor, standards for interoperation, authorship and authority; and feedback). Coordination occurs in all stages of planning and delivery of services. In planning it is the process by which two or more organizations make decisions together. Coordinators clarify the nature of the collaborations and coordinate inter-agency resources distribution and allocation. In service delivery it is the integration of the activities of two or more organizations which leads to achieving of goals or a certain effect (Davidson, 2011). Fanderclai (2004) is of the view that a coordinator of collaborating groups must be driven by fascinating aims to attract subjects so as to follow set principles. The coordinator must have interest in what the groups collaborate in and they must be talented in order to succeed. The central coordinator allows clarity of goals and additional efforts so as to attain success.

The first dimension of study is distribution of labour, which is explicit management of the working place in order to attain goals. Thagard (1997) had identified four groups of persons in division of labour: employer / employee, the subject, peer-similar (working within the same discipline) and peer-different (working inter-disciplinarily). Collaboration is built on mutual engagement in which members build relationships, establish norms and engage in

joint activities and discussions. This dimension is built on the assumption that participants trust one another and know how to interact productively.

The second dimension is the standard for interoperation which is the ability of two or more systems to exchange information or services and each system to make satisfactory use of what has been exchanged. Bird and Simons (2003) identified the use of portable ICTs to exchange information. They also mention the use of signs, software and certain languages in communication. In regards to the members collaborating, collaboration is further theorized as a joint enterprise with members of the same interest where participants value their collective competent participation as they learn from each other. This dimension is built on assumption that members recognize and address gaps in their collaborative knowledge and remain open to new challenges and ideas. Collaboration is a shared repertoire thus individual members must be competent practitioners who develop communal resources such as language, routines, artifacts, Information Communication Technology (ICT) and tools. For this domain to be successful, it must work on the assumptions that participants are reflective on their repertoire, reconsider other assumptions, uncover hidden possibilities, and use self-awareness to move forward.

Lastly, is feedback which entails collaborators utilize different approaches to communicate with each other and provide updates on incoming information to synthesize the data collected on the field (Ahmad & Karim, 2019). Parker, Dressel, Chevers and Zeppetella (2018) assert that in all collaborative partnerships, feedback is essential at several points of development. Feedback offers the opportunity for to a diverse group of stakeholders to strengthen the final analysis as it is being developed. Feedback on the data and analysis has been associated with increased confidence in findings and streamlining of inter-agency approaches. Feedback has been associated with positive attitudes and improved team and organizational goal realization (Mashhadi, Mathur, Van den Broeck, Vanderhulst, & Kawsar, 2016).

The researchers however assert that long-term face-to-face feedback was more effective that short-term face-to-face feedback. According to Ahmad and Karim (2019) feedback facilitates knowledge-sharing between different teams which enhances work efficiency. Feedback is essential to all transport groups seeking to promote road safety in low-income countries. Feedback can take the form of individual feedback where the groups are able to communicate between themselves on the targeted actions; group feedback which involves

the various parties providing meaningful and constructive feedback between them on any benefits accruing from their collaboration. Further, task-oriented feedback provides information on how a particular task is being accomplished and the progress in attaining the goal (Taemie & Alex, 2009)

Melin (2000) states that the role of a coordinator is mainly adding significance to the whole system. Glenn (2009) classifies the lingering cultural barriers to collaboration into the authorship and authority dimension. Essentially, to what extent does the cultural documentation influence the relationships between collaborators? Inclusion or lack of inclusion in program issues are the reason for stakeholder involvement in planning, implementation, evaluation and monitoring. Since the collaborations involve a single region with a similar cultural identity, have program coordinators as stipulated by the law, and involve locals in program implementation, these two dimensions will not be included in the current study. Instead, the dimensions of standards for interoperability, distribution of labour and feedback will be evaluated.

This theory was relevant to the study since it explains how to effectively approach collaborative partnerships at the work- place. It shows that for the success of collaboration, there must be central leadership that is responsible for the daily activities to take place and for the same activities to be well distributed. Glen (2009) identifies the three main dimensions of collaboration that influence the success of collaborative partnerships. According to Glenn (2009), the ability of partners to integrate policies and technologies, communicate and provide feedback, and distribute skills and resources optimally will increase strategic goal realization. This study will investigate the effect of these strengths on the effectiveness of the collaboration between the traffic police and the NTSA.

2.2.2 Three Phased Model of Change Management

The three phased model by Lewin (1958) suggests that change is a three-stage process of unfreezing the old behavior or situation, moving to a new level of behavior and refreezing the behavior at a new level. Lewin's (1958) model is a powerful tool for understanding change management situations within an institution where members coordinate to institute change and maintain such good behaviour (Miner, 2007). Edgar (1969) noted that it takes time for an excellent idea to be implemented and improved through specified and psychological mechanisms. In phase one, unfreezing, disconfirmation creates pain and discomfort, which causes guilt and anxiety, which motivates a person to change. But unless

the person feels comfortable with dropping the old behaviors and acquiring new ones, change cannot occur. In stage two, the person or people undergo cognitive restructuring. The person acquires information and evidence showing that change is desirable and possible. The primary task in stage three is refreezing that aims at integrating new behaviors into the person's personality and attitudes.

Lewin (1958) argues that for successful change, organizations and institutions should follow steps of unfreezing the status quo, movement to new states and refreezing the new change to make it permanent. The theory was relevant to this study since it shows that for change to take place, there are forces opposing it whilst efforts implementing such change must be maintained for the better results. It also shows that any change must be planned and its success is important to the people. Lewin's (1958) model was used in this study since safety on roads is from an effected change which needs to be maintained as this is replacing old behavior. Collaborative partnerships directed at road safety aim to change behavior of both drivers and pedestrians. Through Lewin's (1958) model, road and transport safety agencies can have a clearer understanding of the stages through which individuals undertake to change behaviors. This applies to safety on the road which requires that road users change from their old habits such as speeding and non-adherence to safety regulations and embrace better safety-conscious habits to stay safe on the roads.

2.3 Empirical Review

This section presents works by different scholars on the various dimensions of collaboration; Standard interoperation, distribution of labor and feedback. The section is arranged in accordance with the study objectives and will be followed by a summary of the gaps identified and the operationalization of the study variables.

2.3.1 Standard Interoperation and Road Safety

Simon (2007) defines standard interoperation as the ability of two or more systems to exchange information or services, and each system to make satisfactory use of what has been exchanged. A study by Zhang et al. (2017) on influencing factors and mechanisms of inter-organization collaboration in emergency rescue for urban rail transit from the Asian countries indicated the need for a coordination platform in improving efficiency of the emergency command and inter-organization collaboration. The study showed interoperation may not be sufficient for a successful collaboration activity. The researchers proposed a

hypothetical inter-agency coordination model that would path collaboration activities and resolve obstacles involving organization, information, planning, resource and command.
A research overview on challenges and opportunities in inter-organizational conflicts in France was conducted by Lumineau, Eckerd and Handley (2015). The study assessed the features of inter-organizational conflict noting issues of integrity and competence as some sources of conflict. They recommended a multi-level model of conflict management between organizations as a bridge to overcome the challenges. Eckerd and Handley (2015) call for the interoperation in order to make all the systems run in harmony. Ouma (2014) in a study on impediments to inter-agency statistical information sharing among agricultural government agencies in Uganda found information sharing as an obstacle to the success of agricultural projects. She proposed that the government provide standard ICT equipment that will enable the agencies create a collaborative platform to share information in related activities thus increase the efficiency of the intervention programmes. Bird and Simons (2003) identified use of portable ICTs to exchange information for the purpose of road safety.

The importance of interoperation is impressed in a study by Bennet (2018) who in his featured article on United States Army Africa (USARAF) on improving interagency coordination highlighted the importance of complementary organizations having proper coordination to facilitate the exchange of information crucial to the success of their operations. He noted that standard interoperation amongst the groups was nonexistent hence their activities were generally ineffective or nonexistent. He proposed an interoperation model that synchronizes resources available to the organizations to enable them meet U.S. policy objectives on the continent by easing coordination and exchange of information.

In Africa, a study was conducted by Ikeanyibe, Olise, Abdulrouf and Emeh (2020) on interagency collaboration among key security agencies in Nigeria. The findings indicated many complex social problems in interagency collaboration. They identified available resources and capacity of collaborating institutions as determinants to the nature of the interagency collaboration. A study by Otieno and Moronge (2017) examined the drivers' effective implementation of interagency projects at the Kenyan coast. It proposed the need for unique financial practices and processes as well as a project leadership style that would enhance a unified project approach. It was found that interoperation serves better to collaborating partners who intend to achieve a certain goal in life. Similarly, Menya and

K'Akumu (2016) in their study on interagency collaboration for fire disaster management in Nairobi City found that the County Government had no framework for interoperation on fire disaster operations. They suggested mobilization of formal linkages, for example, a fire disaster management policy, to facilitate the development of standard interoperation for the fire disaster management. It was also suggested that under interoperation, shared knowledge would be vital to all the collaborating agencies.

Leigh and Waldon (1991) show that although there is high travel volume of young drivers that is positively related to poor driving on the road since they are recent learners, it is only supervision on the road that can reduce such behavior. Only the interoperation of the traffic officers and their counterparts on the road makes the young drivers follow traffic rules. Mercer (1987) developed a model to examine correlation between ability of inter-operated groups, rate of casualties (fatalities and injuries) and crash severity (measured by the share of fatalities in the total number of injuries) on the road. They say that unless road users are influenced by external factors like use of drugs and alcohol, there is less fatalities and road crashes. He noted that that there is need for collaborating agencies to implement policies on road use, such as, no use of drugs and alcohol while driving.

Ruhm (1995) analyzed data on ability of different organizations to man the road, alcohol consumption and road safety. He finds a positive relation between conditions on the road and safety. He shows that the desire for money by the people manning the road is related to an increase in the number of fatalities and this is related to use of alcohol. In yet another study, Ruhm (1996) analyzed the relation between several policies (like raising the minimum drinking age) and road safety. Analysis shows a negative relationship between alcohol policies and number of fatalities. Therefore, the economic conditions partly account for road safety. He thus recommends the marrying of information and policies from various agencies to have a unified approach thus effective collaboration. Such studies bring out the need for the enrichment of the interoperations between collaborating agencies.

2.3.2 Distribution of Labour and Road Safety

Distribution of labour is allocation of human capital to specific areas of operation in order to achieve planned and targeted goals (Fanderclai, 2004). Randermann, Bluher, Jochem and Stark (2020) pointed out how information flow processes and distribution of labour can mutually work towards a successful product development. In their literature review on

collaborative product development, they suggested key quality attributes that would function as an interoperation framework for a collaborative data flow process. Randermann, et al., (2020) highlighted the importance of data flow process among the diverse stakeholders in distributed engineering activities. They emphasized on the influence of a collaborative engineering environment in the quality of a distributed product development. Martinez, Sanchez and Yañez-Pagans (2019) opined that awareness of road safety campaigns, education of road users and improved training can improve road safety.

The importance of trust and transparency among autonomous team members has been stressed by Brill, Cummings, Evans, Hancock, Lyons and Oden (2018) in their proceedings on navigating the advent of Human-Machine Teaming (HMT). They noted that these two factors greatly facilitated successful discussions among the autonomous team-mates especially in addressing any arising challenges. In addition, the two factors enabled the autonomous team-mates to embrace learning and necessary changes in their activities.

Regionally, Hussein and Suttie (2016) in their research on rural urban linkages and food systems in sub-Saharan Africa related the role of the different rural economic projects as opportunities for opening up and creating programs that would address the needs of the small holder farmers and rural producers. Such programs would take into account the dynamics and the gaps and would adequately address particular needs of the often-neglected rural people. The focus on distribution of labour on the roads helps to identify any poor behavior from the road users particularly on the high-ways and their presence mitigates the negative effects that occur from poor use of the road (Haddon 1973). According to Bly et al. (2005), the distribution of the traffic police and other security personnel on the road partly scare away poor behaviour and this results into safety on the road. The distribution of labour has also been appreciated since it can increase the use of successful interventions among drivers such as the effective use of seat belts (Bambra et al. 2010).

Chapain and Freeman (2011) state that many of social and environmental causes of injury on the road are associated with everyone using the road rather than particular groups of the users. Lowe et al. (2011a) attributes the occurrence of road accidents to all road users rather than a single group like drivers or pedestrians. While the preventative measures move with

the users of the roads, the distribution of labour along the road helps such users to be careful which is essential to road safety. Teik Hua et al. (2010) note that observations made by the human resource manning the road always reduce the levels of corruption among other security organs and the users which is necessary for tackling road safety issues and prioritization of road safety on the political, social and economic agenda.

In a study conducted from Spain by Novoa et al. (2011), an individual's living and working condition and road using behaviour, results from wider social policies on the road. A policy on high level funding of the road towards engineering schemes to design safer roads within communities / urban areas and efforts by companies or regulators to create a working environment, emphasizes protection of employees and the public above an organization's goal when trying to balance the two in order to avoid a catastrophe. Pearce et al. (2010) conducted a study in England and established that the social and community networks which exist on the road are facilitated by the traffic officers in order to enable the community manage behaviors on the road and this has been one of the successful approaches to road safety. The network linkages between individuals and communities bring positive influence where close-knit communities or families offer their time to observe the use of the road as an approach to road.

Division of labor requires regular technical, management and leadership engagement between lead agencies such as the NTSA and its key partner agencies to work together in order to achieve a particular goal (Cordazzo et al, 2016). It also requires regular engagement by the agency's top management with the government ministers who hold political responsibility for road safety (De-Winter & Dodou, 2010). This engagement of partners is particularly important for building strategic understanding of road safety amongst representatives, users; and assisting them to identify the benefits of mandating significant action towards road safety.

In order to generate a broad societal response towards road safety, De-Winter et al. (2015) note that there is a need to engage business groups which are most common in urban areas or cities and civil society institutions that are capable of influencing the level of road safety that is enjoyed within a community thus sharing some of the deliverables and increasing capacity. The influence of division of duties is therefore demonstrated in form of significant road safety activities that is focused to have inclusive decisions on road operations, or in promoting a climate of support for road safety. Therefore, in order to reach maximum road

safety, participation of different groups must be visible on the road rather than the authoritative agencies.

According to Augeri et al. (2015), parties in collaboration are encouraged to discuss strategic approaches to road safety issues, and the best strategic response to a range of immediate safety measures to be maintained on the road. This engagement of parties is critical to ensure regional governance of roads by parties outside the national or central government. The ideal is to build a wider partnership that complements and supports national decision making and actions, which increases road safety in totality. In a study conducted by Lajunen et al. (2004) among the European nations, it is indicated that coordination requires effort and attention, with action related agenda, agreement on responsibilities arising from meetings, minutes and follow up in order to attain road safety. The purpose is not the meeting itself, rather addressing key operational and strategic issues within an effective partnership environment that allows the coordination of the employees in order to achieve the main aim. It also needs to be recognised that coordination and collaboration can be time consuming and costly.

2.3.3 Feedback and Road Safety

Feedback is a behavioural change technique to respond to various needs in the domain of learning, health behaviour intervention, and human resource management (Laakmann, 2016). Laakmann (2016) goes on to state that feedback is a useful technique to enhance the understanding of new knowledge or behaviour, improve task performance, and facilitate beneficial changes in daily behaviour. In the context of driving, feedback is that information available to a driver regarding the state of the driver-vehicle system. On road safety, it is responding and reporting what has been put right in reference to road instructions and proper behavioural use (Boniface et al., 2016).

Laakmann (2016) highlights the importance of interplay among organizations' systems operations. In her study on property theory on medical innovation, she discussed the interplay between Intellectual Property (IP) and Food and Drug Administration (FDA) noting the overlap and complimenting aspects of the two systems in ensuring they deliver a composite legal scheme governing information production and distribution. Laakmann (2016) emphasizes importance of feedback and subsequent feedback loops created and their influence on a functional relationship between the two systems operations. She proposed the significance of understanding the dynamics in the two systems resulting in developing

strategies that would address their unique needs hence ensuring efficiency in meeting the set goals. Feedback is crucial for the success of projects involved that require sharing information from collaborating agencies.

USAID's (2017) case study on how Kenya monitors Health Information System (HIS) performance, found that reliable and timely health information is an essential foundation for public health action. USAID (2017) recommended a proper functioning health information system that would enable the policymakers, managers and individual service providers make evidence-informed decisions to plan, implement and improve health programs and allocate resources effectively. Similarly, an assessment of the nutrition sector in Kitui County Kenya by CISP (2017) noted the importance of the county government utilizing the increasing body of evidence in informing their deliberations and resolving challenges around the nutrition projects in the county.

According to Cao et al. (2010), driver-vehicle system is composed of a driver, vehicle, driving environment, and the interactions among them. It is the driver and the vehicle that move within this environment that can make one state poor or good driving and use of the road. Donmez et al. (2010) state that as a result, information provided through feedback therefore describes aspects of any of these components of the system. Feedback can be provided to warn a driver when the driver looks away for too long (about the driver), can be information on travelling speed (about the vehicle), warning about obstacles ahead in the driving environment or traffic information or notification to the driver that the current travel direction is not correct to reach the planned destination. Feedback provides information regarding past, current, and near future states of the driver-vehicle system on the road with the main aim of attaining safety. It also provides information on patterns and safety curves in various areas. The aim of feedback is to enhance driving performance, to promote learning, and to correct unsafe driving behaviour. More specifically, feedback may be provided to warn the driver about potentially hazardous situations, to facilitate learning of what is unsafe to do while driving, and to alter driver behaviour (Feng et al. (2012).

2.4 Summary of Knowledge Gaps

The literature review presented above show studies done on the importance of having interagency operations as well as the need for a proper policy on coordination to guide on activities of achieving set goals. The studies have been conducted in other countries, for

example, in France, Lumineau, Eckerd and Handley (2015) conducted a study on integrity and competence which they found necessary for collaboration to take place; in Nigeria, Ikeanyibe, Olise, Abdulrouf and Emeh (2020) conducted a study on collaboration in which they show that collaboration can be successful with existence of adequate resources. Local studies on interagency operations have been conducted in other agencies. Basing on these conceptual studies from France, it is ideal that the success of collaboration in any institution is based on the internal factors. This therefore, sheds light on this study to assess the extent to which such variables like finance are used in collaboration in the coastal region of Kenya.

Menya and K'Akumu (2016) carried out a study on collaboration on disaster management within Nairobi City County in which they suggested for the formal lineage of collaboration for it to succeed. On distribution of labour, studies done (Brill, et. al., 2018; Hussein & Suttie, 2016; Sayed, et al., 2019) signify the roles and functions various organizations can play in implementing a project with an intervention for the benefit of a community. Finally, the role of effective feedback is emphasized by studies by Laakmann (2016), Kumpel, et al., (2020), and CISP (2017) among others. They highlight the importance of information flow among agencies with a similar project. Based on these qualitative and quantitative studies, the researcher proposes to carry out a study on interoperations between the NTSA and the Kenya Police, and on distribution of labour and feedback between them. In addition, there is no known study on interoperations between NTSA and the Kenya Police on road safety.

Additionally, with increasing number of uncertainties and injuries on the roads in the coastal region of Kenay, and cognizant that collaboration has been implemented between the NTSA and the Kenya Police; this study seeks to use quantitative approaches to establish the effect of collaboration between the National Transport and Safety Authority and the Kenya Police on road safety.

Table 2.1 Research Gaps

Author	**Title**	**Findings**	**Gaps**	**Filling the Gaps**
Menya and K'Akumu (2016)	Inter-agency collaboration for fire disaster management in Nairobi City.	Formalization of collaboration practices and expectations	This study focused on disaster management	The current study assessed collaboration between the

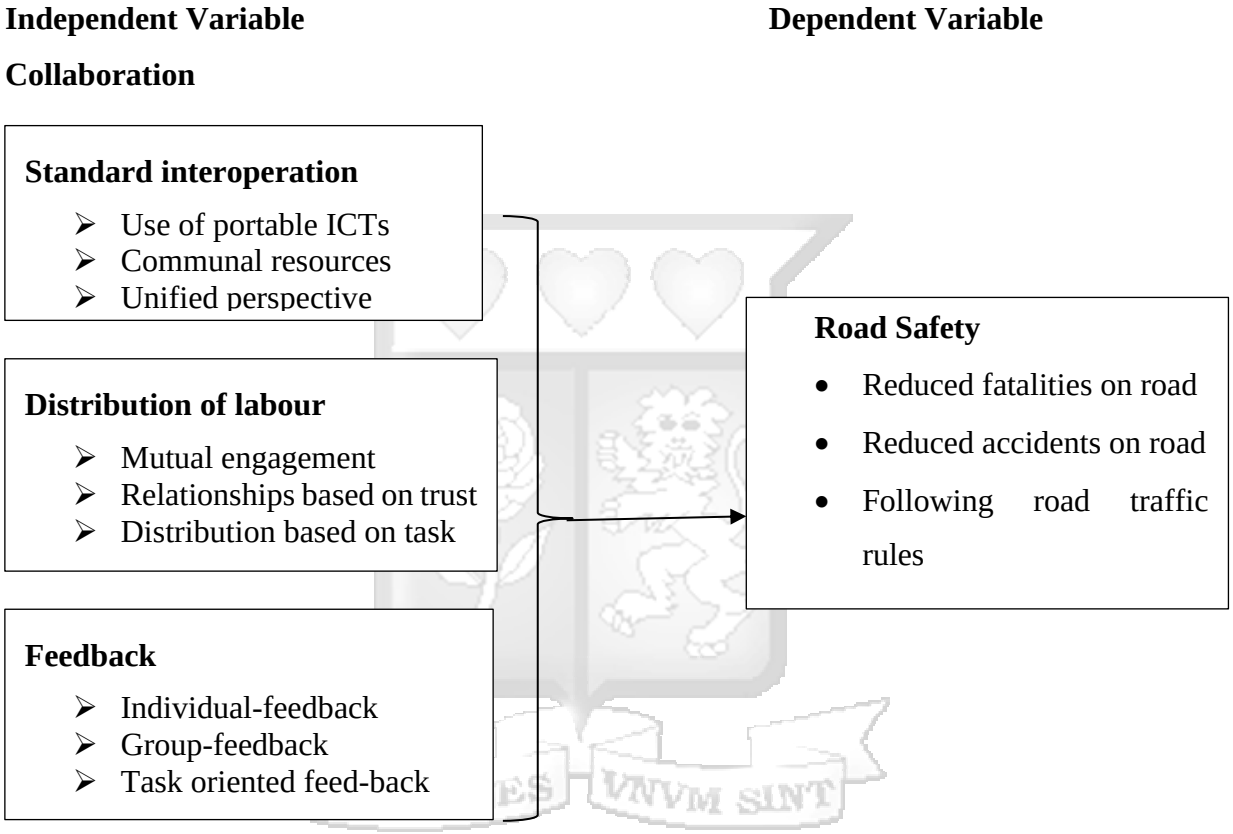
		improves goal success		police and NTSA
Laakmann (2016)	New interior concepts for occupant protection in highly automated vehicles.	Information flow is key to effective collaboration schemes.	This study only investigated feedback effectiveness and collaborative performances.	The current study explored other tenets of successful collaboration.
Brill, Cummings, Evans, Hancock, Lyons and Oden (2018)	Navigating the advent of human-machine teaming	Trust and transparency among team members enhances collaboration capacity.	This study did not explore a collaboration between national police and an agency that cannot access some sensitive government data.	This study will explore a partnership between partners who cannot be truly transparent to each other hence existence of high information asymmetry.
De-Winter et al. (2015)	A quarter of a century of the DBQ: Some supple mentary notes on its validity with regard to accidents.	Engaging private business groups enhances collaborative performances	This study focused on stakeholder involvement in collaborative partnerships.	The current study investigated how interoperability and feedback affect collaboration success.
Lumineau, Eckerd and Handley (2015)	Inter-organizational conflicts: Research overview, challenges, and opportunities.	Integrity and competence are key team leadership skills that encourage team integration	This study was carried out in France	The current study investigated collaboration in Coastal Kenya

Source : Researcher (2022)

2.5 Conceptual Framework

According to Adom, Hussein and Agyem (2018) a conceptual framework is used by the researcher to best explain the natural progression of the phenomenon to be studied. The

conceptual framework illustrates the relationship between variables under the study, how the independent variables relate with the dependent variable as shown in Figure 2.1.



Source: Researcher (2022)

Figure 2.1 Conceptual Framework

The conceptual framework in figure 2.1 shows that collaboration is an independent variable and road safety a dependent variable. Collaboration is presented in which the two parties engage in standard interoperation, distribute labor or tasks among themselves, coordinate on the road or activities during driving on the road by the road users, share feedback among themselves and road users. It is conceptualized that these activities will lead to road safety evidenced by reduced fatalities, fewer accidents and following of road traffic rules.

2.6 Operationalization of Variables

The researcher will adopt the following definitions and measures according to the empirical literature review.

Table 2.2 Operationalization of the variables

Variable	Construct	Adopted Definition	Measurement	Supporting Literature
Collaboration (Independent Variable)	Standard Interoperation	Ability of two or more systems to exchange information or services, and each system to make satisfactory use of what has been exchanged	A five-point Likert scale	Glenn (2009)
	Distribution of labor	The division of labor as an explicit management of the working place in order to attain goals	A five-point Likert scale.	Glenn (2009)
	Feedback	Behavioural change technique to respond to various needs in the domain of learning, health behaviour intervention, and human resource management	A five-point Likert scale.	Glenn (2009)
Road Safety (Dependent Variable)	Reduced Accidents	State under which measures and methods are used to prevent road users from unsafe actions like being killed or seriously injured in the course of using the road properly	A five-point Likert scale.	Zimmerman, K., Jinadasa, D., Maegga, B., and Guerrero, A. (2015).

Source: Researcher (2021)

2.7 Chapter summary

The literature shows that road safety is a concern to all roads across the world, developed and developing nations. The approach of collaboration has however been implemented in varying ways which have either been compromised within the implementation premises. As it has been implemented in Kenya, this study seeks to add information to the existing body of knowledge.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section presents the methodology used to examine the research problem. The chapter presents in detail the research design, the target population, sampling techniques and sample size, data collection procedures, data analysis as well as the ethical considerations to be adopted.

3.2 Research Philosophy

Research philosophy is a research paradigm that defines which method is to be used in a study (Galliers, 1991). This research paradigm stems from the specific objectives of the study in relation to the topic. Basing on the objectives herewith, a positivism paradigm was used in which quantitative methods of research were applied. The findings from the positivism approach are measurable and can be statistically quantifiable (Alavi & Carlson, 1992) and are achieved where the researcher is detached, independent and has a viewpoint that is objective while focusing on facts (Easterby-Smith et all, 2008).

3.2.1 Research design

According to Kothari (2004), research design is the detailed plan of data collection and procedures for analysis in reference to the research questions. This study used a descriptive cross sectional research design. A descriptive design is appropriate as it describes the state of affairs and describes the relationship between the study variables. The research was a cross sectional study as the data collection was collected at one point in time describing how the collaboration of the NTSA and the Kenya Police has resulted into road safety over a certain set of time (Creswell et al., 2011). Quantitative approaches were used to provide data necessary to test the hypothesis. Creswell (2014) states that quantitative approaches are plans for carrying out research oriented towards quantification and are applied in order to describe current conditions or to investigate relationships, including cause and effect relationships.

3.3 Target population

Lavrakas (2008) states that the target population is the entire set of units that the findings from a study is based upon. The target population was drawn from the counties of Kwale,

Kilifi, Lamu and Mombasa that form the coastal region of Kenya. The study population were all 55 NTSA officers (NTSA, 2019), and all 208 Kenya Traffic Police officers (National Police Service, 2019) working together in the Coastal region. All officers were selected as they are involved in the day-to-day collaboration and have a better understanding of the various dimensions in question. The staff members of NTSA and the Kenya Police Traffic Department were selected since they are believed to have the required information necessary for solving of the research problem.

3.4 Sampling Design

Sampling procedures are the modalities employed during a study in order to select participants (Ritchie & Lewis, 2013). A sample, though a representation of the actual population, must be large enough to detect a significant effect (Kerlinger & Lee, 2000). Purposive sampling technique was applied in this study. Judgemental sampling was used to select the informants to this study from the Kenya Police and NTSA. The key informants were selected with the view that they are knowledgeable on collaboration and involved on the day to day working together of the two organizations.

A sample size to this study was determined using the Yamane (1967) formula herewith. Whereby;

n = sample size

N = Total number of populations = 263

e = Level of precision at 0.05

$$n = \frac{N}{1 + N\,(e)^2} = \frac{55}{1 + 55\,(0.05)^2} = 48 \text{ NTSA Officers}$$

$$n = \frac{N}{1 + N\,(e)^2} = \frac{208}{1 + 208\,(0.05)^2} = 159 \text{ Kenya Police Officers}$$

Therefore, a total sample size of 207 (48 + 159) participants was selected.

Proportionate sampling was then used to provide better precision and that the sample has adequate representation from the NTSA and the Kenya Police.

3.5 Data Collection Instruments

Data collection, according to Lawal (2013), is the way a researcher obtains data that is needed to answer research questions. Structured questionnaires were used to collect data

from participants. These included questions capturing constructs of each study variable and they adopted a 5-point Likert scale with 1 meaning least likely and 5 being extremely likely. The questionnaire had five sections with the first sections being the respondents' profile, second to fourth sections will have statements on the independent variable (Collaboration) while the fifth section will have statements on the dependent variable (Road Safety).

3.6 Data Collection Procedures

Research Assistants were adequately trained to aid in data collection. The questionnaire was administered through drop and pick later method and online forms to enable reach of as many respondents as possible. The questionnaires were self-administered. The questionnaire was pre-tested to 10% of the targeted population from both the NTSA and the Kenya Police in September 2021(Saunders et al., 2007) though this group did not form part of the respondents for the study. The pre-testing was to enable refining of the questions and avoid problems of respondents' inability to understand the questions thereby providing misleading answers (Baker, 1994).

3.6.1 Validity Tests

A Validity test was also undertaken. Validity is the appropriateness to which the tool speaks to the substance of the test it is intended to quantify (Somekh and Cathy, 2005). To establish content validity, the researcher sought guidance from the supervisor to ensure the questionnaire was measuring what it was intended to measure while ensuring it was carefully designed to capture study objectives.

3.6.2 Reliability Tests

Reliability measures the internal consistency of the research tool by utilizing uniform testing methods (Phelan and Wren, 2005). The Cronbach's Alpha coefficient ranging from zero to one was used to test for reliability. A reliability coefficient between 0.5- 0.7 is considered acceptable (Saunders et al., 2007). This research therefore adopted Cronbach's Alpha coefficient of 0.6 as adequate. A Cronbach's reliability test was done on the pilot study to test the consistency of the test items. The pilot test was conducted with 10% of the sample respondents of the study who were selected from officers who were not involved in the final research survey. The findings are presented in the Table 3.2.

Table 3.1 Reliability Results

Variable	Cronbach's Alpha	Number of items
Standard Interoperation	0.73	8
Distribution of Labour	0.67	7
Feedback	0.69	5
Road Safety	0.71	4

Source: Researcher (2021)

3.7 Data Analysis and Presentation

Collected data was cleaned, coded and entered into Scientific Package for Social Scientists (SPSS 25) for analysis (Creswell, 2009). The research used descriptive analysis by deriving means and frequencies. Inferential statistics was also done. Pearson Correlation Coefficient was used to show the strength of the association between the variables of the study. This value is between -1 to +1 where a 0 value shows no relationship and a value greater than 0.8 indicates a high correlation (Sekeran, 2003). Multiple regression analysis was conducted to establish the relationship between the study variables. Results were represented in tables for ease of understanding. The study adopted the following regression model;

$$Y = \alpha + b_1 x_1 + b_2 x_2 + b_3 x_3 + \varepsilon$$

where; **Y** represents the road safety, α is the model intercept, **β1-3** is the coefficient of the predictor variables, **ε** is the error term and **x1-x3** represents the independent variables standard interoperation, distribution of labor and feedback between NTSA and the Kenya Police Traffic Department.

3.8 Ethical Considerations

Ethical guidelines need to be adhered to within a research process. The researcher obtained ethical approval from the Strathmore University Institutional Ethics Review Board. This was used by the researcher to introduce oneself to respondents. More so, the researcher sought consent from the two organizations' management. A research permit was applied from the National Commission for Science Technology and Innovation (NACOSTI). Before any filling of questionnaires, the researcher sought consent from the respondents themselves. Those that conceded proceeded to data collection; unlike non-cooperative participants. The researcher informed participants about the voluntary nature of the study, confidentiality by

ensuring anonymity, safe storage of information and about withdrawal from the study at any point especially when uncomfortable. Objectivity in reporting the findings was also observed where the identity of each respondent was separated from the information and there was no further disclosure of the information aside from use in the study.

3.9 Chapter Summary

The focus of the third chapter was the presentation of the methodological steps that were adopted in the conduct of the study. The chapter reviewed the research philosophy and design that guided the study. Further, the population, sample size and the adopted research instruments were presented. Finally, the chapter gave an overview of the data analysis approach and the ethical considerations adhered to in the course of the study.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND PRESENTATIONS

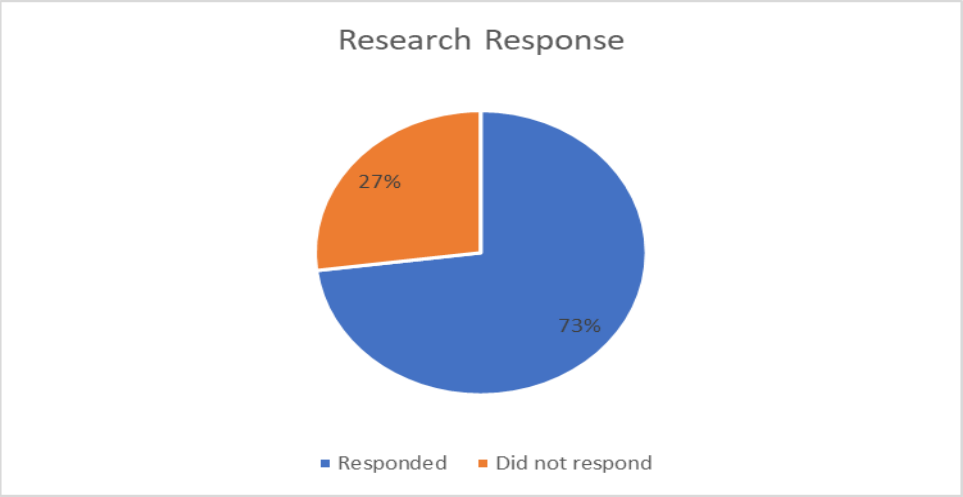
4.1 Introduction

This chapter is centered on the presentation of the findings derived from the analysis of the research data. The chapter specifically presents the background information of the study and the participants. The second section presents descriptive results on the various variables of the research, the third section focusses on the correlation tests and the last section dwells on the regression analysis for each variable and the composite regression summary.

4.2 Response Rate

The research intended to collect responses from 207 participants drawn from the staff members of the NTSA and the Kenya Police. The study was able to obtain 151 responses which represented 73% response rate as shown in figure 4.1 below. This was composed of 117 officers from the Kenya Police and 34 responses from NTSA officers in Coast Region. The lack of availability by the officers was noted to be due to the nature of their work which is mostly in the field thus access to officers was limited thus impacting the overall response rate from the survey. The response was deemed adequate for analysis as supported by Cooper and Schindler (2014) who opined that a response rate above 60% is good for analysis.

Figure 4.1 Response Rate

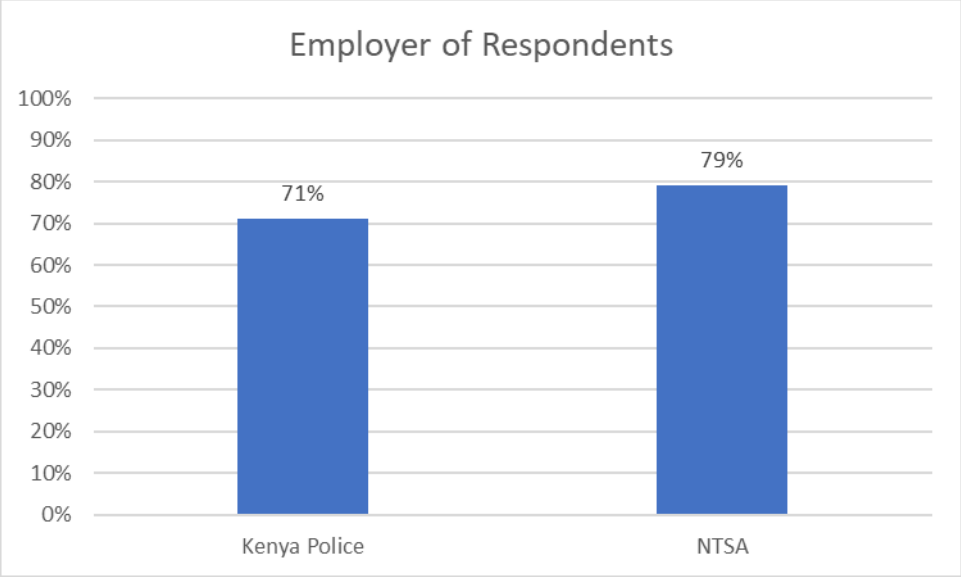


Source: Research Data (2021)

The examination further explored which employer were the study respondents pooled from and the analysis showed that 71% (n=117 out of 164) were drawn from the Kenya Police

and 79% (n= 34 out of 43) were drawn from NTSA staff indicating there was representations from the two groups of interest to this research as shown on figure 4.3 below. The response rate of both the NTSA and the Kenya Police was between the range of 71-73%. The findings showed that there were good responses from both agencies which shows that there was credible representation of both the NTSA and the Kenya Police.

Figure 4.2 Employer Profile of Respondents



Source: Research Data (2021)

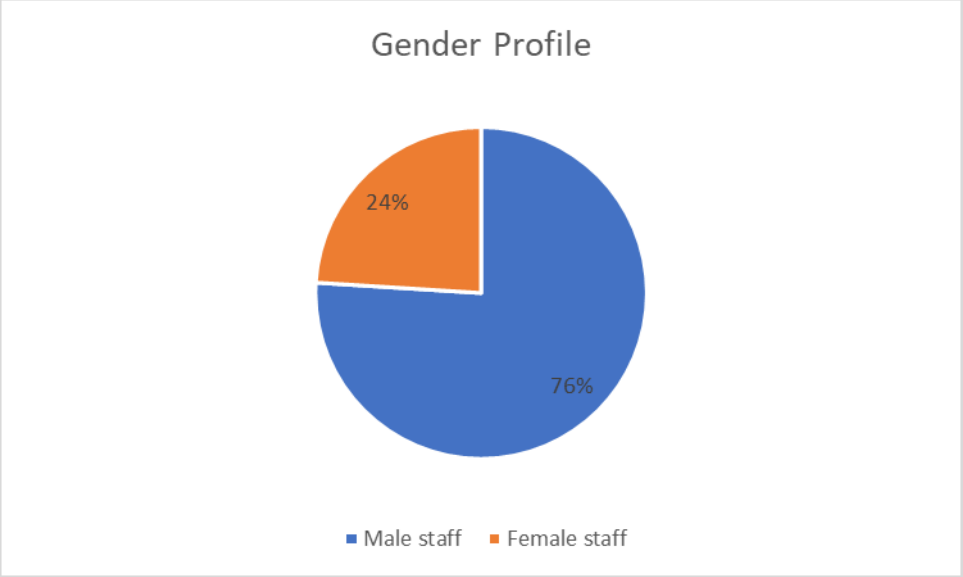
4.3 Respondents Profile

The research was interested in examining the profile of the various respondents who took part in it with focus on their gender, age, education, employer and their tenure at work-stations.

4.3.1 Gender of Respondents

The study reviewed the gender profile of the respondents and the findings indicated that 76% (n=116) of the respondents were male staff with 24% (n=35) representing the female respondents drawn from the NTSA and the Kenya Police. Out of this, 60.3% were male and 16.6% were female Kenya Police; while 17.2% were male and 6.0% were female from the NTSA. The findings are an indication of the high representation of male staff within the traffic force within the country as indicated in figure 4.2 below. This shows that the two organizations are male dominated as the gap is about 50%. This indicates that the nature of the work, being referred generally as technical, is preferred by males than females.

Figure 4.3 Gender Profile of Respondents



Source: Research Data (2021)

4.3.2 Age of Respondents

The study queried the respondents on their age distribution and the analysis of their responses is presented in Table 4.1.

Table 4.1 Age Profile of Respondents

		Frequency	Percent
	26-35 years	53	35.1
	35-45 years	75	49.7
	46-55 years	23	15.2
	Total	151	100.0

Source: Research Data (2021)

The results on age distribution showed diversity within the police staff drawn from the NTSA and the Kenya Police with most of the respondents, 50% (n=75) being of age 36-45 years, 35% (n=53) of 26-35 years and 15% (n=23) between 46-55 years of age. This finding indicates that the majority of the NTSA and the Kenya Police are aged 36 – 45 years being a middle age group believed to be able to implement and analyze road safety measures.

4.3.3 Education of Respondents

The survey further analyzed the education attainment among the research participants and the results are presented in Table 4.2 below.

Table 4.2 Education Profile of Respondents

	Frequency	Percent
Secondary Education	54	35.8
Diploma	30	19.9
Bachelor's Degree	51	33.8
Master's Degree	14	9.3
PhD	2	1.3
Total	151	100.0

Source: Research Data (2021)

The responses showed that most of the respondents 36% (n=54) had only attained secondary level education, 34% (n=51) had a bachelor's degree with 9% having a master's degree and 1% had a postgraduate doctorate degree. This goes in line with the profession having an entry level qualification of a secondary school certificate, the analysis showing that more than 65% of the respondents had an education qualification higher than a secondary school certificate. This shows that the respondents are formally educated thus would be able to have a reasonable understanding of the matters being evaluated in the study.

4.3.4 Tenure of Service of Respondents

The study further focused on the length/tenure of service among the various respondents included in the study and the results are presented in Table 4.3.

Table 4.3 Tenure of Service Profile of Respondents

		Frequency	Percent
	0-5 years	32	21.2
	6-10 years	28	18.5
	11-15 years	44	29.1
	16-20 years	22	14.6
	21 years and above	25	16.6
	Total	151	100.0

Source: Research Data (2021)

The findings showed that most of the respondents 29% (n=44) had served for at least 11-15 years, 21% had served for between 0-5 years with 17% (n=25) having served for more than 21 years within the NTSA and the Kenya Police. The results signified that the various respondents had vast experience within their positions that would be critical to provision of responses that could be adequate and suitable to exploring the research objectives. Further, with extensive experience in the security agencies the officers will have more knowledge on how various collaboration practices have been applied within the region in fostering road safety.

4.4 Descriptive Analysis

The study collected research data using a structured research questionnaire with a five-point Likert scale adopted. The research responses were analyzed using descriptive statistics; mean and standard deviation. The findings are represented in line with the research variables.

4.4.1 Standard Interoperation between the NTSA and the Kenya Police

The study focussed on determining if the standard interoperation between the NTSA and the Kenya police was being adopted within the coastal region and the summary of responses collected is presented in the table 4.4 below.

Table 4.4 Standard Interoperation

	N	Mean	Std. Deviation
Use of mobile phones to check vehicle compliance increases road safety	151	3.93	1.22
Phones have eased communication to implement traffic rules	151	4.22	1.04
CCTV cameras have aided in road safety measures	151	3.78	1.17
There is a well-established structure on how the teams are organized	151	3.44	1.23
Integrity of officers affects collaboration activities between NTSA and the Kenya Police	151	3.68	1.32
Resources are available for joint operation by the Kenya Police and NTSA on the roads	151	2.81	1.35
The different financial and leadership processes affect collaboration between the NTSA and the Kenya Police	151	3.80	1.21
The NTSA and the Kenya Police's policies have a unified perspective and approach, towards road safety	151	3.81	1.22
Overall Results		**3.68**	**1.22**

Source: Research Data (2021)

The pooled respondents were strongly in agreement that phones have eased communication to implement traffic rules as shown by the mean of 4.22 with a high variation in responses of 1.04. The results noted agreement that the use of mobile phones to check vehicle compliance increases road safety as noted by mean of 3.93. The study also revealed agreement among participants that integrity of officers affects collaboration activities between the NTSA and the Kenya Police as illustrated by the mean of 3.68. There was however neutrality in the agreement of the respondents regarding the resource are available for joint operation by the Kenya Police and the NTSA on the roads as indicated by mean of 2.81. The participants were also neutral in their agreement with regard to there being a well-established structure on how the teams are organized as indicated by mean of 3.44 and a high deviation of 1.23. The overall results showed a mean of 3.68 which was an indication that utilization of mobile phones, CCTV, improved collaboration and unified perspective approach by the NTSA and the Kenya police have been key to enhancing the road safety.

4.4.2 Distribution of Labour between the NTSA and the Kenya Police

The research further examined the status of the distribution of labour between the NTSA and the Kenya police. The summary of responses collected is presented in the table 4.5 below.

Table 4.5 Descriptive Analysis for Distribution of Labour

	N	Mean	Std. Deviation
The Kenya Police and the NTSA personnel are well distributed in the Coastal Region of Kenya	151	3.06	1.37
There is adequate deployment of NTSA & the Kenya Police at random police checks	151	2.88	1.38
There is fluid data flow between NTSA and the Kenya Police	151	3.30	1.23
There is trust and transparency among the officers of the NTSA and the Kenya Police	151	3.32	1.37
The different roles in regards to road safety of the NTSA and the Kenya Police on the road are properly identified	151	3.62	1.25
There is regular (technical, management and leadership) engagement between NTSA and the Kenya Police	151	3.26	1.32
The NTSA and the Kenya Police regularly have strategic meetings on road safety	151	3.17	1.39
Overall Results		**3.23**	**1.33**

Source: Research Data (2021)

The findings revealed agreement that the different roles in regards to road safety of the NTSA and the Kenya Police on the road are properly identified as noted by a mean of 3.62 and deviation of 1.25. The study showed neutrality among respondents with regard to the Kenya Police and the NTSA personnel are well distributed in the Coastal Region of Kenya (mean = 3.06, dev = 1.37). In regards to whether there is adequate deployment of the NTSA and the Kenya Police at random police checks there was neutrality among the participants with a significant number disagreeing with the statement (mean = 2.88, dev = 1.376). The respondents also expressed neutrality in regard to the NTSA and the Kenya Police regularly having strategic meetings on road safety as shown by mean of 3.17 and deviation of 1.39. The overall score (mean = 3.23) showed that distribution of Labour between the NTSA and the Kenya Police is clear and supported by having identified roles, strategic meetings, and fluid data flow.

4.4.3 Feedback between the NTSA and the Kenya Police.

The study reviewed the feedback between the NTSA and Kenya police Traffic Department within the coastal region and the summary of responses collected is presented in the table 4.6 below.

Table 4.6 Descriptive Analysis for Feedback

	N	Mean	Std. Deviation
Individual feedback from the public leads to increased road safety	151	3.89	1.23
Group feedback from stakeholders increases road safety	151	4.07	1.08
The NTSA and the Kenya Police systems are well integrated	151	3.14	1.30
There is adequate feedback on implemented measures and their impact on road safety	151	3.23	1.26
Information sharing between NTSA and the Kenya Police is timely and reliable	151	3.38	1.32
Overall Results		**3.54**	**1.24**

Source: Research Data (2021)

The findings showed agreement among participants that the group feedback from stakeholders increases road safety as noted by mean of 4.07. Concerning, the individual feedback from the public leads to increased road safety there was agreement among participant as indicated by mean of 3.89 with high deviation of 1.23. The respondents also expressed neutrality that information sharing between the NTSA and the Kenya Police is timely and reliable as showed by mean of 3.38. Similar neutral sentiments were recorded in regard to there is adequate feedback on implemented measures and their impact on road safety as shown by mean of 3.23. The overall findings showed a mean of 3.54 which led to the conclusion that feedback between the NTSA and the Kenya Police has been fostered by adoption of individual and group feedback, having integrated systems, implementation of feedback measures and timely and reliable information sharing.

4.4.4 Road Safety in the Coastal Region

The study dependent variable was aligned to an assessment of the road safety within the coastal region. The results of the responses received are tabulated and presented in Table 4.7 below.

Table 4.7 Descriptive Analysis for Road Safety

	N	Mean	Std. Deviation
Collaboration between the NTSA and the Kenya Police reduces fatalities on the road	151	4.18	1.13
Accidents on the road have reduced due to collaboration between the NTSA and the Kenya Police	151	3.88	1.24
Road users follow traffic rules when there is presence of the NTSA and the Kenya Police on the road	151	4.26	1.21
In overall, collaboration between the NTSA and the Kenya Police has increased road safety	151	4.15	1.10
Overall Results		**4.12**	**1.17**

Source: Research Data (2021)

The respondents were in agreement that collaboration between the NTSA and the Kenya Police reduces fatalities on the road as indicated by mean of 4.18. The study also established agreement among the participants that accidents on the road have reduced due to collaboration between NTSA and the Kenya Police as expressed by mean of 3.88. The findings showed strong agreement that road users follow traffic rules when there is presence of the NTSA and the Kenya Police on the road as indicated by mean of 4.26 and deviation of 1.21. Participants also expressed agreement that in overall, collaboration between NTSA and the Kenya Police has increased road safety as noted by mean of 4.15. Based on the overall results (mean = 4.12), it can be concluded that both the NTSA and the Kenya Police agreed that collaboration and presence of police officers has led to an improvement in road safety within coastal region.

4.5 Correlation Analysis

The study utilized correlation analysis to determine the relationship between the independent variables and the dependent variable. A correlation coefficient closer to +1 indicates a strong relationship with a coefficient closer to 0 indicating no relation between two variables. The study employed Pearson correlation coefficient and the results are shown on Table 4.8.

Table 4.8 Correlation Matrix

		Standard Interoperation	Feedback	Distribution of Labour	Road Safety
Standard Interoperation	Pearson Correlation	1			
	Sig. (1-tailed)				
	N	151			
Feedback	Pearson Correlation	.522**	1		
	Sig. (1-tailed)	.000			
	N	151	151		
Distribution of Labour	Pearson Correlation	.515**	.632**	1	
	Sig. (1-tailed)	.000	.000		
	N	151	151	151	
Road Safety	Pearson Correlation	.458**	.473**	.308**	1
	Sig. (1-tailed)	.000	.000	.000	
	N	151	151	151	151

**. Correlation is significant at the 0.01 level (1-tailed).

Source: Research Data (2021)

The first specific objective sought to determine the effect of standard interoperation between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa. The findings showed that standard interoperation had a weak positive and significant relation with road safety (r = .458, sig = .000).

The second objective of the study focused on establishing the effect of distribution of labour between the National Transport and Safety Authority and the Kenya Police on road safety along coastal area of Mombasa. The analysis revealed that there was a weak positive relation between distribution of labor and road safety (r = .473, sig = .000).

Lastly, the third objective sought to determine the effect of feedback between the Kenya Police and the National Transport and Safety Authority on road safety along the coastal area

of Mombasa. The findings noted a weak positive effect of feedback on the road safety within the coastal area (r = .308, sig = .000) indicating that feedback does not have much influence on road safety.

4.6 Regression Analysis

The main aim of the research was to determine the effect of collaboration between the National Transport and Safety Authority and the Kenya Police on road safety along the coastal region of Kenya. The study adopted a multiple linear regression to determine the magnitude of influence of standard interoperation, distribution of labor and feedback between National Transport and Safety Authority and the Kenya Police on the road safety. The results are shown below;

Table 4.9 Regression Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.537[a]	.288	.274	3.29252

a. Predictors: (Constant), Distribution of Labour, Standard Interoperation, Feedback

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	646.030	3	215.343	19.864	.000[b]
	Residual	1593.586	147	10.841		
	Total	2239.616	150			

a. Dependent Variable: Road Safety

b. Predictors: (Constant), Distribution of Labour, Standard Interoperation, Feedback

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.323	1.553		3.428	.001
	Standard Interoperation	.226	.062	.311	3.666	.000
	Feedback	.313	.082	.361	3.840	.000
	Distribution of Labour	-.048	.055	-.081	-.862	.390

a. Dependent Variable: Road Safety

Source: Research Data (2021)

The study overall regression summary in Table 4.9 focussed on the composite impact of all the independent variables on the road safety. The overall regression analysis had a coefficient of determination .288, which indicated that collaboration between the NTSA and the Kenya Police had a positive effect on the road safety. Thus, holding other factor constants the level of standard interoperation, distribution of labor and feedback between the NTSA and the Kenya Police and will contribute to 28.8% change in the road safety within the coastal region of Kenya.

The overall ANOVA analysis resulted in a F-value = 19.864, Sig = .000<.05 which indicated there is a positive and significant relationship between collaboration between the NTSA and the Kenya Police on road safety within the coastal region of Kenya.

The resulting regression model becomes;

$$Y = 5.323 + .226X_1 + -.048X_2 + .313X_3 + 1.553$$

Where Y = Road Safety, X_1 = Standard Interoperation, X_2 = Feedback and X_3 = Distribution of Labor

The composite multiple regression yielded a coefficient for standard interoperation β_1 = .226, sig = .000. This implied that a 1% of change in standard interoperation between the NTSA and the Kenya Police will lead to a positive increase in road safety within the coastal region of Mombasa by 22.6%.

In regard to the second objective, the findings revealed a coefficient for feedback β_2 = .313, sig = .000. This implied that a 1% change in feedback between the NTSA and the Kenya Police will lead to a positive increase in road safety within the coastal region of Kenya by 31.3%.

On the third objective, the results showed a coefficient for distribution of labor β_3 = -.048, sig = .390>.05. This indicated that distribution of labor between the NTSA and the Kenya Police had no significant effect on the road safety within the coastal region of Kenya when considered against other collaboration factors.

4.7 Chapter Summary

The fourth chapter of the examination was vital in presenting the various findings obtained from the analysis of the collected research data. In summary, the findings noted that the

study was able to obtain a 73% response rate with most of the participants drawn from the Kenya Police. Further execution of correlation analysis also showed that all the three factors considered in the study; standard interoperation, distribution of labor and feedback between National Transport and Safety Authority and the Kenya Police had a positive relationship with road safety within the region. The overall results revealed that collaboration had a positive and significant relationship with road safety within the coast region of Kenya.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The fifth chapter of the research focussed on the discussion and conclusions that were drawn from the study. Further, the chapter presents the recommendations, suggestions for further research and limitations of the study.

5.2 Discussion of Findings

The discussion of findings sought to review the study results in line with the previously reviewed empirical evidence. The section focuses on the interaction between standard interoperation, feedback, distribution of labor and road safety. The findings of the study resonate with the collaboration theory that shows application of various practices such as standard interoperation, feedback and distribution of labor are critical to attaining the set-goals of partnering institutions. The findings showed that utilization of collaborative practices has enhanced the attainment of road safety goals between the NTSA and Kenya Police Officers. The three-phase change model showed that coordination and integration of new behaviors can reinforce the implementation of new changes within institutions. The study has shown that through applying the collaborative partnerships road and transport safety agencies can sustain better road safety measures within the region.

5.2.1 Standard Interoperation and Road Safety

The respondents were in agreement that utilization of mobile phones to check vehicle compliance and communication to implement traffic rules, improved road safety. The findings noted agreement among participants that CCTV cameras have aided in road safety measures. Similar sentiments were established in the study by Ouma (2014) who showed that provision of ICT equipment between agencies will enhance information sharing and contribute to efficiency in undertaking intervention programmes. This was echoed by Bird and Simons (2003) who revealed that utilization of ICT gadgets leads to better sharing of information which is vital to road safety. Ikeanyibe, Olise, Abdulrouf and Emeh (2020) revealed that inter-agency collaboration through sharing of resources and capacity is essential to improve the attainment of their common goals.

The results indicated agreement that there is a well-established structure on how the teams are organized between the NTSA and the Kenya Police. This finding is in consensus with

Lumineau, Eckerd and Handley (2015) who revealed that having a well-organized and multi-level model of conflict management will help overcome challenges between groups. Study findings demonstrated that resources are available for joint operations by the Kenya Police and the NTSA on the roads. The study revealed that different financial and leadership processes affect collaboration between the NTSA and the Kenya Police. The officers also agreed that the NTSA and the Kenya Police's policies have a unified perspective and approach, towards road safety. These results are supported by Bennet (2018) in their research that showed having inter-agency coordination facilitates exchange of information that is key to success of operations. Further, enhancing complementarity between organizations is crucial to synchronizing their resources and meeting operations objectives. Otieno and Moronge (2017) study viewed the adoption of a unique framework to guide project leadership and financial practices as key to achieving the goals of collaborating partners.

The correlation analysis revealed that standard interoperation had moderate positive and significant relationship with road safety. This was further affirmed in the regression tests which indicated that standard interoperation will lead to a significant positive influence on the road safety within the coastal region. The results are in line with Menya and K'Akumu (2016) who revealed that having interoperation is vital to achieving the needs of the collaborating agencies. These study findings are however not consistent with Zhang et al. (2017) who showed that interoperation may not be adequate to improve collaboration between parties and resolve obstacles in areas such as organization, planning and command. Similarly, Bennet (2018) noted there was no interoperation between the agencies being studied thus limited success of their operations.

5.2.2 Distribution of Labor and Road Safety

The results demonstrated that officers are well distributed within the coastal region and adequate deployment of police at random checks is practiced. The study revealed there is fluid data flow between the NTSA and the Kenya Police. This is in line with Randermann, et al., (2020) who posits that improving distribution of labor will enable effective data flow process which is key to maintaining a collaborative environment. Bly et al. (2005) in their study established that increased distribution of police in random road checks has been partly key to eliminating poor behavior in the road thus fostering road safety. Bambra et al. (2010) also revealed that distribution of labor is critical to ensuring the success of road safety interventions such as safety belt usage.

The findings also revealed there is trust and transparency between the officers from the two institutions. Cordazzo et al (2016) in their research found out that division of labor between agencies requires the support of the management and engagement between parties to ensure they are focussed on a common goal and share information that will ensure they achieve their goal. Findings showed that there is proper identification of the different roles played by officers from the NTSA and Kenya police in regard to road safety. The participants also agreed that the NTSA and the Kenya Police regularly have strategic meetings on road safety. The above assertions are in line with De-Winter et al. (2015) who showed that distribution of labor accompanied by clear delineation of duties, responsibilities, inclusive decision making and enhancing support between parties plays a key role in advancing road safety. Augeri et al. (2015) found out that strategic collaboration between parties in decision making and their actions will improve road safety. The findings in this study are consistent with Lowe et al. (2011a) who posit that improving distribution of labor within roads has been key to reducing occurrence of road accidents. Teik Hua et al. (2010) further revealed that more police officers within the roads have been central to tackling road safety issues. Similar observations were made by Augeri et al. (2015) who revealed that enhancing partnerships and strategic collaboration improves road safety. However, in their research Martinez, Sanchez and Yañez-Pagans (2019) found no strong empirical evidence of effectiveness of road safety programs such as training of road users and improved distribution of traffic officers in the Latin America and Caribbean region.

5.2.3 Feedback and Road Safety

The analysis revealed agreement among participants that individual feedback from the public leads to increased road safety. The respondents agreed that group feedback from stakeholders increases road safety. Similar results were achieved by Laakmann (2016) who stated that feedback has been key to advancing task performance and facilitating behavioral changes in Kenyan roads. Boniface et al., (2016) revealed that having proper reporting mechanisms will foster response rates which can lead to achieving better road safety.

Results denoted agreement among officers that there is a well-integrated system between the NTSA and the Kenya police. Laakmann (2016) argued that feedback can only be achieved when the two different systems are well-understood to ensure that they complement each other and improve the attainment of their unique needs. As such, feedback will help the parties involved to foster their information sharing which is essential to achieving their common goals. The findings showed that adequate feedback on implemented

measures and their impact on road safety. It was further noted among respondents that information sharing between the NTSA and the Kenya Police is timely and reliable. Donmez et al. (2010) noted that adequate feedback system will ensure there is timely availability of information which can be key to decision making and improving driving environment which leads to better road safety. USAID (2017) emphasizes that a robust feedback system should focus on ensuring there is reliable and timely information sharing as its foundation. The study finding is consistent with Donmez et al. (2010) who agreed that improved feedback is key to sharing of traffic information which can enhance the road safety. Boniface et al., (2016) concluded that road safety can be achieved through a feedback system that emphasizes the need for better reporting, information sharing and availability of road instructions.

5.3 Conclusions

Based on the study findings the research concluded that collaboration (standard interoperation, distribution of labor and feedback) between the NTSA and the Kenya Police had a positive and significant relationship with improved road safety in the coastal region. On the first objective the regression result supported the conclusion that standard interoperation was a significant predictor of better road safety within the coastal region. The findings demonstrate that utilization of gadgets such as CCTV cameras and phones does foster road safety in the region. The results are an indication that well-established structure, improving resources for joint operations, collaboration in leadership processes and having a unified perspective and policy approaches are considered critical to achieving road safety within the coastal region.

Results on the second objective led to the conclusion that distribution of labor did not significantly enhance road safety within the coastal region. This result was inconsistent with previous literature by Augeri et al. (2015); Lowe et al. (2011a) and Teik Hua et al. (2010). This illustrates that the current practices of personnel distribution, assignment of different roles, deployment of personnel, conducting strategic meetings as well as technical, management and leadership engagement have not supported achievement of better road safety. The findings of the third objective demonstrated that feedback significantly led to a positive enhancement of road safety within the coastal region. The results affirmed that public feedback and group feedback from stakeholders improves the level of road safety. The analysis also supports the conclusion that implementing adequate feedback measures and timely and reliable information sharing will positively improve road safety within the coastal region.

5.4 Recommendations

The study was aimed at deriving recommendations that are expected to improve policy, offer practical recommendations to the management and contribute to the body of knowledge.

5.4.1 Contribution to Policy

The study findings showed that standard interoperation is vital to road safety within the region. As such the study recommends that key policymakers in the Kenya Police should improve the investments in modern gadgets that can be supplied to traffic officers and the NTSA officers to improve their communication. Further, the Kenya Police should enhance the technical-know how of the officers in utilization of modern equipments which will ensure there is more efficient manning of Kenyan roads. The study also recommends as with other major towns the Kenya Police in collaboration with other state agencies should strive to modernize traffic management within Kenyan roads. This will ensure that the country is more reliant on new technologies in traffic management which can complement the role played by human officers. This can be key to fostering decision making and making routine checks on any traffic offences by drivers on Kenyan roads.

Based on the findings the study also recommends that the National Police Service can formulate a more integrated framework for traffic management. This can lead to Kenya Police and the NTSA officials having harmonized roles which will help to avoid the two agencies operating from opposing standpoint. The study also recommends that to improve efficiency and attainment of better road safety both the NTSA and Kenya Police officers should merge their human, technical and resource capacity in the management of traffic. This will help avoid clashes between the officers from the two different agencies in undertaking similar roles in traffic management. Lastly, the Kenya Police should collaborate with the NTSA in developing a centralized portal that can enhance reporting and sharing of information on traffic issues across the country.

5.4.2 Contribution to Management

The research findings showed that collaboration between the NTSA and the Kenya Police officers is key to road safety. Thus, the study recommends that senior officers should ensure that officer on duty have adequate and well-working ICT gadgets which will support better communication and compliance checks for drivers on the roads. The study also recommends that the regional police officers should encourage their officers to conduct regular maintenance of CCTV and other equipment availed to improve the implementation of traffic

rules. Also, the senior officers should regularly review their policies to ensure they are standardized with other agencies they collaborate with in traffic management to enhance the road safety.

The study recommends that the two agencies should invest on a larger force size that will ensure there is adequate deployment of officers in key areas within the region. Fostering the deployment of officers will help strengthen the enforcement of traffic rules which is considered essential for better road safety. Further, the senior officers should conduct regular training between the NTSA and the Kenya Police which will foster sense of teamwork, trust and transparency in information flow. This coupled with technical and leadership engagement can help achieve better road safety. It is recommended that through routine strategic meeting the two agencies can be able to come with inclusive action plans to support better road safety. Lastly, the study recommends that improving community participation in reporting and identifying road offenders can enhance road safety. The research also recommends that both the NTSA and the Kenya Police should develop a framework to foster information sharing and a feedback platform that will lead to timely and reliable decision making on the spot which can impact road safety.

5.4.3 Contribution to Knowledge

The study found out that collaboration between the NTSA and the Kenya Police was vital to road safety within the region. These results support the application of the collaboration theory which argued that for effective collaboration between two or more parties there is need to undertake distribution of labor, standards for interoperation and feedback. This was affirmed in the study which showed that collaboration assessed by (distribution of labor, standards for interoperation and feedback) has a significant effect on the road safety. This can form the basis for future studies on collaboration in other sectors to adopt the theory in deconstructing collaboration practices. The study also builds on the three phased model since the collaboration between the NTSA and the Kenya Police informs the efforts of implementing change which can lead to better attainment of road safety.

5.5 Suggestions for Further Research

Further research work should be conducted to examine the challenges affecting distribution of labor and how to improve feedback and standard interoperation between the NTSA and the Kenya Police.

Collaboration between other organizations working towards road safety could be studied as this study was limited to the NTSA and the Kenya Police. Furthermore, collaboration could be studied in other joint

The study was limited to one region in Kenya, hence further studies can be undertaken examining how collaboration between the NTSA and the Kenya Police has affected road safety in major highways and other areas prone to road accidents in Kenya such as Nyanza and Mt. Kenya Region.

5.6 Limitations

The study was limited to three practices that are anchored on the collaboration theory; standard interoperation, feedback and distribution of labor. This may limit the application of the study results in jurisdictions where coordination and authority are more favoured. The study was also conducted among security personnel who are more secretive in sharing any classified information which impacted the access to some officials working within the two institutions. The research was also limited by the ongoing COVID 19 pandemic which affected access to participants who were working during curfew hours thus restricting access and overall response rate to the survey.

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APPENDICES

Appendix I: Letter of Introduction

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu

Strathmore UNIVERSITY
BUSINESS SCHOOL

15th March 2021

To Whom It May Concern.

Dear Sir/ Madam.

RE: FACILITATION OF RESEARCH – MARYANNE NDUKU MUNYAO

This is to introduce Maryanne Munyao who is a Master of Business Administration student at Strathmore University Business School, admission number MBA/121606/19. As part of our MBA Program, Maryanne is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MBA course. To this effect, she would like to request for appropriate data from your organisation.

Maryanne is undertaking a research paper on **"Effect of Collaboration Between the National Transport Safety Authority and Kenya Police on Road Safety in the Coastal Region of Kenya".** The information obtained from your organization shall be treated confidentially and shall be used for academic purposes only.

Our MBA seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours sincerely,

Caroline Tiara.
Manager – MBA Programs.
Strathmore University Business School.

Appendix II: Questionnaire

SECTION A: RESPONDENT'S PROFILE

1. What is your gender
    a) Male
    b) Female
2. Indicate your age group
    a) 18 – 25
    a) 26 – 35
    b) 36 – 45

c) 46 – 55
d) 56 & above

3. What is your highest level of education?
    a) Secondary Education
    b) Diploma
    c) Bachelor's Degree
    d) Master's Degree
    e) Doctor of philosophy Degree
4. Indicate your employer:
    a) NTSA
    b) Kenya Police
5. Nature of Employment
    a) Permanent and Pensionable
    b) Contractual
6. How many years have you worked in the organization?
    a) 0-5 years
    b) 6-10 years
    c) 11-15 years
    d) 16-20 years
    e) 21 years and above

SECTION B: Standard for Interoperation is a process through which allied organizations convey particular information and use this information effectively. This section seeks to best establish how NTSA and the Kenya Police do this.

7. State the effect of standard interoperation between NTSA and the Kenya Police on road safety along the coastal area of Mombasa with;
   1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Nos	Statement	5	4	3	2	1
1	Use of mobile phones to check vehicle compliance increases road safety.					
2	Phones have eased communication to implement traffic rules.					

3	CCTV cameras have aided in road safety measures.					
4	There is a well-established structure on how the teams are organized.					
5	Integrity of officers affects collaboration activities between NTSA and the Kenya Police.					
6	Resources are available for joint operation by the Kenya Police and NTSA on the roads.					
7	The different Financial and leadership processes affect collaboration between the NTSA and the Kenya Police.					
8	The NTSA and the Kenya Police's policies have a unified perspective and approach, towards road safety.					

SECTION C: Distribution of labour is carried out when allied organizations divide tasks and allocate human capital equally to individuals and specific groups that aims to achieve a common goal. This section seeks to determine the various aspects of dividing tasks between NTSA and the Kenya Police.

8. Rate the application of the following approaches in distribution of labour by NTSA and the Kenya Police for safety on the roads with;
   1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Nos	**Distribution of labour**	**5**	**4**	**3**	**2**	**1**
1	The Kenya Police and the NTSA personnel are well distributed in the Coastal Region of Kenya					
2	There is adequate deployment of NTSA & the Kenya Police at random police checks					
3	There is fluid data flow between NTSA and the Kenya Police					
4	There is Trust and transparency among the officers of the NTSA & the Kenya Police					
5	The different roles in regards to road safety of the NTSA and the Kenya Police on the road are properly identified					

6	There is regular (technical, management and leadership) engagement between NTSA and the Kenya Police.					
7	The NTSA and the Kenya Police regularly have strategic meetings on road safety					

SECTION D: Feedback is an action of presenting back what an individual has been tasked to do. Feedback is useful to enhance understanding of knowledge and behaviour, improves task performance and enables change between two organizations by responding and reporting what is observed. This section seeks to examine the interplay between the Kenya Police and NTSA.

9. State the effect of the following as they happen between NTSA and the Police on road safety as presented in the table with;
   1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Nos	Feedback	5	4	3	2	1
1	Individual feedback from the public leads to increased road safety					
2	Group feedback from stakeholders increases road safety					
3	The NTSA and the Kenya Police systems are well integrated					
4	There is adequate feedback on implemented measures and their impact on road safety					
5	Information sharing between NTSA and the Kenya Police is timely and reliable.					

SECTION E: Road Safety in the Coastal Region

10. State the effect of the following between NTSA and the Police on road safety; as presented in the table with;
    1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Nos	Statement	5	4	3	2	1

1	Collaboration between NTSA & the Kenya Police reduces fatalities on the road.					
2	Accidents on the road have reduced due to collaboration between NTSA and the Kenya Police.					
3	Road users follow traffic rules when there is presence of the NTSA and the Kenya Police on the road.					
4	In overall, collaboration between NTSA and the Kenya Police has increased road safety.					

Thank you for your cooperation

Appendix III: Ethical Review Research Authorization

Strathmore UNIVERSITY

7th July 2021

Ms Munyao Maryanne,
nduku.maryanne@strathmore.edu

Dear Ms Munyao,

RE: Effect of Collaboration Between the National Transport Safety Authority and Kenya Police on Road Safety in The Coastal Region of Kenya

This is to inform you that SU-IERC has reviewed and **approved** your above **master's** research proposal. Your application reference number is **SU-IERC1052/21.** The approval period is **7th July 2021 to 6th July 2022.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and also obtain other clearances needed.

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

Cc: Prof Fred Were,
Chairperson; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE
(SU-IERC)
07 Jul 2021
TEL: +254 (0)70303400
P.O BOX 59857-00200
NAIROBI-KENYA

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

Appendix IV: NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **689731**

Date of Issue: **25/May/2021**

RESEARCH LICENSE

This is to Certify that Ms.. MARYANNE MUNYAO of Strathmore University, has been licensed to conduct research in Mombasa on the topic: EFFECT OF COLLABORATION BETWEEN THE NATIONAL TRANSPORT SAFETY AUTHORITY AND KENYA POLICE ON ROAD SAFETY IN THE COASTAL REGION OF KENYA. for the period ending : 25/May/2022.

License No: **NACOSTI/P/21/10797**

689731

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix IV: Plagiarism Report

Curiginal

Document Information

Analyzed document	THE EFFECT OF PARTNERSHIP COLLABORATION ON ROAD SAFETY A CASE OF THE NATIONAL TRANSPORT AND SAFETY AUTHORITY AND THE KENYA POLICE AT THE COASTAL REGION OF KENYA.pdf (D139025022)
Submitted	2022-06-02T15:05:00.0000000
Submitted by	
Submitter email	Nduku.Maryann@strathmore.edu
Similarity	5%
Analysis address	library.strath@analysis.urkund.com

Sources included in the report

SA	**Strathmore University / 137102 Proposal.editednoref.docx** Document 137102 Proposal.editednoref.docx (D110155544) Submitted by: Harrison.David@strathmore.edu Receiver: tlonyeiye.strath@analysis.urkund.com	1
SA	**AKINYI, Mercyberyl=MSCPMI-2021 SUNDAY VERSION.doc** Document AKINYI, Mercyberyl=MSCPMI-2021 SUNDAY VERSION.doc (D126613984)	4
W	URL: https://business.uonbi.ac.ke/sites/default/files/2021-03/Road%20Safety%20Policy%20Guidelines.pdf Fetched: 2022-01-11T07:10:36.1170000	3
W	URL: https://www.kenyans.co.ke/news/56495-videos-capture-disturbing-trend-boda-boda-accidents Fetched: 2022-01-11T07:11:45.9770000	1
W	URL: http://www.ntsa.go.ke/site/ Fetched: 2022-06-02T15:42:42.0570000	1
W	URL: https://www.itf-oecd.org/sites/default/files/docs/statistics-crashes-kenya-road-safety-planning.pdf Fetched: 2022-06-02T15:42:42.6800000	1
W	URL: http://www.ntsa.go.ke/site/?page_id=146 Fetched: 2022-06-02T15:42:50.8700000	1
W	URL: https://www.ssatp.org/sites/ssatp/files/publications/CountryDocuments/Road-Safety-Kenya-IPAR.pdf Fetched: 2021-05-01T18:50:42.1300000	1
W	URL: https://www.kenyapolice.go.ke/2015-09-07-17-41-13/traffic-police-department.html Fetched: 2021-11-22T12:52:37.2070000	2