



# **An intervention framework to enhance commuter road safety within the minibus taxi industry in Sedibeng District Municipality**

**MS Moyake**



**orcid.org 0009-0008-3648-4269**

Thesis accepted in fulfilment of the requirements for the degree  
*Doctor of Philosophy in Social Sciences with Public  
Management and Governance* at the North-West University

Promoter: Dr S Mahlala

Co-promoter: Dr B Rapanyane

Graduation: May 2026

## DECLARATION

I, **Mxolisi Samuel Moyake**, solemnly declare that the thesis entitled '**An *intervention framework to enhance commuter road safety within the minibus taxi industry in Sedibeng District Municipality***' is my original work and has not been submitted for any degree or examination at any other university. The sources used herein are fully acknowledged in the reference list. This thesis is submitted to fulfill the requirements for a Doctor of Philosophy in Social Sciences with Public Management and Governance at North-West University.

**Signature:**

A rectangular box containing a handwritten signature in black ink. The signature appears to be 'MSM' followed by a horizontal line.

**Date:** 30 November 2025

## **DEDICATION**

I dedicate this study to my late cousin Mthuthuzeli Abel Moyake and to all victims of road accidents worldwide.

## ACKNOWLEDGEMENTS

I thank my ancestors for blessing me with physical, mental, and spiritual well-being to complete this study. On a personal note, I extend my gratitude to Dr Sandiso Mahlala (Promoter) and Dr Benjamin Rapanyane (Co-Promoter) for agreeing to steer the research project, their moral support, patience and academic advice made the completion of this study possible.

On a professional level, I acknowledge the North-West University bursary office for covering tuition and related research expenses. I also extend my gratitude to the NWU Library staff for all technical and literature-related assistance. I am also indebted to my children; Ras-Nikiwe, Uyanda, Busisiwe, Lwazi and Anele, for inspiring me to work harder with a passion.

Glory, honour and praise to the Moyake clan:

**'Mirha, Ziyeka, Sampu, Mzodi, Thambolenyoka...'**

***CAMAGU!!!***

## **LIST OF FIGURES**

Figure: 7.1

Figure: 7.2

## TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
LIST OF FIGURES.....	v
ABSTRACT.....	xv

## CHAPTER ONE

ORIENTATION AND BACKGROUND TO THE STUDY.....	1
1.1 Introduction.....	1
1.2 Problem statement.....	6
1.3 Significance of the study.....	7
1.4 Research questions.....	8
1.5 Research objectives.....	8
1.6 Research methodology.....	9
1.6.1 Research design.....	9
1.6.2 Population and sampling.....	10
1.7 Data collection tools.....	12
1.8 Data analysis strategy.....	14
1.9 Ethical considerations.....	15
1.10 Outline of chapters.....	15

## CHAPTER TWO

HISTORICAL BACKGROUND AND DEVELOPMENT OF THE MINIBUS-TAXI INDUSTRY IN SOUTH AFRICA.....	17
2.1. Introduction.....	17
2.2 Historical background of the minibus-taxi industry in South Africa.....	18
2.2.1 Meaning of minibus-taxi .....	18
2.2.2 Reference of minibus-taxis worldwide.....	19
2.2.3 The emergence of the minibus-taxi business .....	20
2.2.4 The impact of political struggle on transportation: strikes and boycotts.....	20
2.2.5 Impact of apartheid legislation on public transport.....	21
2.2.6 Bus drivers' strikes of 1955.....	23
2.3 Increasing growth in the minibus-taxi industry .....	24
2.3.1 The period from 1977-1987.....	24
2.3.2 Land Road Transportation Boards .....	25
2.3.3 Permit application for minibus-taxi operation .....	25
2.3.4 Commission's recommendations on minibus-taxi industry's operations .....	26
2.3.5 Recommendations of Van Breda Commission on minibus-taxi.....	26
2.3.6 Welgemoed Commission.....	26
2.3.7 National Transport Policy Study.....	27
2.3.8 The Deregulation battle .....	27
2.4 The period from 1987 - 1994: towards the demise of apartheid.....	28
2.4.1 Free Competition in the transport sector .....	29
2.4.2 Social responsibility role of minibus-taxi operators .....	29
2.4.3 Minibus-taxi violence.....	30
2.5 Minibus-taxi industry post-1994: democratic era in South Africa .....	30

2.5.1 The period from 1994-1999: transformation era.....	31
2.5.2 Minibus-taxi violence post-apartheid period .....	31
2.5.3 Consultative efforts: Minibus-taxi industry vs Department of Transport .....	31
2.6 The regulation and formalization of the minibus minibus-taxi industry.....	32
2.6.1 Quality and Safety regulation .....	32
2.6.2 Regulation restricting entry .....	32
2.6.3 Fare regulation .....	32
2.7 Formalization of the minibus-taxi industry .....	33
2.7.1 Formalisation impact on minibus-taxi industry .....	33
2.6.2 The establishment of SATACO as a minibus-taxi representative organ.....	34
2.7. The period from 1999 to date .....	35
2.7.1 Recapitalization policy introduced by Department of Transport.....	35
2.7.2 Lack of consensus on recapitalization policy .....	36
2.7.3 The establishment of SANTACO .....	36
2.8 Trends in the development of transport systems in SA.....	38
2.8.1 Government vision on public transportation .....	38
2.8.2 Attainment of public transport goals .....	39
2.9 Summary.....	39

## **CHAPTER THREE**

ROAD SAFETY AND THE MINIBUS-TAXI INDUSTRY.....	41
3.1. Introduction.....	41
3.2. The state of road safety worldwide .....	42
3.2.1 The United Nations Global Decade of Action on Road Safety, 2011-2020.....	43
3.2.2 Road traffic injuries and death (RTID) as public transport problem .....	44
3.2.3 Disproportionate impact of RTID on LMICs .....	44

3.2.4 RTID could jeopardize the realization of the SDGs .....	45
3.2.5 Social gradient of RTID within countries.....	46
3.2.6 A whistle-stop tour of the road safety field.....	48
3.3 Road safety metrics.....	48
3.3.1 Contribution of human factors to road crashes.....	50
3.3.2 The paradigm shifts in road safety policy .....	50
3.3.3 The Safe System approach to road safety .....	53
3.4 International best practice in road safety .....	56
3.5. Road safety in South African context.....	58
3.5.1 Socio-economic impact of road accidents in South Africa .....	58
3.5.2 Road safety policy in South Africa .....	60
3.6 Minibuses as a vehicle class with high traffic offence rates and RTID.....	63
3.6.1 Locus of injuries and fatalities pertaining to minibus taxi industry .....	65
3.6.2 Risk Identification .....	65
3.7. Summary.....	66

## **CHAPTER FOUR**

THEORETICAL FRAMEWORK OF TOTAL QUALITY MANAGEMENT.....	67
4.1 Introduction.....	67
4.2 Definition of Total Quality Management (TQM) .....	68
4.3 Origin and Evolution of TQM .....	69
4.4 TQM description from Quality gurus.....	70
4.4.1 Deming’s approach to TQM.....	70
4.4.2 Juran’s approach to TQM.....	72
4.4.3 Crosby’s approach to TQM .....	74
4.4.4 Feigenbaum’s approach to TQM .....	75

4.4.5 Ishikawa’s approach to TQM.....	77
4.5 Results from Quality Gurus .....	77
4.6 Implementation of TQM.....	78
4.7 TQM Practices .....	79
4.8 Total Quality Management constructs .....	80
4.8.1 Leadership.....	80
4.8.2 Vision and Plan Statement.....	82
4.8.3 Evaluation .....	83
4.8.4 Quality System Improvement .....	84
4.8.5 Employee Participation.....	85
4.8.6 Recognition and reward.....	86
4.8.7 Education and Training .....	88
4.8.8 Customer Focus.....	89
4.8.9 Customer Satisfaction.....	90
4.9 Explanations of overall organisations’ performance.....	91
4.10 Summary.....	92

## **CHAPTER FIVE**

RESEARCH METHODOLOGY.....	93
5.1 Introduction.....	93
5.2. Research design.....	93
5.2.1. Population and sampling .....	95
5.2.2. Sampling techniques .....	95
5.2.3. Sampling size.....	96
5.3. Recruitment of participants.....	96
5.4. Data collection tools .....	96

5.4.1. Literature sources .....	97
5.4.2 Interviews .....	97
5.4.3. Observation .....	97
5.5. Data analysis strategy.....	98
5.6 Ethical considerations .....	98
5.7 Summary.....	98

## **CHAPTER SIX**

DATA PRESENTATION AND ANALYSIS.....	100
6.1 Introduction.....	100
6.2 Background and introduction of participants .....	100
6.2.1 Sedibeng District Municipality (SDM) .....	100
6.2.3 Officials from Directorate of Transport and Infrastructure (SDM) .....	101
6.2.4 Law enforcement: Traffic Department .....	101
6.2.5 Taxi Associations .....	102
6.2.6 Taxi Drivers .....	102
6.2.7. Commuters.....	103
6.3 Qualitative data presentation .....	103
6.3.1 Sedibeng District Municipality (SDM) .....	103
6.3.1.1 The nature of SDM office’s relationship with the taxi industry. ....	103
6.3.1.1.1 Analysis of theme One: taxi industry regulation.....	105
6.3.1.2 The perception regarding the management of the taxi industry.....	107
6.3.1.3 Views on the contributing factors identified by SDM office taxi road accidents. ....	109
6.3.1.3.1 Analysis of theme 1: speeding and reckless driving .....	111
6.3.1.4. Inquire regarding the measures taken by the SDM authorities. ....	112
6.3.1.4.1 Theme 1: Meetings .....	113

6.3.1.4.2 Theme 2: Ramps and static signs .....	113
6.3.1.5 The opinion concerning the taxi industry’s commitment to road safety. ....	114
6.3.2 Law enforcement.....	116
6.3.2.1 Views on the contributing factors involving taxis in road accidents. ....	116
6.3.4 Taxi Association responses.....	119
6.3.4.1 The nature of your office’s relationship with SDM. ....	119
6.3.4.1.1 Analysis of theme: lack of commitment by officials.....	121
6.3.5 Taxi drivers .....	121
6.3.5.1 Factors contributing to road accidents.....	121
6.3.5.1.1 Analysis of theme 1: money and vehicle roadworthiness.....	124
6.3.7 Taxi Commuter .....	126
6.3.7.1 Views and perception on the contributing factors on road accidents.....	126
6.4 Participant and Non-participant observation .....	129
6.4.1 Road infrastructure.....	129
6.4.2. Faulty robots and poor road signs .....	131
6.4.3. Taxi industry .....	132
6.5 Summary.....	134

## **CHAPTER SEVEN**

A TQM INTERVENTION FRAMEWORK DESIGN) .....	135
7.1 Introduction.....	135
7.2. Reflection on research questions and objectives.....	135
7.2.1. Research questions and objectives .....	135
7.3. Summary of findings .....	136
7.3.1 Theme: Regulations within the taxi industry (Labour relations) .....	137
7.3.2 Theme: Speeding and reckless driving.....	138
7.4 The importance of developing a framework in contemporary research.....	141

7.5 Contribution of the study .....	142
7.6 Steps in developing a framework.....	142
7.7 Assumptions underlying the development of the intervention framework .....	143
7.8 Total Quality Management approach.....	145
7.8.1 An intervention framework: Total Quality Management .....	146
7.8.2 The description of an intervention framework.....	148
7.9 Recommendations as per the Total Quality Management framework.....	150
7.9.1 Technological enhancement of the process of job evaluation. ....	150
7.9.2 Strengthening the taxi industry’s culture.....	150
7.9.3 Addressing challenges and external influences .....	151
7.10 Limitations of the study.....	153
7.10.1 Nature of the study samples .....	153
7.10.2 Practical challenges in relation to accessing participants .....	153
7.10.3 Researcher naïveté and bias .....	154
7.10.4 Generalisability .....	154
7.11 Dissemination of the results.....	154
7.12 Suggestions for further research .....	155
7.13 Conclusion .....	155
<b>REFERENCES.....</b>	<b>157</b>
Annaxure A: NWU Ethics approval (BaSSREC)	
Annaxure B: Permission (Sedibeng District Municipality)	
Annexure C: Ethics Certificate	
Annexure D: Interview Consent Form	
Annexure E: Interview Questions	

## **ABSTRACT**

Road traffic injuries resulting in deaths are a global crisis affecting vulnerable road users and commuters. The alarming statistics on road accidents, according to the World Health Organization's road safety status reports, disproportionately affect many countries' socio-economic conditions. Africa as a whole and South Africa specifically, have a high incidence of road accidents. Public transportation plays a central role and accounts for a higher proportion of usage compared to private vehicles. Among the various modes of public transport, the minibus taxi industry was identified for study in South Africa's Sedibeng District Municipality. Statistics reveal that commuter road safety has not been adequately prioritised within the taxi industry in this region.

The central objective of this study is to identify and examine factors that contribute to road accidents involving the minibus taxi industry, with the focus on commuter safety in Sedibeng District Municipality (SDM). The study also intended to draw an intervention framework that will enhance commuter road safety within the minibus taxi industry. This study employed a hybrid analytics approach emanating specifically from qualitative research designs. The researcher employed a descriptive research design to gather a sample of participants using a non-probability convenience sampling strategy. This sampling strategy was utilised to identify relevant and appropriate minibus taxi industry stakeholders for semi-structured interviews. The primary outcomes of the investigation reveal shortcomings in regulations governing the minibus taxi industry. Traffic rules are frequently violated with speeding, reckless driving, drunk driving and traffic officers' bribery and corruption among the key contributing factors to road traffic accidents.

Furthermore, road infrastructure was identified as a contributing factor to the high rates of road accidents in the region. The majority of participants identified lack of commitment to road safety, which is a significant contributing factor to road accidents, in essence, the failure of the SDM office to intervene. Another significant contributing element was the presence of malfunctioning traffic signals, which was widely acknowledged as a causative factor in road collisions. The results demonstrated that most participants concurred that a significant portion of the taxi drivers on the road were not suitable to share the road with other drivers, leading to the elevated occurrence of road traffic fatalities. The situation requires urgent attention. Recommendations were made in line with the enhancement of commuter road safety through the application of total quality management (TQM) principles. The researcher has offered an intervention framework that stems from TQM, which is underpinned by

system theory derived from TQM scholars. However, this framework was adapted to suit the minibus taxi industry as an organisation.

**Research methods:** A qualitative, descriptive research design

**Data collection tools:** Semi-structured interviews and observations

**Research analysis:** Data were analysed using thematic analysis

**Keywords:** Taxi industry, minibus-taxi, road safety, fatal accidents, road injuries, commuter road safety, total quality management, public transport, taxi associations, taxi drivers.

## CHAPTER ONE

### ORIENTATION AND BACKGROUND TO THE STUDY

#### 1.1 Introduction

Public transport is a key priority for socio-economic development worldwide, despite challenges ranging from fuel price increases to the effects of the COVID-19 pandemic. According to Mudali (2017:4), despite fare hikes due to higher fuel prices and high vehicle costs, the demand for public transport continues to grow. Public transport services are a critical element in the daily lives of commuters. Eagle and Kwele (2019:2) emphasise that public transport is regarded as a collective mode of travel, where commuters pay a fare per trip. Primarily, modes of land public transportation include trains, buses, metered taxis and minibus taxis.

The minibus taxi industry is the leading mode of public transport for the low-income group in South Africa, catering to about 15 million commuters (70%), followed by buses with 5.3 million (20%) and rail with about 2.2 million (10%) (Gedye, 2020:1). The industry continues to grow despite economic challenges. The minibus taxi industry is worth R50 billion per year, serving more than 69% of households who commute daily (Mansuri, 2022:1). According to Chinomona, Mofokeng and Poe (2013:319), the minibus taxi industry has developed into a dominant public transport provider within the Republic of South Africa (RSA) and has become an example of black economic empowerment.

Historically, the rise of the minibus taxi industry was demand-driven. Black people, having been moved to under-serviced dormitory towns and peripheral areas, needed to access the areas from which they were excluded from residing in, to work, shop and transact business (Fourie 2003:2). Parallel to this, the rigidity of the state-run trains and buses' routes and time schedules made day-to-day commuting extremely time-consuming, tiring and expensive. According to Ingle (2009:72) this was because state-run trains and buses were dispersed, non-integrated and uncoordinated; therefore, minibus taxis became an alternative. The promulgation of the Road Transportation Act (74 of 1977) paved the way for the minibus taxi industry's operations, which led to the emergence of taxis. This Act stipulates that 10–16 passenger vehicles (minibuses) could be used as a form of public transport. According to McCaul, as cited in Fobisi (2019:7) many entrepreneurs saw an opportunity to venture into the business of commuting people, although the minibus taxis were unregulated in RSA under this Act.

Fobisi (2019:304) notes that the minibus taxi industry in the RSA was established by black entrepreneurs and primarily serves black communities. Prior to the late 1970s, South African government restricted black people's involvement in the taxi public transportation through stringent state regulations. According to Khosa (1994:22), the period from 1977 to 1987 was characterised by partial deregulation, during which the taxi industry struggled to gain recognition as a legitimate public transport operator. Consequently, the minibus taxi industry in RSA experienced a turbulent history, operating informally and facing numerous challenges. These included incidents of violence, unroadworthy vehicles, feuds over commuters, inappropriate driver conduct and road accidents (Mashabela, 2000:4).

The challenges mentioned above and the associated deterioration of public service levels raised serious concerns about the sustainability of the minibus taxi industry in its existing form (Fourie & Pretorius, cited in Mathu, 2022:16). The management challenges of the minibus taxi industry were later compounded by the COVID-19 pandemic, which disrupted global socio-economic activity from 2020. Since early 2020, South Africa, like other global nations, introduced stringent measures to help manage the pandemic, which impacted all sectors of the economy, including the taxi industry (Machobane, 2020:3). The measures undertaken included wearing face masks, social distancing and regular sanitising. Social distancing required that minibus taxis' carrying capacity be reduced by 50% for most of 2020 and 2021. These actions, together with the requirements for complete closure of industries in early 2020, devastated the minibus taxi industry financially (Magubane, cited in Mathu, 2022:650).

Given the mounting challenges facing the minibus taxi industry, this study is motivated by concerns for commuter road safety. It should be noted that commuters' preferences are determined by a number of factors, among others, reliability, affordability and safety (Machobane, 2008:63). According to Sekhonyela and Dugard (2010:3), the literature suggests that interventions by the government at that time were not effective in addressing the road accident statistics in the RSA involving minibus taxis. In addition, Fobisi (2022:3) further stresses that the government has made insufficient efforts to address the high rate of accidents involving minibus taxis on South African roads.

The high rate of road accidents involving minibus taxis has impacted detrimentally on the development of the minibus taxi industry in South Africa. Compared to water and air transport, land transportation accounted for the highest proportion (99.8%) of total transport accidents between 2015 and 2021 (Stats SA 2022:01). Contributing factors, such as speed and the roadworthiness of some minibus taxis, were

major concerns for the safety of commuters. Commuters usually do not have the capacity to assess safety aspects of taxis in relation to the general roadworthiness of vehicles (Majeke 2003:48). Mathu (2022:643) stresses that most minibus taxis lack regular maintenance by their owners, whose main concern is profit, with insufficient regard for commuter safety. Fobisi (2019:64) adds that to reach daily targets, the taxi drivers' work under pressure, which sometimes leads to violations of road safety measures, including speeding and vehicle overloading.

It should be noted that road traffic safety is not a function, but the result of the efficient and harmonious operation of road- and traffic-related management systems, functions and activities developed and implemented with the purpose of improving quality in road traffic (National Road Traffic Act 93 of 1996). Road safety cannot be divorced from any sustainable development strategy for the minibus taxi industry; therefore, all mechanisms must be employed to improve the roadworthiness of minibus taxis, vehicle safety and driver behaviour (Mabasa 2001:11). As legislation that guides public transport, the National Land Transport Act (5 of 2009) emphasises that the government is committed to bring public transport in line with international best practices, with attention to road safety. As a leading department in public transport-related matters, the Department of Transport (DoT), in accordance with this Act, aims to ensure an acceptable level of quality in road traffic.

According to Van Schalkwyk (2011:92), the minibus taxi industry did not consider the accident rate and unroadworthy vehicles as a problem and, consequently, did not demand a policy response from government. As a result, public transport road safety problems became policy problems, requiring the DoT to place road safety on the policy agenda. A policy theorist, Anderson (2006:82), refers to public policy as a clear plan of action that the government enforces to improve the circumstances of its constituency. If public transport problems, specifically the road safety issues in the minibus taxi industry, are not addressed, this will have a negative effect on the country's economy. As a matter of intervention by government, the National Land Transport Act (5 of 2009) further emphasises, *inter alia*, commuter satisfaction, investment objectives, integration, road safety, environmental sustainability and low cost for designated levels of service. Considering the rate of minibus taxi road accidents, it appears that there is a low adherence to government traffic regulations by the minibus taxi industry, specifically regarding road safety.

The adequacy or inadequacy of transport infrastructure can have a significant positive or negative effect on social and economic development (Monare 2000:3). It must be taken into consideration that the informal economy generated by the minibus taxi industry is closely linked to the formal economy

(Fobisi 2013:3). For instance, where transport can act as a leading sector stimulating economic development, the government must take the lead in establishing necessary transport infrastructure and in promoting the participation of other public and private sector institutions to facilitate and accelerate development (National Land Transportation Act 5 of 2009). According to the Local Government Transition Act (209 of 1993), land passenger transport powers and functions should be assigned to the lowest competent tier of government. These powers and functions are assigned to the local government authority through the relevant directorate.

The SDM, in collaboration with Gauteng Department of Transport, developed and updated its integrated transport plan (ITP 2022/2027). The purpose of the ITP is to provide the district and its local municipalities with a planning guide to overcome the challenges identified within the transport system (Sedibeng Draft Development Plan 2022/27:34). In essence, within the context of this study, SDM in Gauteng province is fully mandated via the Transport and Infrastructure Directorate to ensure that the minibus taxi industry adheres to road traffic regulations. The district will then undertake the function of public transportation in accordance with the Municipal Systems Amendment Act (3 of 2022), in line with the Municipal Structures Amendment Act (33 of 2000).

Commuters using minibus taxis daily pay a fare per trip, which means they are entitled as customers to some level of service satisfaction where the improvement of service quality is paramount. In this instance, management of the taxi industry must be proactive in addressing pressing issues of quality in line with commuter satisfaction with road safety as a priority. The total quality management (TQM) philosophy is relevant for this study as it has a strong focus on the notions of customer satisfaction, process enhancement and management leadership. This study is premised on the principles of TQM as an intervention framework to enhance commuter satisfaction with road safety in the SDM.

As already mentioned above, this study will be conducted guided by TQM principles, which is underpinned by the systems theory. The concept of TQM has been defined by various scholars, practitioners and researchers. A cursory review of the academic literature reveals a cluster of concepts and terms for understanding TQM. Montgomery, Jennings and Pfund (2011:30) refer to the concept of quality as having a range of meanings and nuances, which render it, in a sense, indefinable. Oakland (2014:3) further argues that quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy given needs. TQM can also be defined as a continuous quest for

excellence by creating the right skills and attitudes in people to enable the prevention of defects (Steenkamp, 2012:9).

TQM is an organisation-wide activity that must reach every individual within an organisation. The critical factors of TQM found in the literature vary from one author to another, although there is a common core, informed by the following characteristics: customer focus, leadership, quality planning, management based on facts, continuous improvement, human resource management, involvement of all members, training, work teams and communication systems, learning, process management, cooperation with suppliers, organisational awareness, and concern for the social and environmental context (Tari, 2005:183).

In the context of this study, commuters are viewed as customers within the minibus taxi industry. From a TQM perspective, commuters' satisfaction with the service provided should meet their needs and expectations. Customers have expectations regarding an organisation they patronise. If those expectations are not met, they become dissatisfied and may stop patronising it (Mehra & Ranganathan, 2008:3). TQM philosophy holds that performance is enhanced by designing products and services to meet or exceed customer expectations by empowering workers to find and eliminate all factors that undermine a product or service. Thus, TQM promotes organisational effectiveness through 1) promoting stakeholder satisfaction; 2) pursuing continuous improvement; and 3) fostering proactive leadership (Werner, 2011:389). This study seeks to deepen an understanding of the implementation of TQM as underpinned by the systems theory within the public transport landscape with specific reference to commuter road safety.

As described by Abahe (2015:265), a quality management system is intended to establish the company's vision and develop specifications to be met by the company's employees. Companies can benefit from a quality management system by selecting and implementing one that is suitable for their operations. This allows the organisation to maintain current levels of quality, meet the customers' requirements and retain motivated employees. The ISO 9001:2008 quality management system meets these requirements; however, it must be implemented, documented, maintained and continuously assessed to ensure improvement in accordance with the ISO 9001:2008 standard (Abahe, 2015:265).

Exponents of the systems theory are Ludwig von Bertalanffy, Talcott Parsons and Norbert Wiener. As a biologist, Von Bertalanffy (cited in Brits, 2010:22) argues that living organisms should be studied. This point of departure is contradictory to the traditional scientific notion of breaking entities into separate parts to understand how the parts function. Since the 1930s, all studies of living systems,

namely organisms, parts of organisms and communities of organisms, emphasise a ‘new way of thinking’ in science in terms of connectedness, relationships and context. According to Holtzhausen (2000:118), general systems theory provides a way to focus on the effects of the “interrelationships of complex phenomena (as parts of the system) on the system as a whole”. The nucleus of the systems theory is therefore “the whole is more than the sum of its parts”.

According to Larsson, Dekker and Tingvall (2009:116), systems thinking is “contextual thinking”. Things should be explained in terms of their context, which means explaining them in terms of their environment. Systems thinking can also be viewed as environmental thinking. Anderson (2006:26) emphasises that the systems theory serves in response to demands arising from its environment whereby the notion of interrelatedness, interdependence and interconnectedness is significant. Within the context of this study, the systems theory will be discussed in terms of phases, including inputs (commuters’ needs and expectations), processing (taxi industry and government engagement through road safety measures) and output (improvement of commuter road safety). This implies that it can be through the involvement of all stakeholders in the taxi industry whereby factors contributing to the high rate of road accidents will be identified.

## **1.2 Problem statement**

The World Health Organization's Global Status on Road Safety 2020 indicates that globally, 1.3 million people are killed on the world’s roads each year and 50 million are injured. It is estimated that 2.4 million people will die in road traffic accidents by 2030. Road traffic injuries are among the three leading causes of death for people between 5 and 44 years of age (WHO, 2020:28). RSA, as a developing country, has an unacceptably high rate of road traffic accidents, with more than 14 000 fatalities and an estimated 150 000 injuries per year, with the minibus taxi industry taking the lead. According to studies conducted by Road Traffic Management Corporation, approximately 19 of the 36 daily fatalities on South Africa’s roads are related to minibus taxi accidents (Road Traffic Management Corporation, 2023:11).

More than half of those killed are pedestrians, motorcyclists, or cyclists. Crash injuries are estimated to be the eighth leading cause of death globally for all age groups and the leading cause of death for children and young people 5–29 years of age (PIARC, 2023:4). The Consumer Affairs Act (7 of 1996) emphasises the protection of passengers from exploitation by public transport operators. This Act stresses that passengers must exercise the right to choose considering quality, efficiency, effectiveness, affordability, reliability of services and most importantly safety. The Gauteng province appears to have

the highest incidence. The minibus taxi industry's involvement in road accidents in the SDM calls for concern. In this region, according to the Integrated Transport Plan (2022:34), the minibus taxi industry contributes about 69% to commuter fatalities in the SDM. The study examined the reasons the taxi industry's road accidents remain high despite annual awareness campaigns held in October, the designated public transport month (SDM IDP 2022). Challenges faced by the minibus taxi industry affect the economy and members of the public, particularly commuters regarding the aspect of road safety. The high rate of road accidents has negatively affected the reputation of the minibus taxi industry in South Africa and remains a significant challenge within the public transport sector.

### **1.3 Significance of the study**

Research on public transport has been conducted extensively in South Africa, with some studies focusing on the minibus taxi industry. Several theses and articles have been published, including:

- Factors influencing payment convenience in the minibus taxi industry in South Africa (Luthuli, 2020)
- The South African minibus taxi industry: Marshalls and the impact of COVID-19 on the minibus taxi industry, a literature review (Muthinge & Machobane, 2020)
- Driving sustainability of minibus taxi industry in South Africa (Mathu, 2022)
- The South Africa minibus taxi industry and its operators (Muthige, 2022)
- Digital transformation of South Africa's minibus taxi industry (Fobisi, 2023)
- The South Africa's minibus taxi industry: captive users and a lack of regulation (Jacobs, 2024).

These studies mainly centred on minibus taxi violence and the regulation of the minibus taxi industry. The enhancement of road safety for commuters through the application of a TQM approach in the minibus taxi industry is an area that has been overlooked.

This study on road safety offers a unique perspective on the minibus taxi industry and, more specifically, in the SDM. In this instance, road accident challenges related to the minibus taxi industry within the SDM are further identified. In essence, this study describes why road accidents in the minibus taxi industry are high despite little intervention from national and local governments. Empirically, this study is premised on the key quality factors of the TQM approach to develop the above-mentioned framework to enhance road safety for minibus taxi commuters in the SDM. In addressing road safety problems, TQM, as a management philosophy, is used to enhance commuter satisfaction in the SDM. The outcome of this study will contribute to improving the safety of minibus

taxi commuters at a national level. In addition, this study could serve as a reference point concerning the road safety for the Department of Transport nationally, cascading down to local municipalities in various parts of South Africa. It is envisaged that the research will be utilised by taxi management, scholars, students and academics in the field of transport logistics and related fields. The findings of this study will be disseminated among various stakeholders in the minibus taxi industry.

#### **1.4 Research questions**

This study answered the following questions:

- What are the developments within the minibus taxi industry in South Africa?
- What is the state of the minibus and taxi industry in terms of road safety in the Sedibeng District Municipality?
- What are the perceptions, needs, and expectations of commuters in the minibus and taxi industry as key stakeholders related to road safety?
- What is a suitable intervention framework that can address the alarming road accidents involving minibus taxis?
- How can the Total Quality Management philosophy and principles be applied in the management practices of the minibus-taxi industry to improve the safety of the commuter road?

#### **1.5 Research objectives**

This research achieved the following objectives:

- Analyse the developments within the minibus-taxi industry in South Africa.
- Examine the state of road safety of the minibus-taxi industry in SDM;
- Gather and interpret qualitative data on the perceptions, needs, and expectations of commuters as key stakeholders in the minibus taxi industry;
- To develop the intervention framework that will address the safety of the road in the minibus-taxi industry's road safety; and
- Apply the TQM philosophy and principles in the management of the minibus taxi industry with regard to the safety aspect of the road.

## 1.6 Research methodology

This study is carried out through a qualitative research design with a descriptive approach in which triangulation is taken into account. Triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena (Bryant-Lukosius, DiCenso, Blyeth & Neville 2014:1). The main purpose of descriptive research is to describe set of circumstances. The main feature of this method is that the scientist does not have direct control over the variables; he or she can only report what is happening or what has happened (Mishra & Alok, 2017:2). Qualitative research methodology was preferred as it had helped answer research questions and achieve the research objectives of this study. Saunders, Lewis and Thornhill (2020:291) described research design as the framework of the study on how to generate empirical evidence to examine the research questions. The empirical evidence for this study was derived from the data collected from participants in the minibus taxi industry.

### 1.6.1 Research design

There are various studies in the field of qualitative research such as those identified in (Rundowns, 2021:04): *Historical study*, the purpose of a historical study is to draw conclusions about the present and future, based on research conducted in the past; *Phenomenology*, here the researcher looks to gather information that explains how individuals experience a phenomenon and how they feel about it; *Grounded Theory*, the researchers seek not only to identify problems in social scenes, but also to define how people deal with those problems; *Ethnography*, researchers pursuing this study format will immerse themselves into the culture they are researching; and *Case study*, the researcher draw upon multiple sources of data, such as observation, interviews, and documents among others.

Research design is the plan that deals with aspects of complete design from the study type, data collection approaches, experimental designs, and statistical approaches for data samples (Bairagi & Munot, 2019:70). There are various research designs such as; Descriptive research design, it deals with finding out the characteristics or particular behaviour or pattern in a specific group; diagnostic research design, it is trying to conclude with findings that establish relationships or associations; experimental research design, here is about making attempts to or infer to come up with new things; exploratory, is about inventing or discovering new things; Hypothesis testing research design, the study deals with finding out the causal relationship between variables associated (Bairagi & Munot, 2019:77).

This research has been carried out using various techniques that are classified as qualitative methods. As Mahlala (2019:158) also emphasised that qualitative research seeks to understand phenomena under study. This study will follow a descriptive approach, as Babbie's (2008:99) argued that descriptive studies answer questions of what, where, when and how. Minibus-taxi industry stakeholders (minibus-taxi owners, commuters, drivers, and Sedibeng District Municipality authorities) had the opportunity during this study to reflect on their experiences and involvement in road safety aspects. In essence, the descriptive research approach was suitable for answering research questions and addressing the objectives of this study. Manoharan (2010: 14) emphasises that... 'Descriptive research concerns conditions or relationships that exist; practices that prevail; beliefs, point of view, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing'.

### **1.6.2 Population and sampling**

Deciding on a sample or unit of analysis should include consideration of the feasibility of collecting and analysing the data, the validity thereof, as Devlin (2021:340) adds that researchers want to be able to say that their sample mirrors, or its representative of, the population of interest. The perceptions of all commuters in the minibus and taxi industry towards road safety cannot be directly observed, but this does not mean that researchers must remain ignorant. According to Remler and Ryzlin (2022:156) added that the population the study aimed to investigate in the first place, thus sampling is indispensable to the researcher. Usually, the time, money, and effort involved do not allow a researcher to study all possible members of a population. Furthermore, it is generally not necessary to study all possible cases to understand the phenomenon under consideration.

According to Burns & Bush (2016:102), the target population is defined as a total group to be studied, the grand total of what is being measured within a defined area. Research was restricted to selected areas within SDM's local authorities, including the Emfuleni, Lesedi and Midvaal local municipalities. The researcher chose these areas for accessibility and feasibility purposes in terms of data collection. In these areas, minibus-taxi commuters as participants will be considered given their experiences in utilizing minibus-taxis as a form of public transport. The members of the committees of the main minibus-taxi associations are also participants in this study to show their involvement in road safety through the management of taxi operations. Officials from taxi associations are the main priority of this study, as the application of TQM will be relevant in their management of the industry. Municipal officials designated to address public transport related challenges were also considered for interviews to describe their involvement or intervention in road safety aspects.

### 1.6.1.1 Sampling techniques

In SDM the minibus-taxi industry represents 25% of commuters (SDM IDP 2022). A sample of approximately 10% were engaged as participants for the purpose of this study, as recommended. As indicated above, since this study followed a qualitative approach, a data saturation point guided the researcher to stop further investigations in the form of interviews (Maree 2010:79). A nonprobability sampling technique was utilized (Manoharan 2010:21). In conducting this study, two broad sampling techniques were applied as identified by Glesne 2016:51):

- Firstly, convenience sampling, which involves the selection of the most accessible subject that is cost effective. In this study, convenience sampling was applied for victims of road accidents involving minibus-taxis whereby records can be traced from law enforcement agencies; and
- Secondly, judgmental sampling, referring to the researchers' selection of the most productive sample to answer the research questions was done. In this instance SDM officials and minibus-taxi associations' committee members responsible for day-to-day operations within the minibus-taxi industry were considered due to their experiences in the management of the industry. In SDM, the Sedibeng Taxi Council serves as the umbrella association of about four taxi associations from Vereeniging, Vanderbijlpark, Meyerton and Heidelberg. In the minibus-taxi industry there are other local associations per route within which the minibus-taxis operate.

### 1.6.1.2 Sampling size

Qualitative research experts argue that there is no straight forward answer to the question of 'how many' and that sample size is contingent on a number of factors relating to epistemological, methodological and practical issues (Vasileion, Barnett & Young, 2018:2). Many factors were taken into consideration to decide on a sample size for research. The bigger the sample size, the better the results of the research. Factors such as the time needed, costs involved, and the circumstances of the people involved affected how big the sample size had to be.

The following sampling size was captured for participants: Taxi Associations  $n=8$  (1= $n$  from eight umbrella associations); Commuters  $n=45$  ( $n=15$  each local municipality); Designated official from Transport Directorate  $n=1$  of SDM; and  $n=3$  from umbrella commuter associations in three local municipalities. Thus, the total number of participants is  $N=56$ .

## **1.7 Data collection tools**

Data was collected by means of a literature study on the topic. According to Mishra and Alok (2017:6), the researcher has to review two types of literature first is the conceptual literature which is related to the concepts and theories, and second is the empirical literature which consisting of previous studies similar to the proposed research problem. The researcher has undertaken vast literature review concerning the research problem in terms of high rate of road accidents involving minibus taxi industry. Furthermore, in-depth interviews were conducted with relevant stakeholders; in-depth interview according to Silverman (2011:137) is a particularly useful method for examining the social world from the points of views of research participants. Lastly, data was collected by means of observation whereby it enabled the researcher to draw inferences about perspectives which could not be obtained by relying on literature review and interviews (Maxwell 2012:106). The following is a description of these data collection mechanisms to be utilised i.e., a literature review, interviews and observation:

### **1.7.1 Literature sources**

The theoretical framework of this study was drawn based on the following literature sources; books, journals of public transport, academic articles, policy documents, and relevant government publications among others. According to Babikir, Ali and Abed-elWahab (2012:16) a literature review focuses on the background of the study and the research problem. In addition, Repko and Szostak (2021:128) stress that literature search also serves to demonstrate adequacy in the disciplinary research on the problem.

Adu and Okenke (2022:71) state that a literature study provides a general description of the study phenomenon through the eyes of the people who have experienced it first hand, and provides a theoretical grounding or paradigm before data collection. As already mentioned, the literature study in this research reflected on issues such as; the historical background of the minibus-taxi industry, road safety in South Africa and road accidents involving minibus-taxis on national, provincial and local government level, documents relevant to the management of minibus-taxi road safety aspects on municipality (local and SDM) governance levels, the philosophy and principles of the systems theory, TQM and the notion of continuous improvement.

### **1.7.2 Interviews**

According to Thomas (2023:204) an interview provides opportunities for gathering data through direct face-to-face interaction between individuals, gaining in-depth understanding of participants in the natural and relaxed settings. Structured as well as unstructured interviews are regarded as the most suitable techniques were used during this study. According to Brewerton and Millward (2011:69-70) structured interviews involve a prescribed set of questions which the researcher asks in a fixed order, whilst unstructured interviews allow the researcher *carte blanche* to address any or all of a given number of topics which may be of interest to the research. Generally, both these types of interviews enabled the researcher to understand the participant's roles, experiences and expectations particularly on road accidents involving minibus-taxis in Sedibeng District Municipality (SDM). As attested by Maree (2011:87) participants may propose solutions or provide insight into the phenomenon being studied due to structured interviews being conducted.

The following participants were contacted for the purpose of interviews, utilizing a suitable type of interview per kind of participants;

- Structured interviews were utilised for designated minibus-taxi associations' committee members and SDM designated officials in the Transport Directorate. Structured or scheduled questions are preferred for these participants since it was easier to set an appointment and conduct interviews during office hours.
- Unstructured or semi-structured interviews were utilized for minibus-taxi drivers and commuters. These participants were approached at minibus-taxi ranks since it was impossible to set appointments for interviews.

It was taken into consideration that interviews will be conducted until the researcher reach data saturation point. Rubin and Rubin (2012:30) emphasise that data saturation point is an instance whereby interviews are no longer yielding new data.

### **1.7.3 Observation**

During this study, observation was useful for data collection. According to O'Leary (2021:262) observation is a systematic method of data collection that relies on a researcher's ability to gather data through his or her senses. In essence, observation puts the researcher in the context that is of interest and helps with the collection of data. Remler & Ryzin (2022:81) refer to two broad types of observational activities: participant and non-participant. With participant observation, the researcher

immerses him/herself in a situation alongside target participants in the field. The aim here is to become an accepted member of the participatory community. In non-participant observation, the researcher stands back from the situation and observes at a distance either *in situ* or using video material.

The researcher travelled on a minibus-taxi regularly during the course of this study, in the process becoming participant and non-participant observer by noting data relevant to attain research objectives. These participant observations are preferred in this study since they are the most unobtrusive data collection techniques (Remler & Ryzin, 2022:82). Both observational activities were preferred for this study whereby notes were taken pertaining to the following:

- Observation took place in minibus-taxi ranks to have a clear picture of minibus-taxi operations in order to further identify relevant contributing factors to road accidents;
- Investigated by means of observation the impact of minibus-taxi routes allocated per minibus-taxi association in SDM in line with the enhancement of road safety;
- Observed the infrastructural conditions of roads utilised by minibus-taxis daily, i.e., road signs, potholes and activities taking place in the vicinity which could have a direct or indirect influence on road related accidents (particularly street vendors on sidewalks).
- General inspection of minibus-taxi vehicles (visible conditions of these vehicles to determine road worthiness i.e., speedometers, mirrors, lights, wheels etc.)

To record observations, a template was drawn up as recommended by Maree (2011:85) to capture two dimensions: Description of what is observed i.e., thick description of what takes place which should not include any value judgments; and reflection about what happened i.e., thoughts or ideas about the meaning of what was observed.

### **1.8 Data analysis strategy**

In analysing data, raw data was used in creating a descriptive model that represents cases under study. It is to be taken into consideration that in all qualitative studies data analysis is an on-going process from the start of the research project. In this instance phenomenological analysis processes were followed whereby reading, reflection, and writing and rewriting will enable the researcher to transform the lived experiences regarding road safety into a textual expression (Maree 2010:102-103). This study used coding and memos, whereby the transcription and analysis of field notes or interviews begins immediately following the events, and there is a continuous and responsive interaction between the

collection of data and analysis, with the data directing the coding process and vice versa (Richard & Morse 2013:194).

### **1.9 Ethical considerations**

In undertaking this research project North-West University (NWU) ethical standards were adhered to. This research proposal was subjected to Basic and Social Sciences Research Ethics Committee (BaSSREC) review and scrutiny in line with acceptable ethics requirements. The researcher had also completed Research Ethics Online Training Module for the Social Sciences and Humanities through Macgaurie University. According to Thomas (2023:38) ethics are principles of conduct about what is right and wrong. When applied to research, ethical principles encompass some decisions and dilemmas that do not just pit right against wrong, but balance one right action against another action, considering conflicting interest of the parties involved. All relevant minibus-taxi stakeholders will be contacted by following the correct and proper procedures in conducting this research project. The reason for undertaking this research was communicated to all participants involved. Thus, the following ethical principles were observed in the research study:

- **Informed consent:** Participants were given the choice to participate or not to participate and furthermore be informed in advance about the nature of the study.
- **Right to privacy:** The nature and quality of participants' performance were kept strictly confidential.
- **Honesty with professional colleagues:** Findings are reported in a complete and honest fashion, without misrepresenting what has been done or intentionally misleading others as to the nature of it. Data was not fabricated to support a particular conclusion.
- **Confidentiality/Anonymity:** It is good research practice to offer confidentiality or anonymity, as this led to participants giving more open and honest responses. In this instance personal particulars of participants are not disclosed in any form.

### **1.10 Outline of chapters**

This section presents all the chapters that compiled this study. These chapters include;

#### **Chapter one: Introduction and background of the study**

This chapter familiarized the reader with the topic under study. The first phase of this chapter covers the brief historical background and development of the minibus taxi industry in South Africa.

Reference is given on Total Quality Management (TQM) definitions from various scholars who wrote extensively on philosophy and principles of TQM. The account of systems theory's relevance to minibus taxi industry is drawn in this chapter. Furthermore, the problem statement, significance of the study, research questions, research objectives and research methodology subsections are discussed.

### **Chapter two: The development of the minibus-taxi industry in South Africa**

In this chapter the through historical background will be presented to highlight the minibus-taxi industry development, thereby highlighting stages where challenges emanated.

### **Chapter three: Road safety and the minibus-taxi industry**

In this chapter emphasis will be placed on the challenges facing the minibus-taxi industry with regard to road safety in the country and also in SDM. The factors contributing to road accidents involving minibus-taxis will be described.

### **Chapter four: Theoretical framework of Total Quality Management**

TQM philosophy and principles will be thoroughly discussed as the theoretical framework underpinning this study in line with systems theory. In this chapter all TQM principles will be critically discussed in order to show their relevance in the management of the taxi industry.

### **Chapter five: Research methodology**

This chapter will present research methods and techniques utilised in the undertaking of this study.

### **Chapter six: Data presentation and analysis**

This chapter will present all the data which was collected in the field. In-depth interpretation and analysis will be offered in this chapter.

### **Chapter Seven: Summary of findings, conclusion and recommendations**

This chapter will conclude the study by presenting findings and thereby offering recommendations.

## CHAPTER TWO

### HISTORICAL BACKGROUND AND DEVELOPMENT OF THE MINIBUS-TAXI INDUSTRY IN SOUTH AFRICA

#### 2.1. Introduction

Public transportation is one of the fundamental enablers of urban and rural environments, since travel is necessary to access work, education, social services, leisure, and many other essential aspects of society (Walters 2008:105). According to Finn (2012:39) this is the outcome of the planned development of the urban and rural form, and of the decisions taken by individuals about where they live and work. Urban and rural areas with good public transportation systems minimise the travel costs, lost opportunity costs, and stress for both the inhabitants and the area itself. In most cases, transportation systems do not serve everyone effectively, especially those without cars and those who live away from central areas. According to Mathu (2019: 22), even in suburban areas, many people who do not have access to good public transportation become marginalised and are at risk of being socially excluded, with a lower participation in society.

In this discussion the focus is placed mainly on passenger public transportation with reference to land public transport referring to trains, buses, and minibus taxis. In this study, the central emphasis is on the minibus-taxi industry within inland provinces in South Africa such as Gauteng, Limpopo, the Free State and the North-West. The main objective of this chapter is to give an account of the historical background and development of the minibus taxi industry in South Africa. In summary, the emergence of the taxi industry will be discussed in relation to the taxi industry's developmental stages. This chapter will indicate the origin of the taxi industry in order to trace the reasons and factors that led to its establishment.

It will be imperative to give an account of the emergent phases of taxis before democratic dispensation and during the post-94 period to look at the reasons justifying the necessity for transition. As Puche (2016:12) has emphasized, it will be of significance to indicate to what extent the Department of Transport plays a role as an executive institution charged with implementation of appropriate public transport policies. Additionally, the formalization processes undertaken for the benefit of the taxi industry will be extensively discussed. In the final instance, the introduction of taxi recapitalization policy will be summarized as one of the instrumental policies implemented for the purposes of improving public transport services in South Africa where the road safety aspect is paramount.

## **2.2 Historical background of the minibus-taxi industry in South Africa**

There is a large body of literature that is germane to the dramatic growth of the minibus-taxi business in South Africa. The minibus-taxi industry has been celebrated as one of the most extraordinary socio-economic phenomena in South Africa. According to Khoza (2011: 18), the growth of the minibus-taxi industry has been seen as a 'silent revolution that transforms South Africa into one of the most integrated economies' and as the fruit of 'popular non-racial capitalism'. Finn (2012:39) further attests that some analysts have praised the minibus-taxi industry as one of the 'success stories' of black small business. However, the minibus-taxi industry in South Africa has a history that is closely linked to the history of apartheid. A feature of apartheid as an institutionalised racism introduced in the early 1960s was that other races except whites had very limited legal access to business opportunities, venturing into public transportation for that matter.

Vegter (2020:02) added that one of the most enduring legacies of apartheid in South Africa is the location of vast formal and informal settlements on the periphery of towns and cities, colloquially known as townships. This spatial planning located the primarily black, working class far from industrial, commercial or domestic employment. Most township residents being relatively poor, many could not afford the private motor vehicles that were ubiquitous even among working-class whites. Although there were some bus and train services, the government failed to provide adequate formal public transport that could serve to move township communities to and from home, work, shops, schools, and basic amenities.

In the minibus-taxi industry, for example, it was difficult and almost impossible for a black person to acquire a permit to operate (Slob 1999:2). During the 1980s, the share of minibus taxis in the African commuter market in South Africa had rocketed from virtually zero to the single largest, overtaking both the train and bus industries in the process. In the early 1970s, buses and trains were well covered with transport policies pertaining to regulations and accessibility to capital resources. Whilst the buses and trains were enjoying the long honeymoon with Government the minibus-taxis strangely emerged although under stringent operations (McCaul 1990:27). In essence, one could not really refer to such operations as a decent business venture.

### **2.2.1 Meaning of minibus-taxi**

Minibus taxis, despised by some and loved by others, have hundreds and thousands of South Africans that depend on them daily. The taxi industry is characterized by imaginative hand gestures which could

be seen on the streets of Soweto, Soshanguve and Vaal Triangle in Gauteng, and the 'kaap-toe-nou' (put me half way) cries in the Cape Flats, Langa and Crossroads in the Western Cape. The accommodating slowdowns in the dusty villages of Umtata and Qumbu in Eastern Cape as well as on the streets of uLundi via Pietermaritzburg to Durban in KwaZulu Natal could be felt. The hire cars at Lebowakgomo and Musin taxi ranks in Limpopo also carry people to different destinations. Hand gestures could also be seen around Rustenburg via Klerksdorp and Potchefstroom in North-West, and in Mpumalanga areas such as Malelane and Nelspruit one could hear shouts 'taxi, taxi...' not forgetting Bloemfontein areas via Welkom around Mothusi Road in the Free State. Minibus taxis everywhere! When one travels outside South Africa, there are also taxis which are called by various names but then operating for similar objective which is to meet public transportation needs (McCaul, 1990).

It is imperative to clarify exactly what the meaning is of the word 'minibus-taxi' as is called in South Africa, since not all countries operate this mode of transportation. Therefore, minibus-taxi is the name to be used throughout this study. It simply refers to a small bus, typically used for short to long distances with a fixed amount charged per trip. According to Silva (1999:71), this mode of transport is often identified with words, such as black minibus-taxi or kombi taxi, to distinguish this type of vehicle from a metered taxi.

The minibus-taxi is a light vehicle, usually a sixteen-seater minibus, which transports passengers on a fixed route for a fixed fare (as does a bus), but does not operate on a timetable (schedule). Such minibus-taxis operate on both urban and long-distance routes as well. This kind of service was probably introduced in the 1950s; until the late 1970s the vehicles used were normally larger motorcars, and relatively few were in service at the time (Tobisi, 2021:18). The sector of minibus-taxis has owners of 'private cars' who are also the employers, who hired drivers, although some of the owners preferred to drive their own vehicles. In essence, one could not deny the significant role which the minibus-taxi industry play in the South African public transportation service.

### **2.2.2 Reference of minibus taxis worldwide**

Minibus-taxis operate all over the world; they are called in different names and operate uniquely from country to country; in Kenya it is matatus; jeepneys in the Philippines and Istanbul; minibuses in Hong Kong, Cairo and Kuala Lumpur; bakassi (converted trucks) in Khartoum; or publicos in Puerto Rico. In many instances they are metered minibus-taxis responding to special calls for casual trips, but ply established commuter corridors charging fixed fares set by local minibus-taxi association for the assigned route (Markman, 1984:37).

In South Africa, minibus taxis currently in use are manufactured by several companies. There were 23 minibus models on the South African market during the 1980s, made by six different motor vehicle manufacturers. Toyota South Africa believed that 50% of African minibus operators use its Hi-Ace minibuses (there are six different models) and Nissan South Africa believed that about 40% use its E20 minibuses (four models). While they hold some 90% of the minibus-taxi market between them, Nissan and Toyota accounted for just over 50% of all minibuses sold between 1980 and 1988 (Barolsky, 1989:28). These percentages regarding the usage of models could not be recognized prior the thorough regulation of the minibus-taxis by the relevant authorities.

### **2.2.3 The emergence of the minibus-taxi business**

Since 1986 the use of minibus taxis by commuters has become an increasingly conspicuous feature of South African passenger transport. According to McCaul (1990: 13), the shift from the large American saloon cars (such as Valiants or Chevrolets), which numbered only a few hundred, to the minibus-taxis in the late 1970s had dramatic effects on commuting. South Africa contributed its own offering, the 'kombi', to the international shared minibus-taxi scene. By 1989 there were some 2 250 000 commuters, and the minibus-taxis' share of this market had rocketed from virtually zero to the single largest-having overtaken both bus and trains (McCaul 1990:13). According to a National Black Panel paper presented by the Department of Transport in 1990, minibus taxis during the 1980s carried 675 000 commuters to work every day. It may be added that the minibus-taxi industry has never been established in formal policy arrangements by the authorities at the time; hence it was identified as an informal business sector.

### **2.2.4 The impact of political struggle on transportation: strikes and boycotts**

South Africa could be seen as normal and rosy from a distance, although its history may be unique compared to other African states that were under colonial rule. The political landscape in South Africa compelled most people to flee the country from early 1950 due to political struggle, and others in business as owners could not make reasonable profit, given the circumstances. In fact, there were various reasons that pushed people out of this country, and that gave birth to 'unregulated industries', the minibus-taxi industry being one of these industries (Khoza 2012:27). The National Party invented apartheid to cement its control over the economic and social system; the social custom of apartheid was systematized under law (Slob 1999:2).

The implementation of the policy, later referred to as "separate development" was made possible by the Population Registration Act 23 of 1950, which put all South Africans into three racial categories; Bantu (black African), white and coloured (of mixed race) and fourth category, Asian (Indians and Pakistanis), was added later. The system of apartheid was enforced by a series of laws passed in the 1950s: such as the Group Areas Act 17 of 1950 assigned races to different residential and business sections in urban areas, and the Land Acts of 1954 and 1955 restricted non-white residence to specific areas.

These laws, alarming as they were, could not be ignored, as they impacted the people who were behind the economic growth of the country. As Ackerman and Duvall (2000:15) pointed out, the apartheid system's weakness was that the prosperity of white South Africans depended upon the labour of black Africans. As indicated earlier, the system could not hold for any longer, but rather revolutionaries spring up. Strikes became the order of the day so that even public sector employees joined the ranks. In this case, municipal bus drivers had to contribute, and this resulted in municipal bus boycott. In essence, public transport during this period suffered a heavy blow leaving commuters stranded (Machobane, 2009:26).

### **2.2.5 Impact of apartheid legislation on public transport**

The history of South Africa in the 1950s was marked by political struggle triggered by discontent in the way the country was governed. Public transport sector during that era of revolution could not enjoy any comfort, as apartheid transport policy deprived most people to have a say in transport matters (Orcutt 1997:1). Black people in South Africa were separated according to tribe and race according to various legal acts. This separation caused migrant workers to live far from the white 'suburbs', in jail-like barracks and locations. The enactment of Group Areas Act 41 of 1950 forced physical separation between races, as a result different residential areas were created for different races. This led to forced removals of people living in "wrong" areas, for example, Coloureds living in District Six in Cape Town the area which was not designated for them (Evans in Khoza 2003:2).

The system of separate development created massive problems as far as public transportation was concerned. Separation meant that these groups had to face challenges in using transportation to and from work daily, which was far from where they lived. They used buses and trains as the preferred modes of transportation (Fourie 2003:18). This was through the prosperity of white supremacy in South Africa, which depended upon the labour of black Africans to a lesser extent; Indians, Asians and

Coloureds. Davenport and Saunders (1999:7) point out that the system also depended upon the migrant's cooperation in South Africa whose population in 1951 included:

- 2, 560, 003 African (Blacks)
- 1, 103, 016 Coloured
- 366,664 Asian and Indian

According to Viljoen and Sekhampu (2013:729) there were various segregation laws which were passed before the National Party took complete power in 1948. During that period, the most significant acts were the Natives Land Act 27 of 1913, and the Native Urban Areas Act 21 of 1923. According to these acts, it was illegal for black people to purchase or lease land from whites except in certain reserves. As a result, black occupancy was restricted to less than 8% of South Africa's land where there would be no meaningful economic influencers. This implied that leaving in such designated areas meant that one had to travel a long distance to acquire means of living. In this instance, the reliance on public transportation becomes inevitable, although preferred modes by commuters could not operate freely as indicated earlier. According to Barret (2003:6), it was clear that apartheid spatial development impacted directly on the public transport provided by buses and trains during that period.

During the 1970s, the living conditions within various townships in South Africa were not conducive to the development and operation of business ventures. The government system was detested by most non-whites, as a result, the unemployment rate escalated. According to Mileham (1993:37), high unemployment meant that economic opportunities had to be created outside the formal sector. There was discontent among all those affected by the unfavorable economic conditions resulting from the repressive apartheid system. There were evident signs of subversive moods in the townships, which could be triggered by anything that caused a violent reaction. The struggle in the mid-1970s was a failure of the social, political, and economic freedom of South Africa (Khoza, 1995:44).

Barolsky (1990:23) concluded that '...as a result of the township unrest, many bus companies withdrew their operations to the outskirts of townships to avoid their vehicles becoming targets of violent attacks'. In essence, these resulted in a high demand for public transport among communities, which warranted the introduction of other means of passenger transportation to be introduced; larger private vehicles such as Viliants and Chevrolets were explored. The resort of large vehicles resulted further in the emergence of the minibus-taxi industry in the late 1970s serving as counteraction to public transport challenges. Initially, the state acted to protect the existing transport systems and prevented entrepreneurs from operating minibus taxis by refusing to issue road carrier permits (Moloantoa

2006:43). It should be borne in mind that during that period minibus-taxis were not recognised within the arena of public transportation.

### **2.2.6 Bus driver strikes of 1955**

The Municipal bus boycotts resulted in the situation whereby several drivers lost their jobs, due to never-ending strikes to pull apartheid regime down. However, some of these drivers voluntarily left the service for fear of being labelled traitors if they continued driving municipal buses. Most of these drivers had Chevrolets and Valiants, which were large vehicles and since they knew the routes very well, they then started venturing in the public transport business as demands for transportation increased (More, 2006:22). It is in light of this historic development that the minibus-taxi industry slowly emerged. There were workers who were behind the economic growth in various employment sectors who had to travel to work daily.

By 1955, the leaders of the bus strike were either arrested and faced a long treason trial or went into exile due to civil disobedience and strikes. It was during this period that it was realized that there was a need for buses to be boycotted. As McCaul (1990: 23) points out, the Department of Transport identified a sharp drop in the bus transport index from 1984, following the steady rise to 1982, could to a large extent be ascribed to a switch to minibus-taxi transport, along with economic slump. Political disturbances also contributed to the change in modes. Bus drivers who decided to stick to transportation bought a number of Valliants and Chevrolets (Sedan cars) since these were large vehicles which could carry more than five passengers, though they risked to be jailed for unauthorized operations, as claimed by one of the retired minibus-taxi drivers (Modise 2011:1).

The stranded commuters could not afford private vehicles, so they had to rely on the means of public transportation provided to them at the time. Logic could have informed the regime that transportation demands were beyond the capacity of the existing number of buses. Buses used prior to the massive boycott of 1955 were municipal buses (McCaul, 1990:27), so it was not to the benefit of the struggle that people could make use of these government 'things' including the infrastructure and facilities. There was also a tendency to vandalize anything that belonged to the regime, trains and municipal buses were no exceptions, paving the way for taxis.

## **2.3 Increasing growth in the minibus-taxi industry**

The minibus-taxi industry has grown from a negligible informal sector activity in townships to the dominant mode of public transport in South Africa. As stressed by Fourie (2003:43), a closer evaluation of the progress reveals distinct periods of development mainly influenced by intervention and legislation. Thus, since late 1977 to date, the minibus-taxi industry has been in the process of infiltrating the formal economy with little success in some instances. In essence, the minibus-taxi stakeholders up until now have fought, needing to be recognized as formal operator since they seem to believe that the minibus-taxi industry contributes a lot to the country's economy.

According to Fourie (2003:43) the investment in minibus-taxi fleets totalled R 3 billion during 1980s. According to Barret (2003: 6) apartheid spatial planning directly impacted on public transport provided by buses and trains. Public transport became increasingly expensive for commuters and for the state to provide the required subsidies. Interestingly, buses and trains operate only at peak times and routes became less flexible, and the growth of the kombi minibus and taxi industry in the late 1970s was in large part a response to this. Initially, the state acted to protect the existing transport systems and prevented entrepreneurs from operating minibus-taxis by refusing to issue road carrier permits (Moloantoa, 2006).

### **2.3.1 The period 1977-1987**

The minibus taxi industry in South Africa has grown from a negligible activity in the informal sector in townships to the dominant mode of public transport in South Africa. However, expansion did not occur in a smooth and organic manner. A closer evaluation of the progress reveals distinct periods of development mainly influenced by government intervention and legislation. The period from 1977-1987 is characterised by the struggle of the taxi industry to be recognized as a public transport operator (Fourie 2005:32). The time following 1987 saw the deregulation of the industry coupled with the instigation of violence as a part of the daily operation of the industry. The post-apartheid era is distinguished by efforts to bring the industry under some form of control and regulation again.

Up to 1977 minibus taxis did not play an important role in the transport industry. Sedan vehicles, such as Valiants and Chevrolets, were used as taxis and only for trips within black towns. Bus and rail transport was highly regulated and inefficient and was the cause of various riots and boycotts. In 1977 the government, fearing that continued intervention in the transport sector would result in heightened politicisation and sustained boycotts, established the Breda commission of inquiry into transport

deregulation (Khosa in Dugard, 2001). The commission found that South Africa 'had reached a stage of economic and industrial development that allowed it to move toward a freer competition in transportation' (McCaul in Fourie 2005:38).

### **2.3.2 Land Road Transportation Boards**

In terms of Road Transportation Act 74 of 1977, all operators carrying passengers for gain still had to acquire authorization, referred to as a public carriers permit. The processes of being in possession of this permit were very cumbersome given the status quo in that period.

### **2.3.3 Application for permits for the operation of minibus-taxi**

The Road Transportation Act of 1977 which came into operation in early 1978 defined a bus as a motor vehicle designed for the conveyance of more than nine persons (including the driver). In essence, it should be indicated that the minibus-taxi industry has never been recognized as contributing to the formal economic sector, because these sedan vehicles in use were not considered suitable for public transportation. The Road Transportation Act opened the way for the introduction of the legal minibus-taxis to be used instead of sedan cars and gradually began capturing an increasing share of the black commuter market (McCaul 1990:35) and by 1982 more than 90% of so-called black minibus-taxis were identified, though not fully recognised (The Natal Witness, 22 April 1989 in McCaul 1990:39). The gradual growth of the minibus-taxi industry in South Africa led the Department of Transport to establish bodies that will deal with permit related problems, such as the Local Road Transportation Board. The board had to ensure authorization with regard to routes during operation in line with passenger intake.

According to the Transport Appeal Tribunal Act 39 of 1988 a board is defined as the body which, in terms of national land transport legislations, is charged with responsibility regarding granting, issue, renewal, amendments and transfer permissions for operation of public transport in South Africa. In terms of the Road Transportation Act, as indicated earlier, all public transport operators carrying passengers for gain had to acquire a public carrier's permit from the Local Road Transportation Boards (LRTBs). As part of the minibus-taxi permit application, the operator had to prove that existing transport facilities were not sufficient to meet the public's needs in a certain area (McCaul 1990:40). Apart from the public carrier's permit, the operator required a certificate of fitness for their vehicle. The driver had to be in possession of a public service driver's license where operation is proposed; there were further requirements specific to areas. Apparently, issuing the permits for the minibus-taxi

industry has never been the easier task; given the limited number of permits and difficulty in obtaining them, bribery and corruption became increasingly common between minibus-taxi owners and law enforcement officers (Fourie, 2003:33).

#### **2.3.4 Commission recommendations on minibus-taxi industry operations**

The Report of the Commission of Inquiry into the Road Transportation Bill of 1977 indicated that there was no control over the conveyance of passengers or goods by road before 1930, since there was almost no road transportation to speak of at the beginning of the century and there was little competition between road and rail. It was from this premise that commissions were appointed to deal with various transport modes with the aim of regulating the competition between different transport modes. Thus, appointed commissions could not shy away from the fact that minibus-taxis are also part of public transport.

#### **2.3.5 Recommendations of the Van Breda Commission on minibus-taxi**

According to Khoza (2003: 17), the government established a commission of inquiry into transport deregulation. The 1977 Van Breda Commission reflected the growing realisation that passenger transport was an unattractive government investment due to its escalating politicisation and economic inefficiency. However, it would be another decade before concrete steps were taken to deregulate transport. According to Productivity Commission Research Paper (1999) regulation of minibus-taxis generally encompasses quality and safety as well as minibus-taxi numbers and fares. The popularity of minibus-taxis grew due to the convenience, speed, and frequency of their service. Shaw (1998:8) found that the modal shift from bus and rail to minibus taxis was mainly attributable to the poor levels of service provided by the formal modes.

#### **2.3.6 Welgemoed Commission**

The success of minibus-taxi operators in the transport industry resulted in bus companies becoming increasingly concerned about competition. The bus operators' fight to retain their monopoly on one side and the growing vote in favour of the deregulation of the industry eventually led to the Welgemoed commission of inquiry in 1981. Bodies in favour of the deregulation of the industry included the minibus-taxi Owners Association, the Free-Market Foundation, and the Transport Consultation Commission (a group representing 17 private sector organizations (Ford, 1989:40). The draft bill was opposed by the South African Black Minibus-taxi Association (SABTA) as the umbrella body

(organizations in the minibus-taxi industry will be discussed at the later stage), the private sector and even the National Association of Automobile Manufacturers (NAAMSA) (McCaul 1990:45).

A draft bill based on the Welgemoed recommendations was circulated in 1983; the bill proposed that minibus-taxis be defined as vehicles carrying no more than 4 passengers; a new category of "small bus" carrying 5 to 25 passengers, operating on fixed routes, timetables, and approved tariffs is created. Licensed minibus-taxis had to be phased out over 4 years, all minibus-taxis be fitted with meters (McCaul, 1990:43). It could be deduced that the government was concerned about ever-escalating subsidies to the bus companies, wondering whether they encourage efficiency. The minibus-taxi advent meant that the buses needed even greater subsidies to remain profitable, in this case, the commission revealed that the situation was getting out of hand. (McCaul 1990:41) states that for political stability in the field of transport the government appointed a Commission of Inquiry into Bus Passenger Transportation in the Republic of South Africa chaired by Dr Peter Welgemoed.

### **2.3.7 Study of national transportation policy**

In 1985 the National Transport Policy Study (NTPS), which had been established in 1982 to bring transport policy in line with national economic reform policy, released its report (Fourie 2003:37). According to the NTPS findings, the highly regulatory framework of existing transport policy was 'contrary to the principles of national economic policy that emphasise the role of competition' (The Natal Mercury, 1987, February 03). Increasing reluctance to shoulder economic responsibility for passenger services, along with mounting pressure from the business community which supported all free market reforms, and a desire to sell on the free market to black South Africans led the government to accept the NTPS proposals (Dugard 2003:16). The NTPS report in conjunction with the recommendations of the Competition Board formed the background of the various policies, White Paper on Transport Policy, for example, tabled in January 1987.

### **2.3.8 The Deregulation Battle**

The White Paper, along with the Transport Deregulation Act 27 of 1988, established deregulation as the transport policy of the outgoing apartheid regime having noticed that the fruits from minibus-taxis could not be seen anymore. Crucially, in paving the way for the minibus-taxi industry, the White Paper legalised the 16-seater minibus to operate as minibus-taxis. Indeed, this had marked the beginning of the minibus-taxi industry as is known today (Dugard 2003:17). In 1985, the National Transport Study (NTPS) published its report, concluding that the highly regulatory framework of existing transport

policy was contrary to the principles of national economic policy that emphasize the role of competition.

Based on the NTPS findings and the recommendations of the Competition Board, which proposed the immediate and blanket deregulation of the minibus-taxi industry, the White Paper on Transport Policy (1987), along with the Transport Deregulation Act 27 of 1988, effectively legalised the 16-seater minibus taxis. The main task of the National Transport Policy Studies (NTPS) was to bring transport policy in line with national policy and constitutional developments and to rationalise the transport sector in general. The NTPS's style was more innovative than most government inquiries and the investigations brought about the first major shift in South African transport policy (McCaul, 1990: 47).

The committee of NTPS's final recommendations was that:

- 16-seater minibus be allowed to operate as minibus-taxis;
- The central government should stipulate the minimum number of minibus-taxis in each regional services council (RSC) had to allow;
- The numbers of minibus-taxis should be controlled on a quota basis in each RSC area, with the RSC to decide the maximum numbers in its area;
- The quota should be based on a formula which includes considerations such as rank space;
- The applicant should no longer need to prove the need for a service (McCaul1990:49).

It could be deduced that the study undertaken has to deal with registration-related problems and clarifying influential role which relevant authorities play, such as reference is made to the Regional Service Council (RSC). In general, the NTPS proposed that responsibility for passenger transport be devoted to RSC and that they make all passenger transport decisions affecting their area of jurisdiction within a framework of broad government policy (Pretorius 2012:33).

#### **2.4 The period from 1987 - 1994: towards the demise of apartheid**

In 1987 government deregulation process allowed market forces to determine entry into the minibus market, thus encouraging almost any applicant to be granted a permit to operate a minibus-taxi. This culminated in the growth of the minibus-taxi industry in South Africa at a phenomenal rate in the period 1987 to 1994. According to Fourie (2005:35), the position of the minibus-taxi industry over other transport modes was strengthened by the perception in the minds of commuters of it being a community-based industry, surviving against the apartheid authorities and without any subsidies. As one of the first avenues for black capital accumulation, the minibus-taxi industry almost immediately

became a contested economic terrain flooded with aspirant operators. By the mid-1990s, not only was the minibus-taxi industry over-traded, but it was also eroding the market share of other modes of public transport, particularly buses and trains.

#### **2.4.1 Free Competition in the Transport Sector**

Apart from the fierce competition that came into play between different minibus-taxi operators, minibus-taxis also started operating on high-demand corridors service by bus and rail. Therefore, minibus-taxi operators took this step to boost their income, as the original minibus-taxi routes have become so contested. This service replication reduced the level of services and the potential cost recovery of a route or mode, which is clearly a case of destructive competition. Shaw (1998:18) points out competition between operators, which reduces the potential for sustained cost recovery by individual operators, reduces the economy of scale benefits of higher-order modes, and leads to the provision of poor and inconsistent service levels to users. The ability of the bus and rail operators to recover cost is compromised by competing with the minibus-minibus-taxi since they mushroomed despite difficulties they faced.

Bus and rail operators responded to the lower demand requirements by reducing the frequency of service (essentially to inconvenience commuters). In addition to the reduced service frequency, higher overall subsidies were required by formal modes due to lower cost recovery (Fourie and Daguard 2003:36). Evidently, under conditions of destructive competition, the different modes compete directly with one another usually, through a trade-off in monetary cost and level-of-service offered to users. Unfortunately, violence also started to play an increasingly prominent role in the daily operation of the minibus-taxi industry. According to Dugard (2001 :7) the sudden permit free-for-all, set against a backdrop of the escalating community violence during apartheid's final years, established the scene for the sectarian minibus-taxi wars that have plagued the industry ever since its establishment.

#### **2.4.2 Social responsibility role of minibus and taxi operators**

According to Majeke (2003:17) at the time of deregulation, minibus taxis were held as the pride of black economic achievement within the communities they served. The minibus-taxi industry was now beginning to make itself an important component of the overall South African transport system. The incremental and systematic growth in commuter traffic borne by the industry served as an eloquent testimony to this process. Minibus-taxis during these periods were preferred mode of public transportation given reliability and social responsibility role played by operators. According to Khoza

(1992: 64), several local associations introduced a policy of transporting pensioners and elderly people for free. Some provided this service to the disabled and schoolchildren as well. Additionally, minibus-taxi operators also assisted mourners with transportation to the graveyard during funerals. According to Majeke (2003:17) in the period 1987-1994, this industry also played a role in the political struggle and transformation. However, during rallies, minibus-taxis were preferred, although it is not clear whether this was through consensus or taxi operators found them under pressure.

### **2.4.3 Minibus-taxi violence**

Dugard (2001:16) emphasized that the late-apartheid minibus-taxi violence was heavily connected with transition politics, but the major determinant is seen to be the rapid deregulation of transport, which led to an unchecked rise of minibus-taxi associations. McCaul (1990:44) also contends that the root of many conflicts in this industry appears to be because of defending routes. Additionally, the tightening of profit margins due to deregulation exacerbated this conflict. In essence, during peak hours, the effect of new entrants is not felt, but during off-peak hours when demand is low, this largely affects the profitability of established operators. According to Majeke (2003: 18) police could not do anything to stop this violence thus escalated, some even believe that this was a deliberate government action to fractionalise people to ensure that they did not unite to challenge the policies of that time. The main bone of contention was the following;

- rank space,
- poaching of passengers,
- undercutting of prices, and
- The effects of rapid deregulation (Khoza in Fourie, 2005:45).

However, the general perception prevailing among the war parties and other stakeholders is that the battle is about the routes and ranks of the minibus. However, due to fierce competition, minibus-taxi associations illegally deny others the right to operate certain lucrative routes, and this caused much conflict. The problem was not only decreasing profits and rising costs, but also the inability of the free-market system to operate in the industry, market failure had to be corrected to ensure the survival of this industry.

## **2.5 Minibus-taxi industry post-1994: democratic era in South Africa**

The transportation system most South Africans face today is a mixture of patched-up, third-rate public transport inherited from a chaotic, unregulated minibus-taxi system which is a source of swelling public

complaint. Political transformation in South Africa has opened the door to equitable and sustainable urban transportation policies. The new government policies seemed to reverse the policies by dramatically expanding and improving public transport and dissuading urban motoring. But the application of these policies across the country seems to be uneven and possibly in serious jeopardy.

### **2.5.1 The period from 1994-1999: Transformation era**

Following the general election in 1994, minibus-taxi violence continued and, in fact, escalated. This happened in sharp contrast to other forms of political violence, because during this era the political landscape in South Africa has been dominated by various political party power mongers. Dugard (2001:9) stressed that the continuation of violence into the democratic era was mainly a result of the success of violence as a means of extracting profits, as well as the inability of the post-apartheid government to contain the violence. Prior to 1994, the minibus-taxi wars were relatively few in numbers, as most were fearing to enter this business labelled informal.

### **2.5.2 Minibus-taxi violence post-apartheid period**

Minibus-taxi violence has become more widespread, decentralized, and criminal in character in the post-apartheid period (Dugard 2001:9). This aspect is clearly illustrated in figures published by the Weekly Mail & Guardian (2003) minibus-taxi violence started scaling new heights causing 291 deaths in 1996, 281 in 1997 and 394 in 1998. At the time, road safety also seemed to deteriorate, as evidenced by statistics that even more people died in minibus-taxi accidents. Minibus taxes constitute only 2% to 3% of vehicles on South African roads, but are involved in 17% of accidents. In 1998 minibus-taxis were involved in 70 000 accidents in which 900 passengers and 1 385 drivers were killed.

### **2.5.3 Consultative efforts: Minibus-taxi industry vs Department of Transport**

In 1995 the government, through the establishment of National Minibus-taxi Task Team (NTTT), took a critical step to deliberate the problems of the industry. The NTTT was launched to improve the performance of the minibus-taxi industry and investigate ways of improving road safety, increasing financial margins and ending conflicts. The NTTT held its first meeting on 20 April 1995 and comprised a chairperson from the National Department of Transport (NDOT), nine government officials from provincial departments of transport, ten minibus-taxi industry representatives, and nine special advisors. It held 36 public hearings around the country between August and December 1995, and was deliberated in two minibus-taxi plenaries (assembly of all members) in February and March

1996, after which the NTTTT's final recommendations were presented to the Minister of Transport in August 1996 (Sekonyela & Dugard 2001:6). The most significant recommendation was that the minibus-taxi industry be regulated and formalized.

## **2.6 The regulation and formalization of the minibus minibus-taxi industry**

The Productivity Commission Report (1999: vii) has stressed that regulation of minibus taxis generally encompasses quality and safety, as well as minibus-taxi numbers and fares. Thus, it is definite that an industry of this nature had to be regulated or formalized for the purposes of economic stability. There are facets of the minibus-taxi industry which according to the authorities warranted to be regulated upon in references to; quality, safety, entry restrictions and fare regulation.

### **2.6.1 Quality and Safety Regulation**

The commuters usually do not have capacity to assess all quality and safety aspects of the minibus-taxi they make use of everyday, meaning; the roadworthiness of the vehicles in question. Clearly, regulation to specific minimum levels of safety and service quality seems warranted. On the need for regulation, Majeke (2003:48) stressed that government is required to put processes in place that ensure that practices conform to the Labour Relations Act 66 of 1995 and the Basic Conditions of Employment Act 75 of 1997.

### **2.6.2 Regulation restricting entry**

A regulatory restriction on competition also reduces the incentive for minibus-taxi operators to be innovative and explore new ways of cutting costs and providing services to better meet users' needs. According to the Productivity Commission Report (1999: ix) in the absence of entry restrictions there will be many minibus-taxis. In this more competitive environment, prices are more likely to drop than to increase. This cost is borne most heavily by low-income households.

### **2.6.3 Rate regulation**

This takes the form of a prescribed maximum fare. In essence, the regulation is used to prevent undue fare increase that could otherwise arise in an environment where competition is constrained by entry restriction. In practice, the maximum prescribed fare usually becomes the norm for all minibus-taxis.

## **2.7 Formalization of the minibus-taxi industry**

In the meantime, the NDOT issued a white paper on the goals of transportation policy in 1996. These were defined to provide leadership in the following.

- promotion of safety,
- ensuring reliability, effectiveness, and efficiency on operation and
- Coordination, integration and environmentally friendly land passenger transport system.

The white paper was designed for use in urban and rural South African areas and the Southern African region and was managed in a responsible manner to ensure that people experience improving levels of mobility and accessibility (Turner, 1999). Following the White Paper, the Moving South Africa (MSA) project was launched in June 1997 with the mandate to develop a strategy to ensure that the transportation system of South Africa meets transportation needs of the country in the 21st century and therefore contributes to the country's growth and economic development (Fourie 2003:38).

The MSA's mission about the minibus-taxi industry was to implement the vision set out in the White Paper on transport in a way that would be consistent with the key thrust articulated, in an environment of limited resources, capacity and time. The MSA strategy has been based on 20-year forecasts, which are in line with global transport trends. In essence, the MSA project identified the critical problems in transport and proposed a framework for the sector to provide a world-class service. The gaps between what customers need and what the transport system is provided to them at the moment were identified as areas for development.

### **2.7.1 Impact of formalisation on the minibus-taxi industry**

The analysis of passenger transport facilities and services by the NDOT confirmed and quantified that there is a critical lack of affordable access to transport. Furthermore, the analysis proved that the public transport system is ineffective and inefficient, resulting in an increasing dependence on private cars. These problems are aggravated by inherited patterns of land use, the continued dispersion of (particularly) urban development, and the absence of integration between land use and transport planning. One of government's key tasks, identified by the MSA, was to create an enabling framework for the minibus-taxi industry to recapitalize its assets and deepen its ability to compete fairly for market share (Turner, 1999). The purpose was for the restructuring and formalization process to begin at the local level. On completion of this phase, a provincial and national infrastructure would be implemented to ensure stability in the industry.

The MSA transport stipulated that services and infrastructure should relate to: providing the lowest possible cost to the customer as a taxpayer, not only now but over the long-term; being as affordable as possible to users; and increasing in flexibility and being able to respond to changing specific sets of customer-needs, particularly for priority customers (Tuner, 1999). It could be deduced that the South African minibus-minibus-taxi industry is rooted within the informal sector, yet much of its profitability and survival have been forged and become entrenched by cultivating a presence within the formal economy. This dualism has created many internal pressures for this industry and many of these pressures have been associated with violence and conflict among stakeholders.

### **2.6.2 The establishment of SATACO as a representative transport-minibus transport organ**

The recommendations of NTTT and MSA led to negotiations between the government and the minibus-taxi industry organizations, which ultimately led to all minibus-taxi organizations agreeing to work together. As a result, in the South African Minibus-taxi Council (SATACO) was formed in August 1998 (Mail & Guardian, 2003). The council has divisions in all nine provinces and now represents all minibus-minibus-taxi operators in most of the proposals made by the Department of Transport. SATACO was formed as an industry-driven response with the aim of achieving peace and unity in the minibus-taxi industry and the development of economic benefits and empowerment for all those operators in the industry (Fourie, 2003:39). The formation of SATACO had an immediate observable effect on the minibus-taxi landscape. In the year following its formation, there was a decline in incidents of minibus-taxi violence across South Africa. It should be noted that the regulation aimed to transform the minibus-taxi industry into a customer-friendly business, which would relieve the 10 million regular minibus-taxi commuters, caught up in the fight for dominance among minibus-taxi associations.

In a bid to end conflicts, SATACO and the National Department of Transport have agreed to overhaul the issuing of new permits to emerging minibus-taxi entrepreneurs, since most routes were already over-traded. The two parties planned to introduce a colour-coded route system, satellites surveillance, and a minibus-taxi-card fare system for commuters (Mail & Guardian, 2003). With the launch of the NTTT, for the first time, one gets the impression that the South African government recognizes the minibus-taxi industry and takes well-intended action to alleviate the problems in the industry. Although the MSA document has effectively identified the dilemma in the transport industry, it did not present a detailed solution to the problems of the minibus-taxi industry. Although formalization and regulation

appear to be the only answer, efforts by the authority lacked coordination and momentum (Fourie, 2003: 40).

## **2.7. The period from 1999 to date**

As transformation in South Africa has been the talk of government officials, it became necessary for the minibus-taxi industry to be developed through a number of favourable policies. The unfettering of private transport services produced the first major, black-run South African industry, but the absence of regulation also promoted chaotic service and schedules, the absence of safety standards or accountability, unregulated fares, and the operation of hundreds of vans in major corridors served more efficiently by buses and trains. Worse still is the violence between rival companies or associations vying to control oversupplied routes and stations (Majeke, 2003, 17).

### **2.7.1 Recapitalization policy introduced by the Department of Transport**

Responding to the perceived failures and problems of the regulatory process since 1999, the government has shifted its focus to restructuring the minibus-taxi industry in terms of an ambitious recapitalisation programme. This bold programme envisages the creation of a new minibus-taxi industry, comprising large 18- and 35-seater diesel powered vehicles, and which will be regulated from the outset (Fourie 2003:40). Under the recapitalization plan, jointly developed by the Department of Transport, Trade and Industry, Mineral and Energy, and Finance, the government will subsidise owners to help them buy the new 18 to 35 seater minibus-taxis (Mail & Guardian, 2003). The idea is to replace the current 140 000 units of 10 and 15 seater petrol powered minibus-taxis in the country with approximately 80 000 units of 18 and 35 seater diesel powered minibus-taxis. This will take place over a period of five years and will amount to a total streamlining of the public transport system in the country (Turner 1999).

Nevertheless, certain conditions were laid down in the whole plan; otherwise, as the status quo would really make it more difficult for small operators to get entry and compete healthy with each other. According to Turner (1999), minibus-taxis operators are compelled by certain minimum objectives in line with recapitalization policy, which have been set in this regard as follows:

- black economic empowerment (BEE);
- job creation; and
- Support of the local automotive manufacturing industry.

A noncommercial goal of the recapitalization project has been the regulatory management of the minibus-taxi industry with the aim of improving road safety and decreasing violence within the informal minibus-taxi industry. A final implication will be the legal, commercial, and fiscal incorporation of all relevant business entities involved, with a major source of revenue for the South African Receiver of Revenue (Tuner, 1999). This process will give the South African government a fiscal mechanism for controlling the roadworthiness of minibus and taxi vehicles by manipulating the capital depreciation period. The restructuring will side-line umbrella minibus-taxi association, which is hoped to ultimately represent a new generation of more legitimate minibus-taxi operators. From the outset, SATACO has allied itself with the government's restructuring programme, hoping to be a direct beneficiary, particularly regarding recapitalization partnership deals on the new vehicles to be manufactured and in terms of transport service contracts for government-subsidized routes.

### **2.7.2 Lack of consensus on recapitalization policy**

As might have been expected, the establishment of SATACO and the proposed plans for the restructuring of the minibus-taxi industry have been without their problems and have already provoked opposition from 'those mother bodies that regard restructuring as a threat to their violence-oriented business interests' (Dugard, 2001). A month after SATACO was officially recognized, in June 1999, a splinter group of annoyed minibus-taxi associations called for the formation of the National Minibus-taxi Association (NTA). Arguing that they represent the majority of the minibus-taxi industry, the NTA issued a statement to the media, in September 1999, stating that it did not recognise SATACO.

Additionally, the NTA did not approve of the planned recapitalization of the industry because they felt that "plans to restructure the industry were compounding the problems in the industry and were directly responsible for the present chaos and violence" (Dugard, 2001). On top of this, the National Minibus-taxi Drivers' Organisation (NADTO), which claims to represent the interests of the minibus-taxi drivers, embarked on a series of highly publicised protests concerning the recapitalisation process, fearing job losses because of restructuring (NADTO in Dugard 2001).

### **2.7.3 The establishment of SANTACO**

In September 2001 delegates of all democratically elected minibus-taxi structures, Provincial Council as well as mother bodies, gathered at the Durban Exhibition Centre for the National Minibus-taxi Conference. The conference saw the launch of the South African National Minibus-taxi Council- a new structure which will embody the aspirations of the minibus-taxi operators (Fourie 2003:42). The

conference adopted a new constitution for the industry, elected a new leadership, and took several resolutions on all pertinent matters in the minibus-taxi industry. The resolutions that were agreed upon include among others the following objectives:

- road safety,
- cooperation with law enforcement,
- endorsement of the recapitalisation programme,
- improved services to commuters,
- streamline the industry and be transformed into service industry, and
- To deal with government using one voice (Robertson 2002:44).

SANTACO has backed the government in re-capitalizing the industry and has agreed to work with the authorities to implement the proposed program. However, since the Durban Conference, the Department of Transport and SANTACO have clashed over who should procure and control electronic management systems to be installed in each bus. The system will track the number of passengers and determine whether the buses are on the correct route. SANTACO President Tom Muofhe believes that SANTACO should control the systems (Lebelo, 2005:2).

The recapitalization programme, which was originally due to be launched in October 2000, has been delayed due to various undisclosed factors. However, in his budget speech in May 2002 Minister of Transport, Dullah Omar, stated that "the Government is in discussion with the South African National Minibus-taxi Council (SANTACO). Once an agreement has been reached, the best and final offer process completed, government will immediately announce the winning bids. In the meantime, consultations are taking place within government with a view to finalising all details relating to the operation of the recapitalisation programme (Budget Speech, 2002).

Omar also declared that the successful bidders to supply buses for the minibus-taxi industry recapitalisation programme could be notified by the end of June 2002. The first of the new vehicles should be on the road about three months later. None of this happened and in September 2003 Mr. Lionel October, deputy director general of the Department of Trade and Industry announced that it is envisaged that the process will reach finality by year-end 2003 and that the first fleet of 18- and 35-seater minibus-taxis is expected to hit the road during the first quarter of 2004 (Fourie 2003:43).

Nevertheless, none of these claims had materialised to that effect by November 2003, and no announcement had been made in terms of the winning bidders or the rollout date for the plan. The most recent development in the transport sector is the National Land Transport Transition Act (NLTTA), Act No. 22 of 2000. The transport policy envisaged in the MSA document will be implemented through this act. The Act set the scene for fundamental restructuring of land transport with an emphasis on public transport and will deal with issues like types of vehicle which may be used for public transport, operating licenses, and withdrawal of services in the rationalization of public transport.

## **2.8 Trends in the development of transport systems in SA**

Transport plays a significant role in the social and economic development of any country, and in South Africa the government has recognized transport as one of its five main priority areas for socioeconomic development. The effectiveness of the role of transport is primarily dictated by the solidity of the transport policy and the strategies utilized in implementing the policy. Public policy cannot be static but must be dynamic in nature. It must always be perceptive to the environment within which it operates. Policy therefore needs to be reconsidered and, if necessary, revised on a continuing basis (White Paper on National Transport Policy, 1996). The last major analysis and formulation of transport policy in South Africa took place in the mid-1980s. Since then, there have been many profound and far-reaching changes in the country, and the time is opportune for a review of transport policy given the pace of participatory democracy.

Early in 1995 the Department of Transport embarked on a project to review and revisit transport policy and formulate new policy where it has become necessary to adjust to a changed environment. This policy-making process involved, as far as possible, all role players and the public at large in identifying issues, generating policy options and discussing and accepting policy proposals. In this regard, public participation is encouraged, which will facilitate interaction between the public and government. The policies expressed in this white paper (1996) are thus the result of a broad public policy-making process. Inevitably, however, public policy, while considering many and various conflicting viewpoints on specific issues, has to enunciate government's views on what will best serve the overall national interest.

### **2.8.1 Government vision on public transportation**

The vision of the Government on transport provision has been stated as follows. To provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best

meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development while being environmentally and economically sustainable (White Paper on National Transport Policy, 1996).

### **2.8.2 Attainment of public transport goals**

A key ingredient to future success will be the sharing of this vision by all key role players, backed by coordinated and integrated planning and decision making. This requires the formulation of broad goals and translating them into specific, measurable objectives related to modes of transport. The South African transport system is inadequate to meet basic accessibility needs (to work, health care, schools, and shops) in many developing rural and urban areas. Small-scale and subsistence-farmers in many rural areas find it difficult to transport products and other commodities to and from markets. Scarce resources will be mobilized to best meet the needs of those passengers and industries who need them most and which are in the best interests of society. To meet basic accessibility needs, the transport services offered must be affordable to the user, and this will be a goal of transport planning, subject to the constraints of the financial affordability of the provision of the services.

## **2.9 Summary**

The establishment of legislated apartheid after 1948 accelerated the destruction of black settlements near urban centres and the removal of their populations to the urban periphery. In other cities, industrial zones, transportation corridors, or other buffers the system separated black townships from white commercial and residential areas. The policy of apartheid has managed to divert the poor from job opportunities and access to amenities. This burdened the workforce with enormous travel distances to their places of employment and commercial centres, and thus with excessive costs. The transport policies at the time also deprived most people of transport matters, and this exposed commuters to vast walking distances, insecure rail travel, and unreliable bus service. Although, failed to regulate the kombi-minibus-taxi industry adequately; the government largely ignored the country's outrageous road safety record; paid little attention to the environmental impact of transport projects, and facilitated transport decision-making bodies that are unwieldy, unfocused, unaccountable and bureaucratic. In all such predicaments, the minibus-taxi business survived.

Given these predicaments, the people felt that the demise of apartheid could be brought about through strikes and boycotts of municipal buses and trains included. These resulted in high demands for public transportation, which encouraged the use of private vehicles for a certain fare per destination. This gave

birth to minibus taxis since municipal buses could not be used due to boycott. The transport system inherited from apartheid also bears the scars of the anti-apartheid struggle. Transit suffered especially as conflict became more acute. The withering of transit stemmed from a combination of boycotts, non-payment campaigns, labour actions, and withdrawal of government support as the costs of repression increased. The government encouraged small black capital to invest in minibuses as it retreated from its investment in public transport. At the same time, the reality of accelerating urban migration led to the formal abandonment of "influx control" in the mid-1980s.

Burgeoning squatter settlements on the edge of already marginal townships had no access to formal services, and even residents in long-established townships increasingly had trouble reaching destinations as jobs and white populations began to move away from central cities. Since 1994, South Africa has been in the stage of transforming various services to meet the pace set among global communities. Public transportation in this regard had to merge with standard set in terms of safety and reliability, so this was an influence as the regulation and formalisation of the minibus-taxi industry came to the fore. Furthermore, the minibus-taxi fleets roaming around the streets were now labelled as not roadworthy and caused a number of road accidents claiming innocent commuters and other road users' lives. In fact, most of these vehicles were apparently death traps for commuters, hence the introduction of the recapitalization policy. However, the endeavour to revamp the minibus-taxi fleet could not sound romantic to every stakeholder within the minibus-taxi industry. Various organizations and associations have varying and conflicting views regarding the policy during the late 1990s. However, the recapitalization policy aims to address such structural and organizational problems perceived within the minibus-taxi industry, which the National Department of Transport is keen to address with the implementation of road safety related policies.

## CHAPTER THREE

### ROAD SAFETY AND THE MINIBUS-TAXI INDUSTRY

#### 3.1. Introduction

The minibus-taxi industry plays an important role in public transportation systems, both in economic and mobility terms. In the case of the former, it provides employment for a large number of people and circulates significant amounts of money. In the case of the latter, it is a flexible means of transportation capable of arriving at any destination (Poi, Ledesma & López 2018:394). However, the way the minibus-taxi industry is organised it varies across countries and even within countries. Working conditions, driver habits, and exposure to road crashes have been a subject of interest for researchers from various disciplines, including amongst others; Public Management, Medicine, Industrial Psychology, Logistics and Transport Economics. It is recognised that previous reviews on road safety could be found in empirical studies by other authors (Dalziel & Soames Job, 1997; Öz et al., 2010; Rosenbloom & Shahar, 2007).

Road safety is a key topic for this study, as the minibus taxi industry has been in the news with regard to the high rate of road accidents. According to the World Health Organisation (2023:12), road traffic accidents are one of the world's leading causes of injuries and fatalities, and the lives of about 1.19 million people are cut short annually. About 20 to 50 million people experience fatal injuries due to road accidents and many are permanently disabled. It is inevitable to use public transport for most people as efficient public transport that makes possible access to markets, employment, and investment opportunities. Road transportation is crucial within the Southern African region as it enhances economic efficiency in the movement of goods, services, and persons across different countries (Pillay 2023:34).

Road traffic accidents are causing significant economic impacts on victims, thereby to the whole nation, by costing around 3% loss of the gross domestic product (Savolainen, Mannring, and Lord Quddus 2011:3). Thus, this chapter provides a comprehensive review of the following. The State of Road Safety Worldwide; Public transport and road safety in South African roads; Road traffic regulations; Account of road accidents in South Africa; Socioeconomic impact of road accidents; Theories of road accident causation involving the minibus taxi industry; and challenges faced by the industry regarding road accidents. South Africa is a signatory to agreements in the Southern African Development Community and the Southern African region. These agreements require member

countries to cooperate and harmonise legislation for the economic development of all. It is expected that by 2030, road accidents will be a leading cause of death, overtaking diseases such as AIDS, tuberculosis, and lung cancer (WHO 2020).

### **3.2. The state of road safety worldwide**

Road crashes causing road traffic injuries and death are a major problem in modern society; this is related to the spectacular growth in road public transportation which has taken place in many countries (Partheeban, Arunbabu, and Hemamalini, 2008:59). The first road death due to a motor vehicle occurred in London in 1896 and was perceived as a highly abnormal and unfortunate event. As automobility became entrenched and motor vehicles became ubiquitous in high-income countries. However, road crashes became increasingly commonplace and by the end of the 20th century, road traffic injuries and death were viewed by many as an unavoidable, almost natural, aspect of the road traffic system (Falquist, 2009 in Randall 2019:65).

During the 21st century, road deaths coined as a (“the silent killer”) have outstripped mortality due to malaria, TB, and HIV/AIDS, with road crashes now being the 10th leading cause of death globally. More than 1.9 million people die on the roads of the world every year (WHO, 2020), the equivalent of the entire population of a small country like Estonia, exceeding the populations of Mauritius and Swaziland and approaching the population of Bangladesh. Another 50 million or more people sustain injuries each year (WHO, 2020), this figure was equivalent to 89% of South Africa’s 2016 population. For people aged 15 to 29 years, road deaths exceed all other causes of death (United Nations General Assembly 2016:45).

Although road fatalities in 2022 decreased slightly by 3.3% compared to the average for 2017-2019, there are growing concerns about the safety of commuters. This results in increased trips made by commuters generating new safety challenges. Data from the ten countries that reported these data for 2022 confirm this trend. In Israel and Switzerland, more commuters are killed in road crashes where taxis are involved. The percentage was quite high also for Germany (44%), Denmark (39%) and Belgium (38%). For example, in Switzerland in 2017 there were only 19% of road fatalities. This phenomenon particularly affected young people, attracted by the possibility of continuing to use public transport. In Japan in 2022 60% of e-bikers killed were over 75, while the equivalent figures were around 40% in Belgium and Germany (Pillay, 2023:44). The current situation is also extremely costly. The General Assembly of the United Nations notes that road crashes typically consume 3% -5% of a

country's GDP (UNGA, 2016), and in many LMICs the cost of crashes exceeds the value of incoming development assistance (Randall 2019:65).

### **3.2.1 The Global Decade of Action of the United Nations on Road Safety, 2011-2020**

The extent of the growing global road safety problem was highlighted at a 2009 gathering of transport ministers in Moscow and led to the United Nations General Assembly (UNGA) unanimously adopting a call for a Decade of Action (UNDA) for Road Safety 2011-2020. The UNDA was launched in May 2011 and was endorsed by more than 100 countries, including South Africa (WHO, 2009). Its goals were to stabilize and then reduce global road traffic fatalities by 2020, with UN resolution 64/255 of 2010 recognizing road accidents as a public health challenge that jeopardizes the achievement of the Millennium Development Goals (MDGs) (DOT, 2015). Through the UN Road Safety Collaboration, the World Health Organization (WHO) drew up a Global Plan to guide governments, civil society organisations, international agencies and the private sector during the UNDA. This plan divides road safety activities into the 5 'pillars' (WHO, 2011 in Randal 2019:66) as follows i) road safety management, ii) safer roads, iii) vehicles, iv) safer road users and v) post-crash care.

Since the advent of the UNDA, understanding of what constitutes best road safety practice has increased exponentially, and signatory countries have developed new road safety resources and action plans. WHO's Global Status Reports on Road Safety in 2013 and 2015 have helped map the progress of countries towards the UNDA target (WHO, 2013; WHO, 2015, WHO, 2020). As an additional resource, the WHO developed an interactive online map called Death on the Roads which provides a quick overview of best practice in road safety and the prevailing situation in different countries. In its 2016 annual report, IRTAD (Iceland, Sweden, the United Kingdom, Norway and Switzerland) notes that during the first half of the UNDA (2010 to 2014) road fatalities globally fell by 8.8% despite an increase in vehicle kilometres travelled – however, up to two thirds of this reduction was believed to be related to the global recession rather than to road safety measures (OECD/ITF, 2016). There were also worrying signs that the downward trend may be reversed, as many countries as possible experienced economic recovery. It is postulated that the increase in distracted driving due to mobile devices is one contributing factor in relation to this reversal (OECD/ITF 2018).

Although five IRTAD countries (Iceland, Sweden, the United Kingdom, Norway and Switzerland) had achieved fatality rates of less than 3 per 100,000 by 2015, the worst performing member country had a much higher rate of about 12 per 100,000 and South Africa (as an observer country) stood out for our markedly high rate of 26 per 100,000. Based on an overview of member countries, IRTAD concluded

that road safety policy should focus particularly on drink driving, speeding, and wearing of seatbelts and motorcycle helmets. It also advised member countries that it is necessary to measure serious injuries and fatalities, to obtain a clearer picture of the overall burden. The latest IRTAD report provides an overview of the change in road deaths in 32 countries during the period 2010 to 2016 (OECD/ITF, 2018). Most countries have experienced a decline, and this suggests that UNDA activities were paying off.

These include establishing national road safety action plans with time-bound targets, acceding to road safety related UN legal instruments, meeting certain technical standards for new and existing roads, implementing vehicle safety standards, reducing speeding and related road traffic injuries and death (RTID), increasing the use of motorcycle helmets and seatbelts / child restraint systems, reducing RTID due to use of alcohol and other psychoactive substances, restricting or prohibiting mobile phone use while driving, and setting national targets to minimize the time interval between road traffic crashes and provision of professional emergency care.

### **3.2.2 Road traffic injuries and death (RTID) as a public transport problem**

Clearly, road crashes and RTID have achieved worldwide recognition as a public health problem, indeed a crisis. It is argued that they are also a public health ethics problem (Horn, 2015: 28). The road traffic system is ethically charged rather than ethically neutral. It is deeply influenced by broader political and economic factors, as well as power relations, and the unequal distribution of resources and opportunities within society. Similarly, road crashes are influenced by these factors, and their levels rise and fall according to the political economy of a country. It is further argued that public health (“a public enterprise undertaken by organisations and governments”) must address ill health related to patterns of systematic advantage – however, unless consensus is reached regarding 'whose moral responsibility it is to deliver on the promises articulated by such a theory' (Horn 2015:28), public health efforts tend to falter. Like many public health issues, road accidents have different impacts in different countries and in different social groups within individual countries, highlighting the need for careful ethical reasoning when it comes to tackling them. This will be examined under several subheadings.

### **3.2.3 Disproportional impact of RTID on LMIC**

A marked variation in fatality rates is evident across countries as this was observed by many authors amongst other; (Krug, 2012; Naci, Chisholm & Baker, 2009), with over 90% of road crash deaths occurring. Africa's death rate is almost 2.5 times that of Europe (WHO, 2019); in fact, in 2007 when

Africa possessed only 2% of the world's vehicles, it represented 22% of the world's road deaths (Krug, 2012:55). As developing countries have become increasingly motorized, they have shown a significant rise in road deaths, from 1980 to 2000 there was a 300% increase in road deaths in Africa, while at the same time death rates have declined in developed countries (UN-Habitat, 2013:11). Road crashes have tended to be more serious than those in high-income countries – for instance, in 1983 the fatality-per-crash rate in developing countries was reported to be 20 times that in developed countries (Jacobs & Sayer, cited in Dixey, 1999:26). In general, a marked gap has developed between HICs and LMICs when it comes to road safety.

RTID present a major challenge to development in LMICs (Naci, Chisholm & Baker 2009; Lopez et al., 2006). Costing millions of Disability Adjusted Life Years (DALYs) annually, they drive many families into poverty due to predominantly affecting economically active people (WHO, 2009; Azetsop, 2010). Hazen and Ehiri (2006) and Watkins and Sridhar (2009) refer to this situation as a hidden development crisis, which is consistent with Khayesi (2005: 710), noting that the World Summit on Sustainable Development, which took place in Johannesburg in September 2002 “did not include a single item on road safety... on its agenda, declaration or plan of action”. However, in recent years, the depth of the crisis has become more obvious and the UN General Assembly now notes that reducing RTID is an “urgent development priority” (UNGA 2016:2).

Partheeban, Arunbabu, and Hemamalini (2008:59) point out that road crashes 'consume massive financial resources that developing countries can ill afford to lose', with the costs including emergency transport, medical and hospital costs, rehabilitation and mental health costs, pharmaceutical costs, ancillary treatment, funeral and coroner costs, administrative costs, police/fire service costs, legal and court costs, victim services such as child protection and foster care, property damage, loss of productivity (work and household), public welfare expenditure, burden of care on relatives and friends, travel delays and traffic blockages. This excludes the social and emotional costs of pain, suffering, and loss of quality of life. The resource constraints compound the problem, creating difficulties in allocating adequate funds to road safety. Khayesi (2005:710) notes that “funding for road safety activities in Africa is very limited, a mere drop in the ocean”.

### **3.2.4 RTID could jeopardize the realization of the SDGs**

The lack of attention to road safety compromises the ability of developing countries such as South Africa to achieve the meaningful and lasting development envisaged by the 2030 Agenda for

Sustainable Development of the United Nations. This agenda explicitly recognizes road safety as a priority, reflecting this in two of its Sustainable Development Goals (SDGs).

Goal 3 (Ensure healthy lives and promote well-being for all at all ages): “By 2020, halve the number of deaths and injuries in the world from road traffic accidents”. Goal 11 (Make cities and human settlements inclusive, safe, resilient and sustainable): 'By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, people with disabilities, and older people.'

The ambitious nature of Goal 3 has been noted by the United Nations, given that the world’s vehicle population almost doubled between 2000 and 2013 and global road deaths increased by 13% over the same period. With regard to Goal 11, a key challenge is the rapid rate of urbanization worldwide. By 2015, 54% of the world’s population lived in cities, leading to urban sprawl and lower densities, creating difficulties in the provision of public transport and other services (OECD/ITF 2016:13). However, global progress has been poor in relation to the goals of UNDA. In April 2016, the General Assembly of the United Nations noted that although “the overwhelming majority of road traffic deaths and injuries are predictable and preventable”, road crashes remain “a major developmental problem that has broader social and economic consequences” (UNGA 2016:2). This burden impacts most heavily on resource-constrained lower income countries.

### **3.2.5 Social gradient of RTID within countries**

The levels of road crashes and RTID do not differ only from country to country. Instead, within countries, there is a distinct social gradient, and the poorest people are the most affected, with a well-documented link between social class and RTID (Azetsop, 2010; Christie, 2018). Almost half of road deaths involve pedestrians, cyclists, motorcyclists, and passengers using unsafe public transport (Krug, 2012:22), making RTID a social equity issue. In Africa and Asia, in particular, RTID are high due to roads carrying both motorized vehicles and nonmotorized transport, with little segregation of the traffic; the situation is compounded by poor law enforcement due to resource constraints, inefficiency, and corruption (UN-Habitat 2013:28).

Dimitrov (2012:43) notes that ‘transport disadvantage’ or ‘travel poverty’ (inadequate access to safe and reliable transport) leads to social exclusion and barriers to accessing key life opportunities. In South Africa, due to the way public transport was previously used to maintain social segregation and due to

the lingering spatial legacy of apartheid, most people still experience a disadvantage of transport, and a paradigm shift will be needed before public transport can be used to meet social goals. Dimitrov's (2012:6) focus groups with public transport users in Tshwane suggested that seamless public transport services, coupled with appropriate land use planning, can foster social cohesion. However, in post-democracy South Africa, transport planning has often been carried out by politically appointed individuals, "far removed from the transport needs and aspirations of the community or society concerned".

Thus, despite the high prevalence of zero-car households in South Africa, car-oriented infrastructure design and car-dependent mobility systems remain dominant. Similarly, Hoffman (2012:17) notes that although 'the right to freedom of movement is enshrined in the South African constitution', three-quarters of South African households do not own a vehicle and, 'like many fellow Africans, more than two-thirds of people rely on minibus taxis to get around'. Due to the disadvantage of public transport, the higher rate of RTID amongst poor people is compounded by difficulties accessing post-crash services such as health care and rehabilitation. Thus, transport inequality goes along with health inequality. Even in HICs such as the UK, particularly deprived areas need extra funding to allow for 'a mix of engineering, education, enforcement, and health promotion activities' to address the causal chain of road accidents (Christie, 2018:140). Higher levels of road safety funding are required in LMICs due to the more widespread deprivation, but there are rarely sufficient funds available to address the high levels of RTID.

Several authors note the need for a justice-based human rights-centred approach to RTID. Azetsop (2010:119) relates the 'disproportionate distribution of RTID' in Kenya to 'a problem of justice in relationships between social institutions and individuals, as well as between population groups' and argues that 'the existence of a socioeconomic gradient situates the road safety policy in the realm of social justice and public policy'. There is a need for 'careful ethical discernment' in relation to public policy dealing with social goods such as transport (Azetsop 2010:125) to achieve distributive justice. Azetsop also points out that road crashes arise not only from individual behaviour, but also from inequalities in vehicles and environments, which means that "social forces set the stage for risk of injury and vulnerability to crashes". Amongst other factors perpetuating high levels of RTID, he points to poor law enforcement and surveillance, as well as civil disobedience and unregulated transport systems.

Horn (2015:26), too, argues that a theory of justice is an appropriate foundation for public health programs, noting that a strong link should be made between social justice and public health in 'low-income contexts where social injustice and poverty often have a significant impact on overall health of the population'. UN-Habitat (2013:10) notes the 'critical importance of mobility and accessibility in fully enjoying human rights' and the consequent need for the 'mobility benefits' to be fairly and equally distributed between different groups. Due to their ubiquitous nature, UN-Habitat highlights improving minibus-based transport systems as one of the most significant ways of reducing RTID in LMICs.

Khayesi (2005:711) notes that the road traffic system makes an important contribution to Africa's socioeconomic development, creating trade opportunities, connecting areas that would otherwise be isolated and promoting the movement of people and goods. However, development aid focused on road construction - without also properly considering road safety - ignores the reality that 'thousands will die and many more thousands will be injured while using roads in Africa and other parts of the world.' Khayesi thus argues that road safety is in itself "an important and valuable public good", connected to human rights; this should be reflected in government and non-government policies and programs. In summary, RTIDs are a serious public health problem and their disproportionate distribution in society makes them, in addition, a public health ethics problem.

### **3.2.6 A whistle-stop tour of the field of road safety**

The field of road safety is vast and encompasses numerous different disciplines, from social sciences to technical sciences like engineering. This section sets out a number of key road safety issues, to act as a foundation for both descriptive inquiry and normative inquiry. The paradigm shift that is taking place in government policies and road safety programs around the world will be explained, with the embracing of a more ethics-based stance and the development of the safe system approach.

### **3.3 Road safety metrics**

As a starting point, we need to understand more clearly what we mean by RTID so that we can think and talk about them with greater ease and understanding. Definitions of a road fatality have varied from one country to another, with some only counting deaths at the scene of the accident or within the next 24 hours, others counting deaths within 7 days of an accident, and yet others counting deaths within 30 days of an accident. To harmonize the global approach and ensure more valid comparisons between countries, the Glossary of Transport Statistics (Eurostat/ITF/UNECE, 2009) provides a general

definition, namely 'death within 30 days of a road accident'. This is being increasingly used around the world in road safety programs and policies (OECD/ITF, 2016:458).

The South African terms related to RTID are as follows:

**a) Road fatality:**

Any person killed during or immediately after a crash, or death directly attributable to a crash within 30 days of such a crash.

**b) Seriously injured:**

Any person sustaining injuries to the extent that hospitalization is required. Serious injuries include fractures, concussion, internal injuries, severe cuts and lacerations, severe shock, etc. which require medical treatment, hospitalisation, and/or confinement to a bed.

**c) Slightly injured:**

The person who suffers minor bruises.

Data collection in relation to fatal injuries is generally better than that related to serious but nonfatal injuries, making road deaths easier to count than injuries. However, even deaths can be under or over-counted, depending on factors like whether crashes are reported to the police, whether databases are updated when patients die in hospital after crashes, and whether the cause of death is correctly coded. Cross-checking is required between police data and health service data, but even in a country like the Netherlands (well known for its high road safety standards), there is a 15% discrepancy between police records and health service records (OECD/ITF, 2016:462). In Sweden, data are further refined in that suicides on the roads (thought to constitute 10% of all road deaths) are treated as a separate category. WHO uses algorithm-derived calculations and regression models to correct for under- and over-counting of road deaths in a particular country (WHO 2020).

Absolute numbers of road deaths alone are not very helpful, so instead we convert them to metrics we can understand and work with and which allow us to compare one country with another. Therefore, IRTAD uses three indicators to measure road safety performance in its member and observer countries IRTAD33 (OECD/ITF, 2016). These are: i) road deaths per 100,000 people (mortality rate), ii) road deaths per 100,000 vehicle kilometres travelled (fatality risk), and iii) road deaths per 100,000 motor vehicles. Of these, the first metric is most often used as figures are readily available in most countries,

and it also allows us to compare road deaths with deaths from other causes like HIV/AIDs, heart disease, or murder.

### **3.3.1 Contribution of human factors to road crashes**

Three groups of factors are implicated in road crashes; human factors, vehicle-related factors and road-related factors; historically, around two thirds of crashes have been related to human factors (Bogdevicius et al., 2004:27). This picture has changed in HICs, as vehicle standards and road infrastructure have improved - therefore, an estimated 87% of fatal road crashes in the UK and 94% in the USA are now attributed to human factors (DOT, 2017c). In South Africa, an LMIC with variable road condition and vehicle quality, Arrive Alive estimated in 2011 that at least 90% of crashes were due to human factors in the form of traffic violations (Arrive Alive, 2011). More recently, the Road Traffic Management Corporation (RTMC) has estimated that 74% of crashes in South Africa are related to human factors (RTMC, 2014). Crashes are often multifactorial, and the three types of factor can be interrelated. This is typically represented in the type of diagram shown below, in which I have used the percentages suggested by Arrive Alive (2011) for the relative contribution of each category of factors.

In terms of human factors, the foremost risk is speeding, with other risky behaviours being overtaking into incoming traffic or across a barrier line, driving while intoxicated, fatigue, turning in front of oncoming traffic, following vehicles too closely, making U-turns and disregarding stop signs, red traffic lights, and yield signs. Distracted driving is playing an increasingly important role, with common distractions being mobile devices, eating, smoking, grooming, passenger activity, and sounds from radios and navigation aids (RTMC February 2016 data, cited by DoT, 2017c). The DOT notes that since human error is the most significant cause of road crashes, “most efforts to reduce crashes must be geared toward first understanding the reasons” for this and secondly 'decreasing the opportunities' for error (DoT, 2017c:28). Chandler (2018) points out that technology already exists that has the potential to virtually eliminate road crashes, in the form of ignition interlocks for alcohol and seatbelt use, speed controls, and connected and automated vehicles – however, even these cannot work without effecting culture change and 'recalibrating' human behaviour.

### **3.3.2 The paradigm shifts in road safety policy**

In the late 1990s, Sweden's government debated the ethical issues related to the road traffic system and reached consensus that the only ethical road safety target was one focused on zero road deaths or

serious injuries. This gave rise to the Vision Zero policy, which was voted into law by a large majority in 1997. Murphy (2017:10) notes that this policy is based on 'a refusal to accept human deaths or lifelong suffering as a result of road traffic' and a view that 'the responsibility for fatalities in the road system is assigned to the failure of the road system rather than the road user'. The fundamental premise of Vision Zero is that life and safety override other social benefits such as cost savings, convenience and speed of travel and that the road traffic system should reflect this philosophy in its design and operations. Murphy (2017:11) notes that this implies the need for a transport system that will forgive human error, minimize risk when road users make mistakes, and protect people from death and serious injury.

This represents a paradigm shift from previous approaches to road safety and ways of viewing the road traffic system, which Elvebakk (2005:ii) has described as 'mitigated liberalism' She notes that the previous paradigm involved people being given a great deal of freedom, but at the same time being 'highly constructed' (through 'training, technology and culture') and subjected to specific restrictions (e.g., speed limits) and deontological requirements (e.g. add to such speed limits or face negative consequences). Therefore, road safety efforts were focused mainly on individual drivers and attempted to change their behaviour behind the wheel. Arrive Alive (2011) notes that the challenges associated with such efforts are related to the lack of knowledge of road rules and the lack of willingness to comply with them, as well as poor enforcement (for example, a lack of follow-up of fines) and the resultant 'culture of impunity' on the roads.

The Vision Zero paradigm places the ultimate responsibility for road safety with the system designers, even though individuals still have moral duties to comply with the limitations codified in the law. It involves a much greater recognition of the fact that people form part of a greater road-using community, with duties which they must enact towards each other if the ideal of safe mobility is to be achieved. This new view of road safety is summarized as follows:

... although individuals must abide by the law and behave responsibly, the system designers (primarily road maintainers and vehicle producing companies) are ultimately responsible, which means that they must take measures if individuals fail to take responsibility (Falquist 2005; Randall 2019:82).

Elvebakk (2005: ii) points out that the Vision Zero paradigm, focusing on end-states, is a 'consequentialist moral standpoint' with a 'no trade-off view' of human life. Furthermore, he noted that it has 'introduced a new class of deontological actors', with authorities as system designers becoming

“morally responsible for road accidents” rather than a responsibility that rests entirely on road users themselves. In 2000 the Norwegian parliament too adopted the Vision Zero policy, accepting that 'the traffic system should be so safe that its workings should not normally lead to loss of lives or to permanent injury' (Elvebakk, 2005: IV). Since then, the Vision Zero paradigm has infiltrated an increasing number of countries and organizations around the world, and it is clearly visible within the goals and practices associated with the UNDA and its five pillars of road safety action.

The government of the Netherlands views system designers as responsible for making the road transport system as safe as possible so that the consequences of crashes can be minimized, while individual road users remain responsible for adhering to laws and respecting the limitations of the system (Perkins, 2010:2). In Western Australia, concerns were raised that the radical goals set by many European governments, such as a 50% reduction in fatalities within a short timeframe, were not realistic and were 'merely inspirational rhetoric' (Perkins, 2010:2) the Western Australian government has instead deliberately focused on a stepwise process of lowering road fatalities, within available budgets and bearing in mind political realities.

In contrast with the aviation and rail sectors, road crashes are investigated to a much lesser extent; for instance, in South Africa investigations are only carried out in relation to major fatal crashes (defined by the RTMC as crashes in which five or more people are killed. Crashes in which four or more vehicles are involved, or fatal crashes involving vehicles carrying hazardous substances) (RTMC, 2012:3). Although on the surface a Vision Zero policy seems to be 'an ethically sounder approach to road safety policy', a useful critique is provided by Elvebakk (2005: ii). She notes that whether it is the right policy and the best choice of all possible options is not without controversy. In line with the argument that the moral movement for road safety is capable of encompassing more than one moral point of view, Elvebakk argues that if the authorities are now seen to be responsible for acting on the road system through its physical structure, there 'seems to be a good case to try to evaluate the road system in terms of a pluralist moral framework' given that 'all existing approaches seem to exclude some of the relevant ethical considerations.'

Tingvall and Haworth (1999:21) notes that this 'gives the authorities a pronounced and overarching responsibility for how road users fare in the system' - due to this change of focus, the 'accident-causing failure' is no longer considered 'the end point for 'the preventive strategies of the authorities'. While literally achieving zero road deaths may not be possible, the system no longer treats loss of life as

'normal', it recognizes that there is seldom just one explanation for a crash, and it even tries to prevent crashes caused by the behaviour of individuals.

### **3.3.3 The Safe System approach to road safety**

Kimber (2003:3) was among the early authors who noted that dealing with human error in isolation makes less sense than dealing with the human-vehicle-road system as an entity. Kimber also suggests that human errors be split into 'routine' driver errors that will always be an integral part of the system and errors or 'failures' that are not routine. The latter can be further divided into errors of excess (aberrant behaviours like speeding or drunk driving) and errors of inexperience. It is argued that traditional road safety approaches focused on behaviour change as 'the primary remedy for road accidents' should give way to the correction of the system in more general terms, as 'large reductions can come from engineering the vehicle or environment to remove the consequences of human error'.

#### **a) The limits of human error reduction and human frailty mitigation**

The safe system approach is a quantum leap from previous road safety approaches that primarily focused on limiting human error and compensating for or mitigating (at the point of impact) human frailty. Before detailing what goes into a Safe System policy, this study will briefly comment on what previous road safety strategies typically hoped to achieve. Thus, they accepted that crashes would occur but aimed to reduce RTID by limiting human error on the one hand and mitigating human frailty on the other; in both cases, the focus was primarily on the immediate situation, 'in vehicle' or 'here and now'. The examples are as follows:

- Limiting human error (reducing crash frequency and severity) was achieved through:
  - o teaching road users not to make errors (through road safety training programs and driver licensing requirements),
  - o using the law to enforce this teaching (for instance, by spelling out exactly which driving behaviours were viewed as unacceptable and what punishments would be meted out should these occur),
  - o installing vehicle technologies to alert drivers of potential errors and reduce the consequences of such errors (e.g., ESC, automated braking systems, alcohol interlocks, fatigue warning devices)
  - o encouraging VRUs like pedestrians and cyclists to wear reflective clothing and stick to particular lanes or areas to make themselves more visible to drivers.
- Mitigating human frailty (reducing injury frequency and severity / death) was achieved through:
  - (a) installing vehicle technologies to decrease the speed and impact forces involved in a crash

(for example, electronic stability control (ESC) and frontal impact (FI) measures); (b) installing vehicle technologies to reduce occupant vulnerability to serious injury in the event of a crash – these include seatbelts, child restraints, airbags, shatter-proof windscreens and so on; (c) using vehicle technologies to decrease the damage done by vehicles to VRUs -for instance, by enforced pedestrian protection (PP) standards; (d) developing other protective measures such as helmets and protective clothing for VRUs such cyclists and motorcyclists; and (e) using the law to enforce the use of the above, with transgressions punishable both preventively and post-crash.

Kimber (2003:17) points out that the road safety argument 'turns on where the responsibilities are placed'; he notes that insofar as rail and air travel are concerned 'we take it as given that the pilot or train driver is fully part of the whole engineering system.... We would not, for example, be happy for an airline pilot to perform aerobatics on a passenger carrying aircraft'. However, in relation to road travel, "there is still a popular belief that the driver (taxi driver) should be more of a free agent", due to the confusion of "the driver's freedom to determine the detailed movement of the vehicle with the need to follow procedures that limit the risk generated by that movement". Kimber asserts that limiting the risk is 'beyond reasonable dispute' and that 'the only question is to what level the risk needs to be limited and in what terms this should be stated'.

#### b) Components of the Safe System Approach

Perkins (2010) and Murphy (2017) have noted that the Safe System approach can be implemented regardless of a country's stage of road safety development and within the parameters of existing systems and policies. Safe System models have been fruitfully implemented in numerous countries around the world, including in Scandinavia, Australasia, and Malaysia, sometimes with World Bank assistance, and have yielded significant improvements in a short space of time (Perkins, 2010). Murphy (2017) notes that 'high performing' countries in relation to road safety all have Safe System models in place. In the Safe System approach, embodying Vision Zero philosophies, "human life and health are paramount' and 'can't be traded off against the benefits of the road transport system, such as mobility' (Peden et al., in WHO, 2004:19).

Human fallibility and error are taken into account, with an acknowledgment that responsible road users "will make mistakes on the road, but the price they pay should not be death or serious injury (Murphy, 2017:5). Responsibility for road safety is perceived as shared by road users and road system providers,

with the underlying imperative being “the demand from the citizen for survival and health” (WHO, 2004:20). Safe system approaches are multi-sectoral and suitable for countries (South Africa included) at all stages of road safety development (Murphy, 2017). They contain the following key components; i) alert and compliant road users, ii) safer speeds, iii) safer vehicles, and iv) safer roads and roadsides.

The arrangement of these components is illustrated below. The basic parameter is the vulnerability of the human body to trauma, with speed control being a major focus due to higher speeds causing greater impact energies and thus a higher chance of RTID (Perkins, 2010; Murphy, 2017). Work-related road safety (WRRS), also known as occupational road safety, is a niche within the wider field of road safety. It tends to be driven both by governments and by the private sector and is particularly prominent in high-income countries. While numerous studies and programmes around the world fall under the ambit of WRRS, two initiatives are noteworthy in relation to their breadth of scope (having a multi-country, multi-company focus) as well as their ambitious goals to decrease road crashes and RTID.

Transport sector workers are highly exposed to road safety risks. Adopting best standards and practices in road development, maintenance, and traffic management can afford greater protection. Transport regulations must be adapted to ensure that transport companies operate with safe drivers on safe roads. Safety must prevail above all other concerns, including economic or commercial ones. To do so, integrating road safety provisions for employees within existing rules is a key lever (RSTF, 2010:59-60). Both the RSTF and the PRAISE Project are premised on a view that work-related RTIDs are unacceptable and require vigorous intervention by governments and employers (Taxi owners). The key crash causation factors noted by both entities are fatigue, distracted driving, driving under the influence, speeding, inadequate driving skills and vehicle-related factors like roadworthiness. The RSTF sets out the following ambitious goals to address occupational road deaths.

- Freeze the number of work-related road deaths by 2020
- Reduce the number of deaths by 50% by 2030
- Reduce it by more than 50% by 2040
- Achieve zero work-related road deaths by 2050

The last of these is described as 'not a utopian vision, but a realistic attempt to find practical solutions to an unacceptable situation' (RSTF, 2010:40). Recognizing resource-constrained situations in low- and medium-income countries (LMICs), the Task Force proposes that HICs lead the way, providing assistance and information to LMICs. Identifies the following levers to improve occupational road safety:

- investing funds (with 10%-15% of the infrastructure budget of countries being devoted to improving road safety);
- advocacy and awareness raising in relation to road safety (for instance, through road safety weeks and educating employees and the public on the main risk factors);
- promoting research into the causes of work-related crashes and creating good quality data collection systems based on standardized crash analysis systems, incorporating 'purpose of trip' measures to identify work-related deaths and linking with occupational health and safety data systems;
- setting up multi-sectorial partnerships including win-win public-private partnerships and cross-border partnerships, under the auspices of lead agencies which would ensure continuity in times of political change; and
- using benchmark metrics and setting aggressive goals, including making road safety quality management levels 'comparable to levels of aircraft or industrial premises'

Include the employer's choice of vehicles and whether they consider how well these would protect their passengers in a crash and how compatible they are with other vehicles. The need for employers to tap the perspectives of employees to properly identify and deal with risks and find workable solutions is highlighted.

### **3.4 Best international practices in road safety**

As UNDA has progressed and Safe System approaches to road safety have been implemented, a great deal of data gathering and analysis has taken place, and several key road safety insights have emerged in addition to recognition of the need for a safe system approach (Department of Transport, 2017). Successful and sustainable programmes are those that focus on local action priorities and consider the existing capacity to reduce RTID. It is also apparent that governance and accountability should rest with governments, but that it is effective for them to draw in other role players like corporates, insurance companies and nongovernmental organisations (NGOs).

Road safety education and training should be offered frequently and involve all stakeholders, with graduated driver training and license systems being preferable to simplistic systems. Enforcement of road traffic rules should focus on the most hazardous locations, and road infrastructure should be designed based on safety audits, to reduce conflict points and vehicle crossing speeds (e.g., replacing of junctions with traffic circles). Modern technology such as intelligent traffic management systems, automated data collection, and alcohol interlocks should be utilized. Perhaps most critically, each

country needs a lead agency for road safety management, empowered with the necessary funds and supporting legislation. The following section shared light on whether South Africa is considered compliant (World Road Safety Status Report WHO 2020) (and placing this in context by noting how many countries around the world are compliant).

a) Human factors

- Drink Driving

Drinking is associated with high-risk road behaviours such as speeding and not wearing a seatbelt. Even low levels of alcohol can affect driving behaviour and risks increase exponentially with increased blood alcohol content (BAC). Younger and less experienced drivers are more susceptible to the influence of alcohol. The WHO recommends that drinking-driving laws use two criteria: BAC<0,05 g/dl for the general population and BAC<0,02g/bi for young novice drivers

34 countries are compliant, South Africa is noncompliant due to having a single BAC limit of 0.05g/dl – there is no lower limit of 0,02g/bi for young novice drivers.

- Speeding

Speeding increases the likelihood of crash, and higher speeds increase RTID. Speed is involved in 30% of HIC road deaths and 50% of LMIC road deaths. An adult hit by a car traveling at 80 km/h has a 60% chance of death, compared to a 20% chance if the car is traveling at 60 km/h<sup>45</sup>. Speed limits should be adjustable for local circumstances – for example, residential areas and school locations may need limits set at 30 km/h, accompanied by speed bumps and other calming measures. The WHO recommends that urban speed laws be based on these two criteria: The speed limit is < 50 km/h and local authorities are empowered to adjust national speed limits in specific areas.

47 countries are compliant; South Africa is noncompliant due to the urban speed limit being too high, at 60km/h. However, it does allow for adjusted speed limits in specific areas.

- Seatbelts

Wearing a seatbelt can reduce front seat fatalities by up to 50% and back seat fatalities by up to 75%. Compulsory seatbelt laws (accompanied by good enforcement and public awareness campaigns) are very effective in improving use rates. WHO recommends that seatbelt laws are based on these two criteria: 1) The law applies to drivers and front-seat passengers; 2) The law applies to back-seat passengers.

105 countries are compliant, South Africa has complaints, but IRTAD has noted that they have very poor actual rates of seat belt use, much lower than the rates in most countries.

- Vehicle-related factors

Safer vehicles help prevent crashes, and they also reduce RTID when crashes occur. HICs are characterized by improved vehicle safety standards, both due to regulations and due to customer expectations; what were previously 'safety add-ons' in upmarket vehicles are increasingly required for all new vehicles and therefore more affordable. As LMICs move rapidly and as some venture into vehicle manufacturing, there is a pressing need for vehicle standards to be introduced in all countries to reduce road crashes. I provide information below about three key standards that are featured on the interactive map 'Death on the Roads'. The countries are scored on a 7-point scale, on which South Africa scores 4/7.

The above account is also relevant to the participation of the minibus taxi industry in South Africa.

### **3.5. Road safety in South African context**

As indicated earlier, these crashes have been estimated to cost the South African road network an estimated ZAR 142, 95 billion every year, which is equivalent to 3.4% of the country's GDP (Labuschagne, De Beer, Roux & Venter, and 2017:474). In comparison, the cost of road traffic crashes in low and middle-income countries is found to be 2.2% of their GDP. Road fatalities and injuries also place a high financial burden on people involved in crashes. Average hospital care provided to a pedestrian or passenger involved in a crash cost approximately ZAR 80 000 per admission (Parkinson, Kent, Aldous, Oosthuizen, & Clarke, 2014:342). Road deaths also leave an emotional gap in the hearts of loved ones, and no value can be placed on this impact. From 2015 to 2017, approximately 1,300 children were killed on South African roads each year. This child was a daughter, a son, a brother, a sister... a friend. The future of each child lay ahead of them, with the promise of unfulfilled potential.

#### **3.5.1 Socio-economic impact of road accidents in South Africa**

##### a) Overview of the burden and costs of RTID in South Africa

In 2011 the NGO Arrive Alive (2011:19) noted that there were about 1 million road crashes per year in this country, commenting that 'every South African should know and understand that our country has one of the worst road safety records in the world, losing more than 40 people a day to traffic crashes, with a further 20 permanently disabled and several hundred suffering serious injuries' (Arrive Alive,

2011:19). The goal of Arrive Alive's road safety strategy for 2011-2020 was to reduce fatalities on the country's roads by 50% by 2015, which would have saved 27,000 lives over 5 years and reduced deaths to no more than 20 per day (Arrive Alive, 2011). Counting of road deaths is a challenge, Khayesi (2005:711) noted that underreporting of RTID is a major problem, for instance, it was reported that about 200 000 people died on roads (including numerous pedestrians and public transport passengers), but the true figure could have been much higher. Keeping with this, concerns have been raised about the accuracy of official data from Statistics SA and the Road Traffic Management Corporation (RTMC).

The 2018 mortality report of Statistics South Africa (Stats SA, 2018: i) reflects that transport accidents are at the very least the third most common cause of non-natural deaths in South Africa, accounting for 12.5% of all non-natural deaths and 1.4% of all deaths. However, major flaws in the death certification process result in nearly three quarters of unnatural deaths being inadequately classified, which obscures the true count in relation to road deaths – at best, official mortality figures thus provide a broad-brushstroke picture (Fobisi, 2019:33). However, the most recent estimate of 13,802 deaths per year is only 4% different from the WHO algorithm-based figure of 13,273, suggesting a slight overcount rather than an undercount. The fact that South Africa's road deaths have been problematic for a long period is well illustrated in the literature, which also highlights the unusually serious nature of our crashes. In 2013 South Africa's road crash rate was almost double the world average (Thomas, 2013), and our road deaths were not similar to our murders and our HIV deaths (Ollis, 2013:24).

The figures provided by the RTMC and collated into the graph below by the Automobile Association reflect an encouraging downward trend in the number of road deaths from 2006 to 2013, when absolute deaths reached a low of 11,844 (AA, 2018: iii) despite population growth during the same period. This downward trend has unfortunately reversed in recent years, mainly related to an increase in pedestrian and cyclist deaths and on-going deaths of drivers (making up an average of 28% of all deaths in the past 5 years) and passengers (making up an average of 33% of all deaths in the past 5 years). This picture of a short-lived decline in road deaths, followed by a steep reversal of this trend, closely mirrors the international situation as reflected earlier in this chapter. The return to an upward trend suggests that we will not achieve the general UNDA aim by 2020 namely, a 6.7% reduction per annum; instead, from 2007 to 2016 our death rate decreased by an average of only 1.49% per annum (DoT, 2017 in Randal 2019:44).

In June 2017 the then Minister of Transport listed the following five factors as the most prominent crash contributors (Maswanganyi, 2017:22):

- Speed too high for circumstances (leading to loss of control and inability to avoid hazards);
- Abuse of alcohol by drivers and pedestrians
- Dangerous overtaking
- Vehicle fitness defects in relation to tyres, steering, and brakes (especially in public passenger transport and freight transport);
- Pedestrian negligence (jaywalking, walking on roads, drinking and walking, and 'failing to wear clothes'.

High levels of RTID are associated with high costs, as noted earlier in this chapter. The DOT suggests that in South Africa, these equate to 3.4% of GDP (DOT, 2020), but some authors argue that if all costs are considered, road crashes in this country consume an effective 10% of GDP, much higher than the average of 2.2% in LMICs (Ensor & West, 2013; Ardé, 2015). The costs are inconsistently quantified by government – for instance, estimates range from R143 billion per annum or 3.4% of GDP to R487 billion per annum (RTMC, 2016:66). The first of these figures is based on updated Cost of Crashes (COC2016) methodology developed by the Council for Scientific and Industrial Research (CSIR) and considers human casualty costs, vehicle repair costs, and incident costs (adjusting the road death count upwards by 5% to correct for under-reporting) (DoT, 2017:37). Discovery Insure (reported by Ardé, 2015: 52) claims that reducing road accidents by one third 'could increase GDP by more than 1% a year', which would 'free up resources to improve roads, among other things'; Discovery Insure also blamed road crashes for 80% of the cost of vehicle insurance (Ardé, 2015:52).

### **3.5.2 Road safety policy in South Africa**

Since the advent of democracy in 1994, South Africa's successive road safety policies have had different focal points, although the political will to implement them has fluctuated according to the skills, knowledge and energy of the incumbent; Department of Transport. Much hope was vested in the Arrive Alive campaign launched in the early 2000s, the source of a Road Safety Strategy 2011-2020 focusing on the "4 Es" approach (Enforcement, Education, Engineering, and Evaluation) (Arrive Alive, 2011: v). However, since 2005 the lead agency role has been held by the Road Traffic

Management Corporation (RTMC), with its mission being 'Ensure Safe, Secure and Sustainable Roads in South Africa' (DOT, 2013). The RTMC is responsible for the following functions (OECD/ITF, 2016:462-463):

- enhancing the overall quality of road traffic service provision to ensure safety, security, order, discipline, and mobility on the roads;
- protecting road infrastructure and the environment by adopting innovative practices and implementing innovative technology;
- introducing commercial management principles to inform and guide road traffic governance and decision making in the interests of enhanced service provision;
- optimising the utilisation of public funds;
- regulating, strengthening and monitoring intergovernmental contact and cooperation in road traffic matters;
- improving the exchange and dissemination of information on road traffic matters;
- stimulating research into road traffic matters and effectively using the resources of existing institutes and research bodies; and
- developing human resources in the public and private sectors that are involved in road traffic.

After the RTMC eventually released the 2017 road death statistics (along with statistics from previous years) in April 2018 the Automobile Association of South Africa responded in a scathing way, noting that the figures from 2008 to 2018 'prove that current road safety initiatives are simply not working' (AA, 2018 in Randall 2019:34). It pointed out that since 2008 “almost 135 000 people have died in road crashes in South Africa”, “a shocking number that, without urgent intervention, genuine commitment from all actors and a complete change in the attitude of all road users, will never decrease significantly”. The AA also noted that the 'stabilization' of the fatality rate at just over 12,000 deaths per year is 'unacceptable and should be seen as a national crisis'. It pointed to pedestrian fatalities as a particular area of concern, noting that decreasing these by 50% would save about 2700 lives and bring down the overall number of deaths by 20% or thereabouts (Fobs, 2020:36).

The current government road safety policy, strongly informed by the five pillars of UNDA and the Safe Systems approach, is contained in the National Road Safety Strategy 2016-2030, which will be referred to as NRSS. This is noted to be 'part of government efforts to ensure a safer, better and safer life for all' (DoT, 2017:6) and is based on the understanding that “the dreadful consequences of road crashes”

could reverse the gains made in terms of job creation, social housing, improved health care and social grants.

Luke and Heyns (2013) point out that aligning government policy with public opinion is vital in a democracy and the need for public participation is established in the South African Constitution – however, South Africa has significant difficulties in relation to the misalignment between public opinion and government policy, as well as in relation to the government's failure to properly implement its policies and be open, accountable, transparent, and responsive to the needs of the public. The track record of the RTMC, in my opinion, suggests a high degree of failure in relation to its responsibilities, in particular, in relation to under-spending of its budget and its unreliable and unprofessional production of reports and statistics (ACT 108 OF 1996).

There is also an extremely muddy picture regarding the government's road safety objectives, with poor link between key documents and between those documents and reality.

It is worth noting, too, that all of these figures fall far short of the 6.7% decline per annum which would have been required to meet the UNDA target by 2020 – if South Africa could have achieved (and could sustain) a decline at this level, based on 13 968 deaths in 2010 we would see only 3 490 road deaths in 2030. This illustrates the major role that slight shifts in policy and practice play and the need for clear leadership on the part of government. If it is assumed that there are multiple affected people per death (including, for instance, injured survivors and bereaved family members), the human impact of the different numbers in the various scenarios is very significant.

The problem of under-delivery and inefficiency extends beyond the RTMC and the NRSS in that South Africa lacks coherent cross-sectoral programmes to address RTID. For example, the Department of Transport and its subsidiaries like the Road Accident Fund (RAF) and the Road Traffic Infringement Agency (RTIA) do not seem to work hand-in-hand with the Department of Health and other government departments in relation to crash reduction or the treatment and rehabilitation of crash survivors. Similarly, the prescribed curricula of the Department of Basic Education focus little attention on road safety, while the Department of Social Development has no specific program to identify or support road crash survivors.

In general, government seems to 'talk the talk' in relation to road safety, without 'walking the walk'. This leaves road safety interventions heavily reliant on nongovernmental organisations and social responsibility initiatives by private companies – for instance, the Arrive Alive website offers high

levels of information and advice regarding road safety, South Africans against Drunk Drivers (SADD) and other NPOs provide educational interventions, South African Breweries (SAB) has run campaigns to enhance road safety, Imperial Car Hire spearheads a child seat initiative and advertising agency Brandhouse previously sponsored a Taxi Driver of the Year competition.

### **3.6 Minibuses as a vehicle class with high traffic offence rates and RTID**

The social perceptions of South Africans of minibus taxis being dangerous - 'monsters' and dangerous 'unsafe mobile coffins' (Sauti, 2006: xviii) – are borne out by worldwide data on paratransit services. UN-Habitat (2013:25) notes that formal public transport passengers have 1/10th the fatality rate of private car occupants, and formal public transport vehicles (per passenger-kilometre basis) cause less than 50% of road deaths caused by private cars. Unfortunately, the same is by no means true in relation to informal public transport, such as minibus services, with many crashes attributable to inappropriate, poorly maintained vehicles and drivers with inadequate training. UN-Habitat also points out that the impact of paratransit crashes is exacerbated by few operators having vehicle or passenger insurance (Mathu 2020:22).

Khayesi (2002:241) notes in relation to minibus taxis that their involvement in road crashes must be viewed against the background of “the struggle for livelihood by a wide range of stakeholders, extremely difficult working conditions, and a hotly contested field of control. Eli Louw, South African minister for transport affairs in 1988, stated that 'kombitaxi accidents' needed to be viewed in relation to the overall accident rate: minibuses had a lower accident rate than private cars, but the fatality rate per crash was higher because minibuses carried more people (McCaul, 1990). To date, a similar pattern seems to prevail, with Maswanganyi (minister of transport in 2017) announcing that minibus taxis account for 9.7% of fatal crashes, whereas private cars account for 48%. However, Maswanganyi also noted that buses account for only 1.3% of fatal crashes, confirming that minibuses are a comparatively dangerous form of public transport (Maswanganyi, in DOT 2017).

Human factors are significant causal factors for crashes and most crashes are preceded by traffic offences. The RTMC noted in 2010 that offence rates on South African roads were unacceptably high, with the most significant offences being alcohol use, barrier line offences, defective tires, and speeding (RTMC, 2010). However, there was an encouraging decline in overall levels of offending, as measured using the Combined Traffic Offence Index; the factor of change for the country as a whole (and across all vehicle classes) was 0.84 (no change would have scored 1.0 while a rise in offending would have

resulted in a figure higher than 1.0, for instance, 1.2). Despite lower levels of offending, fatal crashes had increased, with a factor of change of 1.01.

In Gauteng, total offences decreased by 43% and fatal crashes by 30% – however, minibuses as a vehicle class bucked the trend and showed increased levels of lawlessness (RTMC, 2010). In line with this, the Gauteng Department of Roads and Transport (GDRT) notes that minibus taxis have historically been associated with high levels of offense, crash rates, and fatalities, with significant unlawfulness in relation to 'speeding, alcohol abuse, unregistered or unregistered private and public transport vehicles, general driver attitude, overloading and operating without an operating license or a valid operating license' (GDRT, 2013:94). Further concerns have been raised about the minibus taxi industry by the Arrive Alive report (undated), which notes that the attitudes of minibus drivers are one of the most important issues to address to improve the safety of commuters.

The minibus taxi industry itself has acknowledged its problematic crash rates. McCaul (1990: ix) notes that SABTA's ambitious plans to expand into related industries and other Southern African countries in the 1980s were put on hold due to its top priority being 'to deal with the accident rate in the industry.' At that time, crash rates were increasing steadily, with 26% of all minibuses being involved in accidents in 1986, rising to 29% in 1987 and 33% in 1998 –in the latter half of 1988 an average of 103 crashes took place per day, with 2 fatalities (on average) and 30 people sustaining injuries. McCaul notes that in response to this crisis, SABTA established Project Spear, which was to set up 300 training centres for taxi drivers.

Furthermore, Sauti (2006:86) notes that the government has publicly promised to address taxi driver training but has not lived up to this – for instance, she was told that each of the 160 West Rand taxi associations was allowed to send only 10 drivers for training (“a drop in the ocean”), the training they received was not relevant to their needs and they were given “a valueless certificate which is not accredited”. She notes that the government 'boasted' at press conferences that 'they had trained many taxi drivers'; a taxi official, however, commented that training does 'not serve much purpose when it only benefits two to four out of 60 drivers'. Despite widespread concerns regarding crash rates and RTID associated with the South African minibus taxi industry, there has been little or no research specifically relating to road safety in the industry apart from that of Peltzer and Renner (2003), which specifically explored connections between superstition and risk taking among minibus taxi industry drivers.

Much of the research carried out within the industry to date has been rooted in disciplines such as development planning, engineering, economics, environmental sciences, transport science, political science, and labour relations (e.g.: Barrett, 2003; ILO, 2003; Fourie, 2003; Magubane, 2003; Croucamp, 2003; Ingle, 2009; Mashishi, 2011; Behrens, McCormick, & Mfinanga, 2016). Sekhonyane and Dugard (2004:13) note that 'one of the most pressing transport-related challenges facing government is to establish a safe and reliable; an industry that will contribute to its own growth and that of the country's economy.' Due to the substantial contributions of minibus taxi industry to the economy and the fact that it transports 60% of commuters, they strongly recommend that it be subsidized in the same way that bus and rail services are subsidized.

### **3.6.1 Locus of injuries and fatalities related to the minibus taxi industry**

The first level includes influences related to the driver and passenger. Numerous factors have been found to be associated with a higher risk of crashing for drivers among the general driving population. These include age, gender, driving experience, driving exposure (time of day and time/distance driven), drug/alcohol consumption, personality traits, driving demands and distractions, work fitness, sleep patterns, and fatigue (Stuckey et al., 2007). In the taxi industry, research suggests that after accounting for the number of kilometres travelled, taxi drivers involved in crashes were more likely to be male, 25-49 years old, be fully licensed, and have no passenger (Wishart et al., 2016). Although it is difficult to design specific interventions for these factors, it is still worth being aware of the above influence at the personal level that may impact crash risk.

### **3.6.2 Risk identification**

Traffic violations are a major contributing factor to crashes, injury, and fatalities within the traffic and road environment. Previous research in the taxi industry in other jurisdictions has identified that some taxi drivers may fail to follow all road rules due to laziness, incomplete knowledge of the road rules, or an attitude towards safety and road rule adherence that is less than ideal in relation to safety (Wishart et al., 2016). In addition, within many taxi entities, breaches of road rules are not necessarily viewed as a serious unsafe driving event, and consequently disciplinary action may be minimal. This situation can be further exacerbated due to economic challenges associated with a shortage of taxi drivers. Therefore, taxi operators may be reluctant to take disciplinary action for fear of losing more drivers, particularly when drivers are scarce.

On the face of it, minibus taxis are quite unsafe. In 2018, minibuses and taxis accounted for 19.2% of the major crashes, although they account for only 1.6% of the total number of vehicles on the road assuming SANTACO is correct in its 200 000 estimates (RTMC 2019: iv). However, this number is misleading, since minibus taxis cover much longer distances every day than most other vehicles on the road. An estimate of fatalities by mode of transport per passenger kilometre travelled would be the gold standard for assessing the relative safety of traveling in minibus taxis. However, the Road Traffic Management Corporation (RTMC) has not issued any data on distances travelled since 2008, and prior to this date it had a hard time identifying which minibuses operated and did not operate as taxis. Analysing these old, messy data results in a fatality rate per 100 million kilometres travelled in 2008 of 29 for buses, for minibuses (whether they are used as taxis), and 9 for regular passenger cars (Kerr 2018:63). This makes minibuses 2.7 times more dangerous than normal passenger vehicles. These data do not distinguish between short urban routes and regional or cross-country routes. According to Kerr, taxi association members blame long-distance routes, on which drivers get little sleep, for the bulk of serious accidents (Kerr 2018:63).

### **3.7. Summary**

In this lengthy chapter, a thorough exploration is made on the topic of road traffic injuries and death in relation to global status on road safety. Although this chapter began with an international overview to provide a context, I have devoted a good part of the chapter to an analysis of South Africa's road safety. This is typical in bioethical research, which first tries to understand the status quo. Thus, we have described the burden of RTID in South Africa and have examined some strengths and weaknesses in our road safety laws, practice, and policy. The discussion has also put forward an argument that our road traffic system represents a crashorganic environment, which is the context in which the minibus taxi industry operates.

This leads logically to Chapter 4, and is aligned to the National Development Plan 2030 (NDP), which classifies road crashes as a major challenge within the public transport fraternity issue (NPC, 2012) and commits the government to reducing injuries and accidents by 50% from 2010 to 2030 (with attention to vehicle roadworthiness, driver behaviour, alcohol and substance abuse, and weaknesses in law enforcement). This is also in line with the SDGs and adheres to the Road Traffic Safety Management System standard (ISO39001) of the International Standards Organisation (ISO), which has been developed for use by government, state-owned entities, and the private sector.

## CHAPTER FOUR

### THEORETICAL FRAMEWORK OF TOTAL QUALITY MANAGEMENT

#### 4.1 Introduction

Quality management refers to all activities of the overall management function that determine the quality policy, objectives, and responsibilities that are implemented by means of quality planning, quality control, quality assurance, and quality improvement within the quality system (International Organization for Standardization, ISO 9000, 2015: iv). ISO 9000 is a process that typically changes the culture of an organization to enable TQM to be successful (Yahya, 2022:4). Mustafa (2015:22) emphasized that this International Standard proposes a well-defined quality management system, based on a framework that integrates established fundamental concepts, principles, processes, and resources related to quality, to help organisations realize their objectives.

Mcube, Sukdeo, and Mukwakungu (2023:47) reiterate that this quality management system is applicable to all organisations, regardless of size, complexity, or business model. Its aim is to increase the awareness of an organization about its duties and commitment to meet the needs and expectations of its customers and interested parties and to achieve satisfaction with its products or services. The extensive review of the TQM literature suggests that TQM encompasses a wide spectrum of topics and perspectives. In the field of TQM implementation, there are three commonly referenced articles written by Saraph, Benson, and Schroeder (1989:810), Flynn, Schroeder, and Sakakibara (1994:659). Ahire, Golhar, and Waller (1996:23) strongly recommended that a combination of the three frameworks be undertaken for future research on TQM.

This chapter focuses on the identification of the concepts of TQM due to the literature review. The concept of TQM from quality experts is briefly described, in which relevance is shown to the minibus taxi industry. The references to quality gurus will be extended by explaining the appropriateness of TQM within the minibus taxi industry. The TQM constructs of a few researchers in the field of TQM are revisited to build a theoretical framework for this study. There are TQM concepts adopted in this study, where a detailed explanation of the eleven TQM implementation of constructs is given. In this study, the eight pillars of TQM are referred to in this study to put an emphasis on the enhancement of commuter road safety within the minibus taxi industry in South Africa.

## 4.2 Definition of total quality management (TQM)

A broad literature review of the preceding studies on TQM has studied the concept of TQM and the important success factors for successful implementation of TQM in any organization. According to Gupta and Mittal (2020: 02), success factors are a set of significant elements that help the organization in achieving its objectives for better business performance. It is paramount to start with quality as a word to draw perspective, Reeves and Bender (1994:419) proposed four definitions of quality, first, “quality is conformance to specifications”; second, “quality is satisfying or exceeding customers’ expectations”; third, “quality is achieving excellence standards”; and fourth, “quality is creating value of products, services, and process”. Further definitions referred to TQM; thus Kanji (1990) defined TQM as the continuous way of being committed to continuous improvement to satisfy customers’ needs.

In the context of this study, customers are regarded commuters since this philosophy of TQM is intended to be applicable to the minibus taxi industry in terms of road safety for commuters. Besterfield, Besterfield-Michna, and Besterfield (2003) define TQM from the same approach, which is the philosophy and principle that aim to ground the continuous improvement process in an organisation. Wassan, Muhammad, Mari, and Kalwar (2022:87) also followed the same approach and defined TQM as a combination of managerial techniques and technical tools focused on organisational continuous improvement. Ahire and Ravichandran (2001:56) added to continuous improvement and customer satisfaction by defining TQM as a philosophy of management seeking to improve process and product quality that led to customer satisfaction.

The same approach followed by Dean and Bowen (1994:392), they defined TQM as management philosophy characterized by techniques, principles, and practices. Steingrad and Fitzgibbons (1993:27) define TQM from manufacturing and production approach; their definition describes TQM as procedures and techniques aiming to reduce defects of a production process or service delivery. Evans and Lindsay (2008:55) defined TQM as a management philosophy that leads the success of the organization by meeting the expectations of customers. Zheng and Zhao (2009:17) described TQM as a continuous feedback-based system to improve the quality of services using comprehensive techniques and methods. From this review, many definitions were provided. In essence, those definitions have five major approaches:

- product-based approach;

- marketing and operations management approach;
- manufacturing-based approach;
- operation management value-based approach; and
- User-based approach.

In essence, total quality management (TQM) is a management strategy that emphasizes a continuous effort throughout the organization to maintain quality customer service and satisfaction. The goal of TQM is to foster customer loyalty by delivering service levels that keep customers coming back again (Machobane, 2008:33). The strategy requires consistent feedback from employees and customers to determine how services and products can be improved across the organization and is designed to help companies find a path to strengthen their position in the market, increase productivity, improve customer loyalty and satisfaction, improve employee morale, and improve processes (White 2022:1). In all definitions offered above there are two concepts that keep sprouting; ‘continuous improvement’ and ‘customer satisfaction’, this implies that these concepts are germane to TQM. However, it should be emphasized that such approaches are all relevant in defining TQM, therefore, within the context of this study, the value-based approach of operation management seems fundamental in the management of the minibus taxi industry in relation to commuter road safety. This approach will be described in more detail to indicate its suitability within the minibus industry.

### **4.3 Origin and Evolution of TQM**

Quality concepts first appeared with inspection methods in manufacturing, ‘then to quality control, quality assurance, quality management, total quality, and currently total quality management’ (Flores-Molina, 2011:28). Works of TQM gurus like Deming (1986) and Crosby (1979) provide evidence that the TQM evolution started with Japanese and American earlier manufacturing principles, philosophies, and strategies (Lee, Kwak & Han 1995:357). Deming promoted the concept of “total quality” based on his participation and practical experience with Japanese companies. The main characteristics of this concept are as follows:

- Quality must involve all phases of the process.
- Reducing the quality cost involves most of all employees.
- Continuous training.
- Aligning employee goals with business goals of the organisation.
- Employee commitment.

- Effective communication between leaders and employees.
- Continue development ((Flores-Molina, 2011:28).

The next phase of TQM evolution was impacted by the significant growth of global free trade. In this phase, TQM became a competitive advantage for business organisations to survive in intensive market competition (Soltani, 2008:49). TQM in this phase focused and focused on continuous improvement at all levels of business organisations (Slack, Chambers, Harland, Harrison & Johnston 2022:56, in Moletsane, 2012:77). TQM as a philosophy has been exhausted by many academics and researchers within various business cycles or sectors. In essence, there were many authors who coincided this philosophy in many directions that are relevant for specific businesses.

#### **4.4 TQM description from Quality Gurus**

According to Zhang (2015:14), TQM is still in the early stage of theory development; TQM tends to be viewed as part of operations management rather than an academic subject in its own right, but this is changing and TQM is becoming established as an independent discipline; and that the works of international quality management experts such as Crosby, Deming, Feigenbaum and Juran have provided the baseline for the advancement of TQM theory through areas such as management by fact, customer focus, process orientation and teamwork. Dale, Wu, Zairi, and Williams. & Van der Wiele (2018:12) added that it is also extend the scope of TQM theory as necessary to incorporate appropriate management theories into its development and that much remains to be done for TQM to reach the stage of 'refine/extend' in the theory building process.

An extensive review of the literature was carried out to identify the concept of TQM from quality gurus such as Deming (1986), Juran (Juran and Gryna, 1993), Crosby (1979), Feigenbaum (1991) and Ishikawa (1985). Their propositions are the foundation for understanding the concept of TQM. The following subsections present the main principles and practices of TQM proposed by these quality gurus. These descriptions of quality gurus will be further discussed to show relevance to the organisation such as the minibus taxi industry in South Africa.

##### **4.4.1 Deming's approach to TQM**

The theoretical essence of the Deming approach to TQM concerns the creation of an organisational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to continuous improvement of processes, products, and services as well as to employee fulfilment, both of which are critical to customer satisfaction and ultimately to

organisation survival (Anderson, Fornell, & Lehmann 1994:53). Deming (1986:32) stressed the responsibilities of top management to take the lead in changing processes and systems. Leadership ensures the success of quality management, because it is the responsibility of top management to create and communicate a vision to move the organization toward continuous improvement.

Top management is responsible for most quality problems; it should give employees clear standards for what is considered acceptable work and provide the methods to achieve it. These methods include an appropriate working environment and climate for work-free of fault-finding, blame, or fear. Deming (1986) also emphasized the importance of identification and measurement of customer requirements, the creation of supplier partnerships, the use of functional teams to identify and solve quality problems, the enhancement of employee skills, the participation of employees, and the pursuit of continuous improvement. Anderson et al. (1994) in Khomela (2016:19) developed a theory of quality management underlying the Deming management method. They proposed that; the effectiveness of the Deming management method arises from leadership efforts toward the simultaneous creation of a cooperative and learning organisation to facilitate the implementation of process management practices, which, when implemented, support customer satisfaction and organisational survival through sustained employee fulfilment and continuous improvement of processes, products, and services.

The means to improve quality lie in the ability to control and manage systems and processes properly and in the role of management responsibilities in achieving this. Deming (1986) advocated methodological practices, including the use of specific tools and statistical methods in the design, management, and improvement of processes, aiming to reduce the inevitable variation that occurs from 'common causes' and 'special causes' in production. 'Common causes' of variations are systemic and are shared by many operators, machines, or products. They include poor product design, non-conforming incoming materials, and poor working conditions. These are the responsibilities of management. 'Special causes' relate to lack of knowledge or skill, or poor performance. These are the responsibilities of the employees. Deming proposed fourteen points as the principles of TQM (Deming, 1986:42), which are listed below:

- Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
- Adopt the new philosophy. We are in a new economic age. Western management must rise to the challenge, learn their responsibilities, and assume leadership role for change.

- Reduce dependence on mass inspection on quality. Eliminate the need for mass inspection by building quality into the product in the first place.
- End the practice of awarding business based on price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
- Continually and forever improve the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
- Institute training on the job.
- Institute leadership. The aim of supervision should be to help people, machines, and gadgets do a better job. The management supervision needs to be overhauled, as well as the supervision of the production workers.
- Drive out fear, so that people may work effectively for the company.
- Break down barriers between departments. People in research, design, sales, and production must work as a team to foresee problems of production and in use that may be encountered with the product or service.
- Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce.
- Eliminate work standards (quotas) on the factory floor. Substitute leadership, eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.
- Remove barriers that rob the hourly worker of his right to pride in his workmanship. Supervisors' responsibility must change from sheer numbers to quality. (b) Remove barriers that strip people of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective.
- Institute a vigorous program of education and self-improvement.
- Put everyone in the company to work to achieve the transformation. Transformation is the job of everyone.

#### **4.4.2 Juran's approach to TQM**

According to Juran, TQM is the system of activities directed at achieving delighted customers, empowered employees, higher revenues, and lower costs (Juran 1993:29-37). Juran believed that the

main quality problems are due to management rather than workers. The achievement of quality requires activities in all functions of an organisation. Organization-wide assessment of quality, quality information system, and competitive benchmarking are essential to quality improvement. Juran's approach emphasizes team and project work, which can promote quality improvement, improve communication between management and employee coordination, and improve coordination between employees. He also emphasized the importance of top management commitment and empowerment, participation, recognition, and rewards.

According to Juran (1993), it is very important to understand the needs of the customers. This requirement applies to all involved in marketing, design, manufacture, and services. Identifying customer needs requires more rigorous analysis and understanding to ensure that the product meets customer needs and is suitable for its intended use, not just for meeting the product specifications. Therefore, market research is essential to identify customer needs. To ensure design quality, he proposed the use of techniques including quality function deployment, experimental design, reliability engineering, and concurrent engineering.

Juran considered quality management as three basic processes (Juran Trilogy): Quality control, quality improvement, and quality planning. In his view, the approach to managing quality consists of the following. The sporadic problem is detected and acted upon by the quality control; the chronic problem requires a different process, namely, quality improvement; such chronic problems are traceable to an inadequate quality planning process (Zhang 2015:68). Juran defined four broad categories of quality costs that can be used to evaluate the organisation's costs related to quality. This information is valuable to quality improvement. The four quality costs are listed as follows.

- Internal failure costs (scrap, rework failure analysis, etc.), associated with defects found prior to transfer of the product to the customer;
- External failure costs (warranty charges, complaint adjustment, returned material, allowances, etc.), associated with defects found after the product is shipped to the customer;
- Appraisal costs (incoming, in-process and final inspection and testing, product quality audits, maintaining accuracy of testing equipment, etc.) incurred in determining the degree of conformance to quality requirements; and
- Prevention costs (quality planning, new product review, quality audits, supplier quality evaluation, training, etc.), incurred in keeping failure and appraisal costs to a minimum.

#### 4.4.3 Crosby approach to TQM

Crosby (1979 in Zhang (2015:66) identified several important principles and practices for a successful quality improvement program, which include, for example, management participation, management responsibility for quality, employee recognition, education, reduction of the cost of quality (prevention costs, appraisal costs, and failure costs), emphasis on prevention rather than after-the-event inspection, doing things right the first time, and zero defects. Crosby claimed that mistakes are caused by two reasons: Lack of knowledge and lack of attention. Education and training can eliminate the first cause, and a personal commitment to excellence (zero defects) and attention to detail will cure the second.

Crosby also stressed the importance of the management style for successful quality improvement. The key to quality improvement is to change the thinking of top managers-to get them not to accept mistakes and defects, as this would in turn reduce work expectations and standards in their jobs. Understanding, commitment, and communication are essential. Crosby presented the quality management maturity grid, which can be used by organizations to evaluate their quality management maturity. The five stages are the following. Uncertainty, awakening, enlightenment, wisdom, and certainty. These stages can be used to assess progress in a few measurement categories, such as management understanding and attitude, quality organisation status, problem handling, cost of quality as percentage of sales, and summation of organisation quality posture.

The Quality Management Mature Grid and the Cost of Quality Measures are the main tools for managers to evaluate their quality status. Crosby offered a 14-step program that can guide organizations in the pursuit of quality improvement. These steps are listed as follows.

- Management commitment: To make it clear where management stands on quality.
- Quality improvement team: To run the quality improvement program.
- Quality measurement: To provide a display of current and potential non-conformance problems in a manner that permits objective evaluation and corrective action.
- Cost of quality: To define the ingredients of the cost of quality and explain its use as a management tool.

- Quality awareness: To provide a method of raising the personal concern felt by all personnel in the company toward the conformance of the product or service and the quality reputation of the company.
- Corrective action: To provide a systematic method of resolving forever the problems that are identical through previous action steps.
- Zero defects planning: Investigate the various activities that must be conducted in preparation for formally launching the Zero Defects program.
- Supervisor training: To define the type of training that supervisors need to carry out their part of the quality improvement program.
- Day of zero defects: Create an event that will make all employees realize, through a personal experience, that there has been a change.
- Goal setting: To turn promises and commitments into actions by encouraging individuals to establish improvement goals for themselves and their groups.
- Removal of error causality: To give the individual employee a method of communicating to management the situation that makes it difficult for the employee to meet the commitment to improve.
- Recognition: To appreciate those who participate.
- Quality councils: Bring together the professional quality people for planned communication on a regular basis.
- Do it over again: To emphasize that the quality improvement program never ends.

#### **4.4.4 Feigenbaum approach to TQM**

Feigenbaum (1991:66) defined TQM as; an effective system for integrating the quality development, quality maintenance, and quality improvement efforts of the various groups in an organisation so as to enable marketing, engineering, production, and service at the most economical levels which allow for full customer satisfaction. He claimed that effective quality management consists of four main stages, identified as follows.

- Setting quality standards;
- Assessing compliance with these standards;
- Acting when standards are not met; and
- Planning for improvement in these standards.

The quality chain, he argued, starts with the identification of all customer requirements and ends only when the product or service is delivered to the customer, who remains satisfied. Thus, all functional activities, such as marketing, design, purchasing, manufacturing, inspection, shipping, installation, and service, are involved and influence the attainment of quality.

Identifying customer requirements is a fundamental initial point in achieving quality. He claimed that effective TQM requires a high degree of effective functional integration among people, machines, and information, focusing on a system approach to quality. A clearly defined total quality system is a powerful foundation for TQM. The total quality system is defined as follows:

The agreed organisation-wide operating work structure, documented in effective, integrated technical and managerial procedures, to guide the coordinated actions of the people, the machines, and the information of the organisation in the best and most practical ways to assure customer quality satisfaction and economical costs of quality.

Feigenbaum emphasized that efforts should be made toward the prevention of poor quality rather than detecting it after the event. He argued that quality is an integral part of the day-to-day work of the line, staff, and operatives of an organisation. There are two factors that affect product quality: The technological-that is, machines, materials, and processes; and the human-that is, operators, foremen, and other organisation personnel. Of these two factors, the human is of the greater importance by far. Feigenbaum considered that the commitment of top management, employee participation, supplier quality management, information system, evaluation, communication, use of quality costs and use of statistical technology are an essential component of TQM. He argued that employees should be rewarded for their quality improvement suggestions, quality is everybody's job. He stated that effective employee training and education should focus on the following three main aspects. Quality attitudes, quality knowledge, and quality skills.

#### **4.4.5 Ishikawa's approach to TQM**

Ishikawa (1985:14) argued that quality management extends beyond the product and encompasses after-sales service, the quality of management, the quality of individuals, and the organisation itself. He claimed that the success of an organisation is highly dependent on treating quality improvement as a never ending quest. A commitment to continuous improvement can ensure that people will never stop learning. He advocated employee participation as the key to the successful implementation of TQM. Quality circles, he believed, are an important vehicle to achieve this. Like all other gurus, he emphasized the importance of education, stating that quality begins and ends with it. He has been associated with the development and advocacy of universal education in the seven quality tools (Ishikawa, 1985). These tools are listed below:

- Pareto chart; - Cause and effect diagram (Ishikawa diagram);
- Stratification chart;
- Scatter diagram;
- Check sheet;
- Histogram;
- Control chart.

Ishikawa (1985) suggested that the assessment of customer requirements serves as a tool to foster cross-functional cooperation; selecting suppliers should be based on quality rather than solely on price; cross-functional teams are effective ways for identifying and solving quality problems. Ishikawa's concept of TQM contains the following six fundamental principles: Quality first-not short-term profits first; - Customer orientation-not producer orientation; - The next step is your customer breaking down the barrier of sectionalism; - Using facts and data to make presentations-utilization of statistical methods; - Respect for humanity as a management philosophy, full participatory management; - Cross-functional management.

#### **4.5 Quality Gurus' results**

After reviewing the approaches to TQM of the five quality gurus, it became evident that each has his own distinctive approach. However, the principles and practices of TQM proposed by these quality

experts do provide the author with a better understanding of the concept of TQM. Their insights offer a solid foundation for conducting this study. Although their approaches to TQM are not totally the same, they do share some common points, which are summarized as follows:

- It is the responsibility of the management to provide commitment, leadership, empowerment, encouragement and appropriate support to technical and human processes. It is the responsibility of the top management to determine the environment and operation framework within an organisation. It is imperative that management encourages employee participation in quality improvement and develops a quality culture by changing perception and attitudes towards quality.
- Strategy, policy and organisation-wide evaluation activities are emphasized.
- The importance of employee education and training is emphasized in changing employees' beliefs, behaviour, and attitudes, enhancing employees' abilities to perform their duties.
- Employees should be recognized and rewarded for their efforts to improve quality.
- It is very important to control processes and improve the quality system and product design. The emphasis is on the prevention of product defects, not on inspection after the event.
- Quality is a systematic activity throughout the organisation, from suppliers to customers. All functional activities, such as marketing, design, engineering, purchasing, manufacturing, inspection, shipping, accounting, installation, and service, should be involved in quality improvement efforts.

#### **4.6 Implementation of TQM**

In reference to the evolution of TQM, it is argued that soft practices play a much more important role in the implementation and results of TQM. Soft practices are leadership, organisational learning, teamwork, process management, training, and communication. Lewis et al. (2006: 33) examined TQM factors in the criteria of ISO 9001: 2000 certification. Based on a deeper analysis applied to data collected from eight countries, they pointed out 12 practices to be the most critical practices for the implementation and success of TQM. Those practices are quality data and reporting, customer satisfaction, human resource utilization, process control management, training and education,

management commitment, continuous improvement, leadership, strategic quality planning, performance measurement, customer focus, and contact with suppliers and professional associates.

TQM has optimistic results and outcomes on organisation performance and operation (Zakuan et al., 2008; Abdullah et al., 2009; Kaynak 2003; Samson and Tersiovski 1999), especially in service organisations (Bon et al., 2012:86). Based on the literature review, the trends of TQM implementation show that organisations would be subject to one of two main categories: those implementing TQM and those out of the business market (Hoang et al., 2010:55). Hoang and his colleagues further argue that large organisations with TQM implementation developed more innovations and gained a higher competitive level compared to smaller organisations in the Asian region. They also found that organizations using TQM systems achieved better innovations and higher market share. TQM has a significant positive impact on organizational performance (Zakuan et al., 2008:54).

#### **4.7 TQM Practices**

Earlier studies on total quality management (QM) practices investigated their importance in business performance and competitive advantages. Studies of Saraph et al. (1989: 810) and Flynn et al. (1994: 569) developed frameworks involved eight measurable eight TQM practices. Many recent studies on the impact of TQM on innovation (Kim et al., 2012:98) have followed these two frameworks. Many frameworks of TQM practices were empirically developed (Ahire et al., 1996; Black & Porter, 1996; Kaynak, 2003; Motwani, 2001; Powell, 1995; Samson & Terziovski, 1999; Zeitz et al., 1997). Those studies investigated different relationships involved TQM. Examples, relationship between TQM practices and: operational performance (Samson & Terziovski, 1999:55), organisation performance (Kaynak, 2003:87), and organisation competitive advantage (Powell, 1995:76). They all shared practices of leadership, people management, customer focus, continuous improvement, and data and information usage.

The two elements 'product quality' and 'supplier performance' in the Ahire et al. framework were not included in this framework since they represented the results of TQM. In this framework, the 'quality department role' in the Saraph et al. framework was excluded since all departments in any organisation were involved in quality management. The 'Benchmarking' and 'internal quality information usage' in the Ahire et al. framework were similar to the element of "evaluation, "process control" and "cleanliness and organisation' in the Flynn et al. framework were relatively the same as the element of 'process control and improvement'. This study included two more elements, 'quality system improvement' and 'vision and plan statement', which were not found in their frameworks. Therefore,

this TQM concept covers a broader scope of TQM in comparison to their frameworks. In this study, TQM is defined as follows:

A management philosophy to continuously improve overall business performance based on leadership, vision and plan statement, evaluation, process control and improvement, quality system improvement, employee participation, recognition and reward, education and training, and customer focus. Furthermore, six key issues related to quality dimensions, customer-focused leadership, continuous improvement, HR management and based management should be researched and carefully handled to implement the concept of TQM in higher education (Krymets et al., 2022:45).

## **4.8 Constructions of total quality management**

### **4.8.1 Leadership**

According to DuBrin (1995:33), leadership is the ability to inspire confidence and support among those needed to achieve organisational goals. Anderson et al. (1994:56) explained the concept of leadership as; the ability of top management to establish, practice and lead a long-term vision for the organisation, driven by changing customer requirements, as opposed to an internal management control role. Thus, leadership is exemplified by clarity of vision, long-term orientation, coaching management style, participative change, employee empowerment, and planning and implementing organisational change. According to Juran and Gryna (1993:78), certain roles of top management can be identified as Establish quality policies, establish and implement quality goals, provide resources, provide problem-oriented training, and stimulate improvement.

The European Quality Award (1994) and the Malcolm Baldrige Quality Award (1999) recognize the crucial role of leadership in creating the goals, values, and systems that guide the pursuit of continuous performance improvement. Recognition of the critical role of leadership and its responsibility in the pursuit of continuous quality improvement echoes the arguments put forward by quality gurus such as Deming (1986:35), Juran (Juran and Gryna, 1993:59), and Crosby (1979). Thus, the concept of leadership in this study can be defined as the ability of top management to lead the organisation in continuously pursuing long-term overall business success. This is exemplified by top management participation, top management encouragement, employee empowerment, top management learning, top management commitment to employee education and training, and top management pursuit of product quality and long-term business success.

A predominant theme in the quality management literature is that strong commitment from top management is vital. The foundation of an effective leadership effort is top commitment. Demonstrating such commitment is, therefore, a primary leadership principle for achieving TQM. Lack of top management commitment is one of the reasons for the failure of TQM efforts (Brown, Hitchcock & Willard, 1994:67). However, the commitment of top management itself is not sufficient. It is more important that the top management personally participate in various quality management activities. Additionally, it should strongly encourage the participation of employees in quality management activities.

According to DuBrin (1995:34), an important leadership practice is to encourage people to assess the level of quality. To be an effective leader in most modern organisations, the top manager must continue to develop and learn. Knowledge of the business and continual learning are essential prerequisites to effective leadership (DuBrin, 1995:37). The extensive literature review by Anderson et al. (1994:54) suggested that if leadership wants to create organisational cultures, they will be more amenable to learning; they must set the example by becoming learners themselves and involving others in the learning process. Thus, a learning organisation will be established. Empowerment is the process of delegating decision-making authority to lower levels within the organisation. Particularly dramatic is the empowerment of the workforce (Juran and Gryna, 1993:38), which is valuable because it may release creative energy (DuBrin, 1995:39). To effectively lead the organisation, top management must empower employees to solve the problems they face.

Thus, employees can have the authority to fix problems and prevent their future occurrence. To effectively lead the organization, the top management must commit to providing sufficient resources for employee education and training, building trustful relationships with employees, and regarding them as valuable resources of the organization. Top management must be committed to allocating sufficient resources to prevent and repair quality problems. Top management should discuss quality frequently; for example, by giving speeches on the topic and asking questions about quality at every staff meeting. In fact, people make things happen. Therefore, top management must train and coach employees to assess, analyse, and improve work processes (Dale and Plunkett, 1990; Deming, 1986).

The study conducted by Garvin (1986:653-673) suggested that high levels of quality performance were always accompanied by an organisational commitment to that goal; high product quality did not exist without strong top management commitment. Many such empirical studies have also found that top management support for quality was a key factor in quality improvement. Therefore, it is essential that

top management focus on product quality rather than yields alone. More importantly, it is critical for the organisation to pursue long-term business success. The pursuit of short-term business success places quality behind yield, costs, and meeting delivery schedules, according to the author of this study.

#### **4.8.2 Vision and Plan Statement**

The vision and plan statement has two aspects: Vision statement and plan statement, which are explained as follows; a vision statement describes how an organisation wants to be seen in its chosen business. As such, it describes standards, values, and beliefs. Above all, a vision is the advertisement of the intention to change. As such, it propels the organisation forward and acts against complacency (Zhang 2015: 67. All employees should be able to realize how they can contribute to the vision. A statement of values and behaviour is a powerful motivating force that can be used to drive a process of change forward (Kanji and Asher, 1993:100). The intention of a vision statement is to communicate the organisation's values, aspirations, and purpose, so that employees can make decisions that are consistent with and supportive of these objectives (Meredith and Shafer, 1999:77). An effective vision statement tends to be written using language that can inspire employees to high levels of performance and, further, to foster their commitment.

Therefore, an organisation should have a long-term vision statement. A quality policy is the overall intentions and direction of an organisation regarding quality, as formally expressed by top management (ISO 8402, 1994: v). Similarly, a quality policy describes how an organisation wants to be seen regarding its quality. In this sense, a quality policy is a 'vision statement' of quality. Various employees should be involved in the development of the vision statement and quality policy, which, in return, should be well communicated to employees at different levels to stimulate commitment. In fact, a vision statement usually leads to mission statements that detail short-term organisation goals or departmental goals. To realize a vision statement, an organisation must make plan statements that support the realization of its vision (Mann, 1992:29-44). A plan statement is a formalization of what is intended to happen at some time in the future.

A plan cannot guarantee that an event will happen; it is a statement of intention that 'will happen' (Slack et al., 1995:63). In an organisation, there are many kinds of plan, including a strategic business performance plan, a quality goal plan, and a quality improvement plan. A quality improvement plan aims for quality improvement, which are actions taken throughout the organisation to increase the effectiveness and efficiency of activities and processes to provide added benefits to both the organisation and its customers (ISO 8402, 1994: v). Employees at different levels should be involved

in drawing up these plans, which should be well communicated to employees, in turn encouraging their commitment to the realization of these plans (Mann, 1992:36).

### **4.8.3 Evaluation**

ISO (International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing international standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organisations, governmental and nongovernmental, in liaison with ISO, also take part in the work (Mustafa, 2023:201).

The concept of evaluation can be defined as systematic examination of the extent to which an entity can fulfil specified requirements (ISO 8402, 1994: v). Juran and Gryna (1993:48) stated that a formal evaluation of quality offers a starting point by providing an understanding of the size of the quality issue and the areas demanding attention. Evaluation can identify the difference between actual performance and goal. Evaluating the situation in the quality management practices of an organization provides an important basis for the organization to improve its quality management practices. This evaluation information should be communicated to employees to encourage them to improve things. Hackman and Wageman (1995:309) proposed that the evaluation of variability is a change principle. Uncontrolled variance in processes or outcomes is the primary cause of quality problems and must be evaluated and controlled by those who perform the organisation's front-line work.

Only when the root causes of variability have been identified can employees take the appropriate steps to improve work processes. There is a set of practices that can support the implementation of evaluation. An organisation operates in a dynamic and turbulent environment. To maintain competitive advantage in the market, the organisation should continuously evaluate its various business strategies. Business strategy is a set of objectives, plans, and policies for the organisation to compete successfully in its markets (Meredith and Shafer, 1999:309). In effect, the business strategy specifies what the competitive advantage of the organisation will be and how this advantage will be achieved and sustained. Based on such evaluation activities, the organisation can adjust its business strategy to keep it dynamic (Mann, 1992:103).

Quality audit is a systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented

effectively and are suitable to achieve objectives. Quality audit can be used for quality systems, processes, products, and services. One purpose of a quality audit is to evaluate the need for improvement or corrective action (ISO 8402, 1994). Benchmarking is a powerful tool to use as a continuous process of evaluating an organization's products, services and processes against those of its toughest competitors or of organisations renowned as world-class or industry leaders. Benchmarking is a point of reference by which performance is judged or measured; Competitive benchmarking is the continuous process of measuring products, services, and practices against those of the toughest competitors or leading organisations (DuBrin, 1995:44).

According to Slack et al. (1995), there are many types of benchmarking such as internal, external, non-competitive, competitive, performance, and practice. Benchmarking can judge how well an operation is performing and can be seen as one approach to setting realistic performance standards. It is also concerned with searching for new ideas and practices that might be able to be copied or adapted. Benchmarking is an effective tool for guiding the establishment of quality improvement goals, evaluating various activities within the organisation, and assessing customer requirements (Hackman and Wageman, 1995, 22). Quality costs can be divided into four categories: Internal failure, external failure, evaluation, and prevention (Juran and Gryna, 1993: iv).

According to Feigenbaum (1991:55), the periodic collection and analysis of quality-related costs monitor the cost effectiveness of the quality system. The objective is to track quality-cost trends in both total, as well as individual, quality-cost fields. Timely measurement and reporting of quality level data are used to evaluate quality performance, set quality level goals, and evaluate corrective action efforts. Such information is becoming the basis for establishing improvement goals, priority schedules, and so on. The objective of evaluating quality-related costs is to formulate opportunities to reduce cost and reduce customer dissatisfaction. Analysis of quality-related costs helps identify those opportunities for improvement that offer the largest cost savings (Ishikawa, 1985). To encourage employees to pay attention to quality, quality-related data should be used to evaluate employee performance. Quality-related indices should be combined with general employee performance standards.

#### **4.8.4 Improvement of the quality system**

As indicated earlier, quality system is defined as the organisational structure, procedures, processes, and resources needed to implement quality management (ISO 8402, 1994: vi). In 1987, the International Standardization Organisation published the ISO 9000 standards series on quality management and quality assurance. Implementing ISO 9000 is a way to improve the quality system in

an organisation. In this study, the improvement of the quality system means establishing a quality system according to the requirements of ISO 9000. Through the implementation of ISO 9000, a quality manual, quality system procedures, and work instructions are established. In the end, an organisation can apply to be registered as having an ISO 9001 (9002 or 9003) quality certificate (Randall, 1995; Mirams and McElheron, 1995). A quality manual is a document stating the quality policy and describing the quality system of an organisation (ISO 8402, 1994) and should cover all the applicable elements of the quality system standard required for an organisation.

Guidelines for developing quality manuals (ISO 10013, 1995) can be used to create a quality manual. A procedure is a specified way to perform an activity. A written procedure contains the purposes and scope of an activity; what shall be done and by whom; when, where, and how it should be done; what materials, equipment, and documents shall be used; and how it shall be controlled and recorded. Documented quality system documents describe the activities of individual functional units needed to implement the quality system elements (ISO 8402, 1994; ISO 10013, 1995). Work instructions consist of detailed work documents, which can guide people in performing specific work.

It should be noted that the development of various work instructions should be based on existing documents and characteristics of the organisation and should be presented to different people for a detailed review. Thus, these work instructions can be effectively implemented in practice (Randall, 1995; Mirams and McElheron, 1995). With an ISO 9000 quality system in place, an organisation may consider becoming ISO 9000 certified. Please, note that a quality system should be continuously improved. Quality system documents should be continuously modified with the change in quality activities within the organisation. Of course, it is essential to maintain the quality system's conformity with ISO 9000 requirements (Randall, 1995:78).

#### **4.8.5 Participation of employees**

Employee participation can be defined as the degree to which employees in an organisation engage in various quality management activities. By personally participating in quality management activities, employees acquire new knowledge, see the benefits of quality disciplines, and obtain a sense of accomplishment by solving quality problems. Participation is decisive in inspiring action on quality management (Juran and Gryna, 1993 in Vasasiri, 2012:54). Employee participation is exemplified by things such as teamwork, employee suggestions, and employee commitment. A remarkable characteristic of employee participation is teamwork, which refers to cross-functional and within-functional teams.

The aim of a team is to improve the input and output of any stage. A team may well be made up of people from different departments of the staff, everyone having the opportunity to contribute ideas, plans, and figures. Teamwork is sorely needed throughout the organisation; it can compensate for one's strength for another's weakness (Deming, 1986:44). Group work and group decision-making offer several advantages over individual effort. If several knowledgeable people are brought into the decision-making process, several worthwhile possibilities can be discovered, making synergy a possible benefit. Group members often evaluate each other's thinking; thus, the team is likely to avoid major errors (DuBrin, 1995, 66). Cross-functional quality teams and task forces are among the most common features of TQM organisations (Hackman and Wageman, 1995:59).

Teamwork can be characterized as collaboration between managers and subordinates, between different functions (Dean and Bowen, 1994:418). Teamwork practices include identifying the needs of all groups and organisations involved in decision-making, trying to find solutions that will benefit everyone involved, and sharing responsibility and credit. Such practices are often implemented by forming teams. Hackman and Wageman (1995:24) stated that the single most used TQM implementation practice is formation of short-term problem-solving teams. Problem-solving teams work on a wide variety of tasks, ranging from cross-functional involvement in tackling quality problems related to many functional departments to solving within-functional quality problems. Anderson et al. (1994:53-56) suggested that internal cooperation among employees enables higher individual performance by creating mutually beneficial situations among organisational members and between organisational members and the organisation. To have effective employee participation, employee contributions and ideas must be taken seriously and placed into operation whenever the recommendations are sound and relevant.

#### **4.8.6 Recognition and reward**

Recognition is defined as the public recognition of superior performance of specific activities. Reward is defined as benefits, such as increased salary, bonuses, and promotion, which are conferred for generally superior performance with respect to goals (Juran and Gryna, 1993:29-37). Public recognition is an important source of human motivation (Deming, 1986, p. 33). It almost goes without saying that an important feature of any quality improvement program is the showing of due recognition for improved performance by any individual, section, department, or division within the organization. In order to effectively support their quality effort, organizations must implement an employee

compensation system that strongly links quality and customer satisfaction with pay (Brown et al., 1994).

Deming (1986) and Ishikawa (1985) identified one source of human motivation at work as social motivation, the energy that comes from cooperation with others on a shared task, and the incentive provided by recognition from others. A large majority of organisations implementing TQM modify their performance measurement and reward systems so that achievement of specific quality goals can be assessed and rewarded (Hackman and Wageman, 1995:66). The implementation of TQM relies increasingly on performance measurement and performance and contingent rewards to motivate and control employees. According to the review results by Hackman and Wageman (1995), 85% of TQM organisations have developed programs to reward individuals and teams for quality achievements. DuBrin (1995:98) stated that punishment is a behaviour modification strategy. Punishment is the presentation of an undesirable consequence or the removal of a desirable consequence due to unacceptable behaviour and is regarded as a negative motivator.

DuBrin (1995) further proposed that a reward and recognition system should be equitable. Workers who achieve the same level of performance should receive comparable rewards. Similarly, workers who do not attain certain levels of performance should receive comparable punishment. In this sense, punishment is a special recognition and “reward” for employees who do not perform well. It is important to note that employee recognition and rewards should be based on equity. Effective recognition and reward activities can stimulate employee engagement with the organisation. An organisation’s TQM initiative must be supported with a recognition and reward system that encourages and motivates employees to achieve desired performance.

Organisations that are serious about achieving quality and customer satisfaction must integrate these aspects into their recognition and reward system. Ishikawa (1985) suggested that organisation-wide gain-sharing or profit-sharing programs can appropriately be used to recognize and reward collective excellence. Excellent employee suggestions should be financially rewarded to encourage employee participation. The forms of recognition can be a praise letter, an oral praise, award ceremony, moral award, publicly presenting successful working experiences (Zhang, 2000:53-57). Mann and Kehoe (2005:11-23) suggested that improving working conditions be used to recognize employee quality improvement efforts. Cherrington (1995) stated that rewards can be merit pay, piece rate incentives, team and group incentives, skill-based pay and pay-for-knowledge, suggestion system, profit sharing, salary increase, and bonus scheme.

#### **4.8.7 Education and training**

Training refers to the acquisition of specific skills or knowledge. Training programs attempt to teach employees how to perform activities or perform a specific job. Education, on the other hand, is much more general and attempts to provide employees with general knowledge that can be applied in many different settings (Cherrington, 1995:24). Cherrington suggested that education and training require a systematic approach. The development of a sound education and training program requires systematically gathering data on the needs of employees or the organisation. A good assessment includes an analysis of; how well the organisation is achieving its goals, the skills needed by the workforce to accomplish these goals, as well as the strengths and weaknesses of the current workforce (Cherrington, 1995:24).

A careful analysis of these items provides valuable information to design effective training activities. Investment in education and training is vitally important to ensure the success of education and training programs. According to Hackman and Wageman (1995), training is the second most used TQM implementation practice in the United States. Organizations that implement TQM invest heavily in training for employees at different levels. Deming (1986) spoke often of the importance of properly training workers in performing their work. Otherwise, it is difficult to improve their work. The cross-functional quality teams among the characteristics of TQM organisations stack the cards in favour of learning by the simple fact that they are cross-functional; individual members are exposed to more, and more diverse, points of view than would be the case if they worked mostly by themselves or in within-functional teams (Hackman and Wageman, 1995:67).

Learning is the ability and willingness of the organisation to engage in learning or knowledge-seeking activities at the individual, group, or team, and organisational levels (Anderson et al., 1994:472-509). To have effective learning activities, an organisation should continually encourage employees to accept education and training. The TQM aspiration of continuous improvement in meeting customer requirements is supported by a thorough learning orientation, including substantial investments in training and the widespread use of statistical and interpersonal techniques designed to promote individual and team learning (Hackman and Wageman, 1995:67). According to Deming (1986), Japanese organisations obviously regard their employees as their most significant competitive assets and provide good general orientation as well as training in specific skills. Note that investment in employee education and training is to pursue long-term overall business excellence. In fact, employees are valuable resources worthy of receiving education and training throughout their career development.

According to Feigenbaum (1991), a brief and general course for first-line supervision is modern methods of planning and controlling quality, essentially concentrating upon the physical elements affecting product quality. To use various quality tools or methods effectively, employees should be trained in these methods. More training should be given to employees, such as quality inspectors, supervisors, and production operators. It is important to provide training to employees just when they need it; namely, just-in-time training. To perform their work well, employees at different levels should accept specific training in work skills. This training can improve employee skills. Additionally, employees should accept quality consciousness education to improve their commitment to quality. Newly recruited employees should accept more education on quality awareness. The newsletter, the slogan of the poster and the quality day are commonly used to educate and / or train employees (Zhang, 2000:53-57). In essence, education and training have failed if they do not result in a change in behaviour.

#### **4.8.8 Customer Focus**

Customer focus can be defined as the degree to which an organisation continuously satisfies customer needs and expectations. A successful organisation recognizes the need to put the customer first in every decision made (Philips, 1995:26-43). The key to quality management is maintaining a close relationship with the customer to fully determine the customer's needs, as well as to receive feedback on the degree to which these needs are met. The customer should be closely involved in the product design and development process, with input at every stage, so that there is less likelihood of quality problems once full production begins (Flynn et al., 1994:339).

Obtaining customer complaint information is to seek opportunities to improve product and service quality. Quality complaints have different problems that require different actions. Based on customer complaint information, it is important to identify the 'vital few' serious complaints that require an in-depth study to discover the basic causes and remedy those causes (Juran and Gryna, 1993). To improve customer focus efforts, customer complaints should therefore be treated with top priority. Records and analysis of field customer complaint reports furnish useful information on product control. This information reflects the effectiveness of control programs and highlights the nonconformities upon which more aggressive corrective action must be initiated (Feigenbaum, 1991, Murumudi, 2017:22).

Obtaining customer satisfaction information is essential to continue focus on customers. Intensive examination of finished products from the customer's point of view can be a useful predictor of customer satisfaction. This information includes data on field failures and service call rates and analysis

and reporting of trends in customer attitude regarding product quality. Such information is valuable for new product development (Feigenbaum, 1991:66). Customer satisfaction may very well predict the future success or failure of an organization (Kanji and Asher, 2018). Therefore, it is very important to find customer satisfaction and perception of quality. The insights gained can clearly help the organisation improve quality. In-depth marketing research can identify suddenly arising customer needs.

The achievement of quality requires the performance of a wide variety of identification activities of quality tasks such as the study of customer quality needs, design review, and field complaint analysis (Juran and Gryna, 1993). To achieve quality, it is essential to know what customers need and provide products that meet their requirements (Ishikawa, 1985). According to the review results from Hackman and Wageman (1995), obtaining data about customers is one of the most used TQM implementation practices. Deming (1986) suggested that organisations understand what the customer needs and wishes now and in the future so that products and services can be designed to satisfy those needs and wishes. To pursue customer focus, organisations should always provide warranties on their products sold to customers. Therefore, customers will reduce their risk in purchasing products. In addition, organizations should pay sufficient attention to customer services. In a word, pursuing customer focus efforts should be a long-term business strategy; it is never ending (Juran and Gryna, 1993).

#### **4.8.9 Customer satisfaction**

Customer satisfaction is defined as the degree to which an organisation's customers continually perceive that their needs are being met by the organization's products and services (Anderson et al., 1994:472-509). According to the literature review by Anderson et al. (1994), at least two different conceptualizations of customer satisfaction can be distinguished; Transaction-specific and cumulative. From a transaction-specific perspective, customer satisfaction is viewed as a post-choice evaluative judgment of a specific service per occasion. By comparison, cumulative customer satisfaction is an overall evaluation based on the total service and consumption experience with a product or service over time. Thus, overall customer satisfaction is a more fundamental indicator of the organization's past, current, and future performance.

Customer satisfaction is a customer's feelings of pleasure or disappointment resulting from comparing the perceived performance (or outcome) of a product in relation to his or her expectations (Zhang 2000, in Beukes, 2015: 30). According to Zeithaml et al. (2008:103) in Moletsane (2012:22), customer satisfaction is a broad concept, whereas service quality focuses specifically on the dimensions of

services, and, therefore, perceived service quality is a component of customer satisfaction. According to Noone and Namasivayam (2010:273) and Palmer (2011:288), there is a strong relationship between customer satisfaction and service quality. Customer satisfaction affects the evaluations of service quality, and the evaluations of service quality affect customer satisfaction.

In reference to Fornell et al. (1996: 6-21), customer satisfaction is a function of perceived performance and expectations. If the performance falls short of the expectations, the customer is dissatisfied. If the performance matches the expectations, the customer is satisfied. If the performance exceeds expectations, the customer is very satisfied or delighted. In addition to quality of products and services, customer satisfaction can also be influenced by price. Naumann and Giel (1995:10-16) stressed that if customers' perceptions of benefits match the price exactly, customers will be satisfied. If the benefits are considered less than the price, then the customers will feel that they are not getting their money's worth and will indicate very low levels of satisfaction (ibid., 14). In fact, customer satisfaction is not static but continues to evolve in an upward spiral. The diversity of product offerings has conditioned customers to have higher expectations (ibid., 15). Customer opinions of products and services can change very quickly, the change in a negative direction occurring considerably faster and more easily than increasing customer satisfaction. Much work must be done to increase customer satisfaction, but only one failure may cause dissatisfaction.

#### **4.9 Explanations of overall organisation performance**

According to Aminuddin, Athirah, Halif, and Majid (2018:827), employee satisfaction has become a trend and has grabbed the organizations' attention these days, since it is related to the organisational effectiveness as well as crucial elements in identifying organizations bottom line. Employee satisfaction is defined as the degree to which employees like their jobs; it is simply how employees feel about their jobs and different aspects of their jobs. It is the extent to which employees like (satisfaction) or dislike (dissatisfaction) their jobs. Employee satisfaction is an attitudinal variable and can be considered as a global feeling about the job or as a related constellation of attitudes about various aspects or facets of the job (Spector, 2007:11-19). The global approach is used when the overall or bottom-line attitude is of interest; for example, if one wishes to determine the effects of people liking or disliking their jobs.

This can be very useful for organizations that wish to identify areas of dissatisfaction that they can improve upon. Sometimes, both approaches can be used in order to obtain a complete picture of employee job satisfaction (Spector, 2007:14). Employee satisfaction is not a static state but is subject

to influence and modification from forces within and outside an individual, which are his or her own personal characteristics and the immediate working environment (Baran, 1986; Lam, 1995). In one organisation, some employees may be satisfied and others may not. Individuals differ in how they respond to work conditions. While some employees may be highly satisfied with a particular job, other employees may find the same conditions extremely dissatisfying (Cherrington, 1995, 54).

#### **4.10 Summary**

The beginning of this has offered the definition of Total Quality Management (TQM) from various sources in the literature, where it could be pinpointed that customer satisfaction is the key within organizations. Thus, within the context of this study one has to emphasise that such organisations will be regarded as the minibus taxi industry. The TQM concepts of the quality gurus Deming, Juran, Crosby, Feigenbaum, and Ishikawa were described as they took different, though interrelated approaches. The relevance of each approach will be realized when the literature is analysed, and all will be infused to show relevance to the management of the minibus taxi industry. In order to empirically test the theoretical models hypothesised in this study, it is necessary to operationalise these theoretical constructs so that empirical investigation becomes possible. Therefore, a set of elements must be developed adequately to measure the constructs of TQM implementation, employee satisfaction, customer focus, customer satisfaction, and strategic business performance. The items should be chosen or developed in a careful manner to tap as comprehensively as possible the conceptual domain of the theoretical constructs.

In addition, some TQM literature from other researchers was studied, in which constructs of TQM were discussed. Implementing each construct is through a set of TQM practices. The detailed explanations of these constructs and the set of practices that support their implementation were also described. The structures of overall business performance within TQM were identified as important for organisations: Employee satisfaction, customer focus, customer satisfaction, and strategic business performance. These constructs were also explained in more detail. The TQM implementation constructs and overall business performance were developed. The aim of this model was to examine the effects of different structures of overall business performance.

## CHAPTER FIVE

### RESEARCH METHODOLOGY

#### 5.1 Introduction

The purpose of this chapter is to present the research methodology utilized to conduct this study. Research design and methodology are paramount in conducting research as they assist the researcher in obtaining the research objectives of the study. The research methodology provides tools that one will use to ensure that the results of the research project reveal scientific results. It can be through the proper choice of these tools that one can achieve the goals set for the study.

#### 5.2. Research design

According to De Vos, Strydom, Fouché, and Delpont (2011:63), there are two well-known and recognised approaches to research, namely, the qualitative and the quantitative paradigms. With reference to these two paradigms, this study premises itself evenly in the qualitative paradigm due to the nature of the questions and objectives set for this study. Maxwell (2012:30) argues that the strengths of qualitative research derive significantly from this process orientation toward the world, and the inductive approach, focusing on specific situations of people, and emphasis on description rather than numbers.

Maxwell (2012:31) further mention intellectual goals for which studies of qualitative nature are especially suited, such as; understanding the meaning, which he called 'participants' perspectives', for participants in the study, of the events, situations, experiences and actions that they are involved with or engage in; understanding the particular contexts within which the participants act, and the influence that this context has on their actions; understanding the process by which events and actions take place; identifying unanticipated phenomena and influences, and generating new 'grounded' theories about the latter; and developing causal explanations.

Furthermore, research design is explained within the context of this study as an overall strategy or plan that the researcher used to carry out research and collect relevant data (Akhtar, 2016:22). Boru (2018) also added that the research design is regarded as the "glue" that holds every component of a research study. In essence, this study based on a qualitative research design by which the descriptive approach was adopted. Triangulations were considered; triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena under

study (Bryant-Lukosius, DiCenso, Blyeth & Neville 2014:1). The main purpose of descriptive research is to describe the set of circumstances. The main feature of this method is that the scientist does not have direct control over the variables; he or she can only report what is happening or what has happened (Mishra & Alok, 2017:2).

Qualitative research methodology is preferred as it will help answer research questions and achieve the research objectives of this study. Saunders, Lewis, and Thornhill (2020:291) described research design as the framework of the study on how to generate empirical evidence to examine the research questions. The empirical evidence for this study will derive from the data collected from participants in the minibus taxi industry.

There are various studies in the field of qualitative research such as those identified in (Rundowns, 2021:04): *Historical study*, the purpose of a historical study is to draw conclusions about the present and future, based on research conducted in the past; *Phenomenology*, here the researcher looks to gather information that explains how individuals experience a phenomenon and how they feel about it; *Grounded Theory*, the researchers seek not only to identify problems in social scenes, but also to define how people deal with those problems; *Ethnography*, researchers pursuing this study format will immerse themselves into the culture they are researching; and *Case study*, the researcher may draw upon multiple sources of data, such as observation, interviews and documents among others.

Furthermore, in this study, the research design is considered an overall plan that deals with aspects of the complete design from the type of study, data collection approaches, experimental designs, and statistical approaches for data samples (Bairagi & Munot, 2019:70). There are various research designs such as; Descriptive research design, it deals with finding out the characteristics or particular behaviour or pattern in a specific group; diagnostic research design, it is trying to conclude with findings that establish relationships or associations; experimental research design, here is about making attempts to or infer to come up with new things; Exploratory, is about inventing or discovering new things; Hypothesis testing research design, the study deals with finding out the causal relationship between variables associated (Bairagi & Munot, 2019:77).

This research has taken various techniques classified as qualitative methods. This study took the steps of a descriptive approach, as Babbie (2008:99) argued that descriptive studies answer questions of what, where, when, and how. Manoharan (2010:14) emphasizes that 'Descriptive research concerns conditions or relationships that exist; practices that prevail; beliefs, point of view, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing'.

### **5.2.1. Population and sampling**

Deciding on a sample or unit of analysis included consideration of the feasibility of collecting and analysing the data, the validity thereof, as Devlin (2021:340) adds that researchers want to be able to say that their sample mirror, or its representative of, the population of interest. It was imperative to obtain perceptions of all commuters from the minibus-taxi industry as stakeholders in road safety, as it cannot be directly observed. Remler and Ryzlin (2022:156) added that the population the study aims to investigate in the first place is, thus sampling is indispensable to the researcher. Usually, the time, money, and effort involved do not allow a researcher to study all possible members of a population. Furthermore, it is generally not necessary to study all possible cases to understand the phenomenon under consideration.

The research was restricted to selected areas within the local authorities of SDM that include the local municipalities of Emfuleni, Lesedi, and Midvaal. The researcher chose these areas for accessibility and feasibility purposes in terms of data collection. In these areas, the commuters of minibus-taxis, as the participants considered, gave their experiences using minibus-taxis as a form of public transport. The members of the committees of the main taxi and minibus associations are also participants in this study to explain their involvement in road safety through the management of taxi operations. The officials of taxi associations are paramount to this study, as the application of TQM will be relevant in their management of the industry. Municipal officials designated to address public transport related challenges will also be considered for interviews to explain their participation or intervention in road safety aspects.

### **5.2.2. Sampling Techniques**

A sample of approximately 10% was used as a participant base on the plans set in chapter 1 for the purpose of this study, as recommended. The saturation point was considered as the research data collection tool could not provide new information. A nonprobability sampling technique was utilized therein. Two broad sampling techniques were applied such as; convenience sampling, involving the selection of the most accessible. Convenience sampling was applied for victims of road accidents involving minibus taxis, whereby records were traced from law enforcement agencies; and second, judgmental sampling, referring to the researchers' selection of the most productive sample to answer research questions. SDM officials and members of the minibus-taxi associations' committee responsible for day-to-day operations within the minibus-taxi industry were considered due to their experiences in the management of the industry.

### **5.2.3. Sampling size**

As it was realized that qualitative research experts argued that there is no straightforward answer to the question of ‘how many’ and that the sample size is contingent on several factors related to epistemological, methodological and practical issues (Vasileion, Barnett & Young, 2018:2). Many factors were taken into account to decide on the sample size for the research. The larger the sample size, the better the research results. Factors such as time required, costs involved, and the circumstances of the people involved will all affect how large the sample size will be. The participants who were consulted were as follows; Officials from SDM’s Directorate of Transport and Infrastructure, law enforcement officers, members of the executive committee of the taxi association, taxi drivers and commuters.

### **5.3. Recruitment of Participants**

Arrangements were made to make an appointment for the interview as it was already made in terms of consent to conduct the research.

- SDM officials

Permission has already been granted to conduct this study. Therefore, the contact details of the designated officials were provided. It became easier to contact these participants, as an opportunity to conduct interviews in their workplace was offered.

- Taxi Association officials

There was a request from the gatekeepers of the umbrella associations to arrange access to the details of the officials for an appointment arrangement. Upon receiving details, these participants were contacted to set an interview appointment.

- Commuters

It was infeasible to arrange an appointment with the commuters. In this instance, these stakeholders will be met randomly and informally under secure circumstances. The researcher has exercised caution with regard to comfortable of commuters in responding to taxi related livelihood experiences.

### **5.4. Data collection tools**

Data were collected using a literature study on the topic. According to Mishra and Alok (2017:6), the researcher must review two types of literature, first the conceptual literature which is related to concepts

and theories, and second the empirical literature which consists of previous studies similar to the proposed research problem. The researcher will undertake a vast literature review on the research problem of a high rate of road accidents involving the minibus taxi industry. (Maxwell 2012:106). The following is a description of these data collection mechanisms to be utilised, i.e., a literature review, interviews, and observation:

#### **5.4.1. Literature sources**

The theoretical framework of this study was drawn based on the following literature sources; books, public transport journals, academic articles, policy documents, and relevant government publications, among others. The literature study provided a general description of the study phenomenon through the eyes of people who have experienced it first-hand and provided a theoretical grounding or paradigm before data collection.

#### **5.4.2 Interviews**

An interview provided the opportunity to gather data through direct face-to-face interaction between individuals, gaining in-depth understanding of participants in natural and relaxed settings. Structured and unstructured interviews are regarded the most suitable techniques that were used during this study. Semi-structured interviews were used to gather data from almost all participants. One will recall that there was a proposal of views and perception. It compelled the researcher to investigate further, whereby there will be a request of reflection.

#### **5.4.3. Observation**

Observation was useful for data collection. In essence, observation placed the researcher in the context that was of interest and helped with data collection. Remler & Ryzin (2022:81) refer to two broad types of observational activities: participant and nonparticipant. With participant observation, the researcher immerses himself/herself in a situation alongside target participants in the field. The aim here is to become an accepted member of the participatory community. In non-participant observation, the researcher stands back from the situation and observes at a distance either in situ or using video material.

Observation took place in the minibus-taxi ranks to have a clear picture of the minibus-taxi operations in other regions to further identify relevant contributing factors to road accidents. Investigating by observation the impact of minibus-taxi routes allocated per minibus-taxi association in SDM in line

with the improvement of road safety. Observing the infrastructural conditions of roads utilised by minibus-taxis daily, that is, road signs, potholes and activities taking place in the vicinity that could have a direct or indirect influence on road related accidents (particularly street vendors on sidewalks).

### **5.5. Data Analysis Strategy**

As Yin (2016:147) emphasises that data collection is constantly accompanied by analysis. In the analysis of the data, raw data were used to create a descriptive model that represents the cases under study. It should be taken into account that in all qualitative studies data analysis is an ongoing process from the start of the research project. In this instance, phenomenological analysis processes were followed by which reading, reflection, writing, and rewriting enabled the researcher to transform lived experiences about road safety into a textual expression. This study used coding and memos, in which field notes or interviews are recorded and analysed immediately after events, and there is a continuous and responsive interaction between the collection and analysis, with the data directing the coding process and vice versa.

### **5.6 Ethical considerations**

In undertaking this research project, the ethical standards of North-West University (NWU) were adhered to. This research proposal was subjected to review and scrutiny by the Basic and Social Sciences Research Ethics Committee (BaSSREC) in accordance with acceptable ethical requirements. The researcher had completed the Online Research Ethics Training Module for the Social Sciences and Humanities through Macgaurie University. Therefore, the following ethical principles were observed in the research study: Informed consent, right to privacy, honesty with professional colleagues, and confidentiality / anonymity.

The cover letters, in hard and soft copies, outlined the purpose of the study, voluntary participation, expected commitment time, and potential risks or benefits. The letter also included contact information for any follow-up questions. The students were asked if they were willing to participate. Those who expressed their willingness to participate received a questionnaire to respond to. Those who were not interested were excluded from participating.

### **5.7 Summary**

The chapter of research methodology explained the processes followed by the researcher in the collected data from the research participants that were identified. Data were collected from a sample

that included various stakeholders within the taxi industry. The stakeholders who were included in this study were relevant to understand their perception, views and attitudes toward the safety of commuters on the road in the minibus taxi industry, such as; SDM Officials (together with traffic officers), members of the taxi association, taxi drivers and commuters. In this chapter, it was explained that a qualitative research approach was adopted. Semi-structured interviews were used because the researcher aimed to collect non-numeric data through open-ended questions. Data collection techniques were described and produced rich and qualitative data, which were analysed using thematic data analysis.

## **CHAPTER SIX**

### **DATA PRESENTATION AND ANALYSIS**

#### **6.1 Introduction**

In the previous chapter of research methodology, the discussion described the way research techniques were used. This chapter is going to present data that was collected in the field and offer analysis based on responses from participants. The chapter will outline the participation of the designated officials of the Sedibeng District Municipality within the Directorate of Transport and Infrastructure (taxi industry designated officials); Executive Committee of Taxi Associations; designated officials of traffic law enforcement; taxi drivers and commuters from the ordinary taxi industry.

To ensure academically sound presentation of findings, this chapter is comprised through sections and sub-sections emanating from drafts of data collection process. The first section presents the background of the participants (interviewees), then a sub-section with their accounts or responses followed by an analysis of the themes. The second section will cover the data collected through participant and nonparticipant observations; thus, the subsection will be an analysis of findings. The analysis will focus on the causes of the high rate of road accidents involving the minibus, whereby the safety of commuters is of great concern for this study.

#### **6.2 Background and Introduction of the Participants**

As indicated, the study follows a qualitative design with the utilisation of observations and semi-structured interviews. Interview questions are linked to pedestrian safety within the transport industry. These questions were posed to allow the expression of participants' attitudes, beliefs, perceptions, and orientations toward the phenomenon under study. The first section describing the background of all participants who were interviewed followed by the section that will narrate their contribution during the engagement when collecting data.

##### **6.2.1 Sedibeng District Municipality (SDM)**

The SDM (field of study) is the area where the study has taken place, it became appropriate to conduct the interviews with relevant officials designated to respond to interview questions. Thus, the officials are introduced as follows.

### **6.2.3 Officials of the Directorate of Transport and Infrastructure (SDM)**

This office is responsible for the allocation of permits according to the application of the respective taxi associations. In SDM the directorate works closely with the minibus-taxi industry including other public transport modes. The Directorate finalises the allocation of routes to respective taxi associations in line with their permits (operating licences) per their applications. Thus, in this regard, the verification of routes is conducted by SDM from time to time to control the transportation of commuters within the district. The district consists of three local municipalities, in which each official designated to deal with the taxi industry was consulted for interviews. These local authorities are as follows: a) Emfuleni Local Municipality; b) Lesedi Local Municipality; and c) Midvaal Local Municipality, (one official from each local municipality) coded as follows:

- a) SDR1 (SDM Director: Transport and Infrastructure)
- b) EO1 (Emfuleni official: Taxi Competency)
- c) MO1 (Midvaal official: Taxi Competency)
- d) LO1 (Lesedi official: Taxi Competency)

### **6.2.4 Law enforcement: Traffic Department**

The enforcement of national traffic laws is divided into two subunits; namely: National Traffic Police Norms and Standards, as well as the Compliance Unit. The primary function of the National Traffic Police Unit is to provide for coordination, planning, regulation, and facilitation of traffic law enforcement in respect of road traffic matters by national, provincial, and local spheres of government. The officials of this unit were identified since they ensure driver fitness and vehicle roadworthiness, freight and public transport, dangerous driving, intoxicated drivers, pedestrian road rules enforcement, and overloading control, among others. Their contribution was deemed necessary to further attain the objectives of the study (one higher-ranking official from each local municipality) coded as follows:

- a) TOE1 (Emfuleni Traffic Official)
- b) TOM1 (Midvaal Traffic Official)
- c) TOL1 (Lesedi Traffic Official)

### **6.2.5 Taxi Associations**

Taxi associations play a multifaceted role in the management of the taxi industry in South Africa, and they often act as partners and regulators within the industry. Taxi associations contribute immensely to safety by implementing measures like vehicle inspection (minibus-taxis) and driver monitoring, supposedly to 'promote compliance' with traffic laws. Taxi associations manage taxi ranks and represent the interests of their members to government-relevant bodies. A taxi association is simultaneously four things: a small business collective, the local (most devolved and accessible) level of organisation within the taxi industry, a collection of specific and regulated departure and arrival points called routes, and a stakeholder within and custodian of the community within which it operates. From this premise, the interviews were conducted with members of the respective executive committees of the taxi association within each local municipality. Furthermore, understanding the nature of taxi operators as small business owners and the concomitant face of taxi associations as small business collectives was deemed useful to the researcher. They are coded as follows:

- a) STA1 (SANTACO official)
- b) VWT1 (Vaal Wits Taxi Association Official)
- c) VTA1 (Vereeniging Taxi Association official)
- d) VDT1 (Vanderbijlpark Taxi Association official)
- e) HTA1 (Heidelberg Taxi Association official)
- f) ITA1 (official member of the Internal Taxi Association)
- g) MTA1 (Meyerton Taxi Association official)

### **6.2.6 Taxi drivers**

Taxi drivers are a valuable part of this transportation industry, providing a much-needed service to people who need to get from one point to another. It became necessary to understand the challenges of taxi drivers from their perspective. Taxi drivers are coded as follows:

- a) TDE (Taxi driver in Emfuleni)
- b) TDL (Taxi driver in Lesedi)
- c) TDM (Taxi driver at Midvaal)

### **6.2.7. Commuters**

Commuters' experiences and needs are central to this study. Codes used are as follows:

- a) TCE (Taxi commuter to Emfuleni)
- b) TCL (Taxi commuter to Lesedi)
- c) TCM (Taxi commuter to Midvaal).

During the interview process, these codes are going to be used to avoid any way in which these participants will be named. It should be remembered that the taxi industry is popular with violence and feuds. These codes are used to protect the participants as indicated in Chapter 1 of this study.

## **6.3 Presentation of qualitative data**

The findings to be presented in the following sections are from participants described above in that sequence.

### **6.3.1 Sedibeng District Municipality (SDM)**

#### **6.3.1.1 The nature of the relationship between the SDM office and the taxi industry.**

The question of the relationship between the taxi industry and the SDM was asked. This question is informed by the way these two organizations must work in terms of the safety of commuters on the road. It should be realized that the relationship between a local municipality and a taxi association is multifaceted. Their relationship must be governed by regulations, the management of infrastructure, and at some stage collaboration on issues of public transport. It is also imperative that SDM collaborate with umbrella taxi associations on infrastructure development, particularly routes and taxi ranks.

SDR1 indicated that:

*'There is clearly a need for a structure for regulation and control of the present operators and associations, recognised by statute that creates an effective and realistic operating license system that can be properly regulated. The pressure resulting from a regulatory system that is poorly structured, managed, and enforced has emerged within the taxi industry as an urgent issue that needs immediate attention. ' Added that... "It is sad that taxi operators do not honor the arrangements set by our regulations"*

SDR1 said that:

*'There is a lack of tremendous progress in the regulation of the taxi industry, and it becomes a challenge to implement a regulatory framework. The taxi operator seems to ignore what was agreed on or recommended in the National Taxi Task Team (NTTT) document '.*

The NTTT recommendations put the building blocks of the regulatory framework in place, which dealt with the migration from the permit system and introduced operating licenses with a finite lifespan.

SDR1 added as a reminder that:

*'There is no clear institutional arrangement signalling a clean break from the 1977 dispensation that ushered in when the Transition Act was promulgated in 2000. This was the period when the Permit Board was replaced by the Operating Licensing Board and the National Transport Commission was replaced by the Transport Appeal Tribunal. The Act also created provincial taxi registers as a custodian for registration of taxi associations and Code of Conduct. A framework for public transport law enforcement was similarly introduced and implemented. All these references I made, none of them is respected or regarded by the taxi operators”.*

SDR1 hinted at the following.

*'The Sedibeng District Municipality always attempts to work with the taxi industry to improve public transport infrastructure and address issues within the sector. This includes upgrading facilities such as the Vereeniging Taxi Rank and promoting the modernization of the industry. The municipality also emphasizes the importance of partnerships with the taxi industry to ensure safe, accessible and affordable public transport. '*

In essence, SDR1 further said that;

*'Taxi operators are rarely available during core discussions of the corporation with the SDM; this is the result of many associations that we have which are often in disagreement.'*

SDR1 also indicated that:

*'Within the SDM the taxi operators seem to forget that they function on a common standard as envisaged in the law that regulates taxi associations and individual operators.'*

*SDRI, TOMI, TOEI, and TOLI also attested that:*

*'It cannot be denied that the minibus-taxis industry is the primary provider of public transport services in the Sedibeng district municipality within all local authorities, including Emfuleni, Midvaal and Lesedi. The industry is particularly important for lower-income users (commuters), especially those who typically do not have access to private vehicles. However, this does not make them immune to law enforcement. Operators are not respecting the law, in terms of operating licenses allocated to them, they go beyond prescriptions of requirements set by those permits. We often receive reports from our law enforcement during taxi impounding that the challenge was related to permits '.*

The question posed above was to be responded to by the Directorate of Transport and Infrastructure. As one will realise, regulations are mentioned often. In this instance, the concept of 'Regulations' is the key theme based on the responses of the participants.

#### **6.3.1.1.1 Analysis of theme one: taxi industry regulation**

It will not suffice to conclude that the taxi industry is still not regulated according to the number of regulations cited in this study earlier. However, in reference to the responses of the Director of Transport and Infrastructure in SDM, regulations are not abided by the industry in SDM. The researcher argues that the taxi sector in South Africa is not 'specifically regulated'; meaning that there is no single regulation that will be pointed out to deal with illegal operations or lack of operating licenses (replacement of permits). The bone of contention is that; it is difficult to determine the extent to which these taxis are involved in road accidents in terms of accidents reports.

Taxi operators who are in an accident remain anonymous; this is due to illegal operators in SDM. Taxi operators are aware of this fact. Although the South African government has been trying to regulate the sector for several years in vain. One of the reasons why the government is failing to regulate this sector is because cash is paid everywhere. Another reason is that taxi operators do not pay any tax. This way, money flows are not transparent. In SDM emphasis is made that the taxi operators do not want to incorporate in bringing the industry into the discussion table.

As it was cited that they do not honor the meetings set by the SDM authority, thus in this instance it becomes difficult to discuss issues related to commuter road safety in the region. However, in flipping the coin, the very same municipality does not mention that National Land Transport Act (NLTA) gives

municipalities the authority to plan and implement transport related programmes, but there has been reluctance and lack of the will to implement. Keep in mind that some programmes are related to road safety for commuters. Dysfunctionality and unproductivity become the order of the day; the taxi industry remains financially abused by various institutions like banks and insurances; this is clearly due to lack of support from the government.

Van Dalsen (2020); further alluded the following regarding lack of regulation of the taxi industry;

- *The industry is largely self-regulated, due to the lack of labour law enforcement. The Basic Conditions of Employment Act of 1997, in trying to place limits to hours of work and overtime, shows a lack of understanding of the nature of the industry, due to the early morning and late afternoon peak hours for taxi traffic and little business in between;*
- *drivers are often unaware of their rights regarding labour legislation;*
- *Given the informal employment structure and flexible wage arrangements (mostly only on an informal verbal basis), the industry lends itself to exploitative labour practices;*
- *Most taxi drivers take care of their own individual problems and therefore do not see the need for collective action;*
- *probably the only supervisory method is through daily financial targets for drivers; even then, these targets are often not spelled out, although in practice everyone involved knows what an acceptable daily fare receipt amount to;*
- *there is no way of checking on how much is pilfered by drivers from the fares they receive, and this may be a factor in resisting smart card payment systems;*
- *The difficulty in regulating the industry has ensured that it operates in what some would describe as a 'mafia-style' structure; and*
- *It is formalised in some aspects in the sense that it is recognised as part of public transport (and requires formal permission to operate; owners must be members of recognised taxi associations that are given permits to operate certain routes) but in other aspects it is completely informal.*

Based on responses, it appears that the municipality seems to be blaming the taxi industry for not honouring their meetings when issues related to road safety are discussed. However, the researcher cannot conclude that the taxi industry has little commitment to road safety. As is common knowledge, all taxi operators have to make sure that commuters arrive to their destination in one piece. The taxi industry cannot shy away from the fact that commuters are major stakeholders in this industry, and it

cannot service without their usage. Thus, it will not be appropriate to claim that the taxi industry is solely to blame. On the same breath, the municipality cannot also be blamed, since they are the ones who must facilitate the smooth running of this industry. The municipality has presented so much evidence that they are working closely with the provincial authority to ensure that the issues of the taxi industry are discussed with the relevant authorities in terms of their regulation.

### **6.3.1.2 Perception about the management of the taxi industry.**

This question boils down to the way taxi operations are managed. One needs to recall that taxi industry is not fully formalized, as a result the associations will seem like the Management of the taxis.

SDR1 responded that

*'The taxi industry has executive committees elected within to control the industry; there is an umbrella body called SANTACO. This body has authority over all taxi associations within the SDM region through the Sedibeng Taxi Council. However, the National Taxi Association also plays a role, although it is not popular in this region. There are many associations in this region, and we have noticed that they are not cooperating at all. Evidence is seen from the way they are organized, and this is one of the reasons why we have so many road accidents emanating from their violent tendencies at times''.*

SDR1 added that

*'The associations varied in SDM; at times, this creates challenges, as I have hinted earlier. When there are many associations, it becomes a problem to involve them in the decision-making process. '*

SDR1 hinted at this.

*'The associations are the ones that apply for the routes on behalf of the taxi owners. In fact, one cannot place a taxi on any route without the permission of the association.'''*

SDR1 responded that

*'If you can recall, the allocation of routes is done by the SDM based on the application, as indicated earlier'.*

SDR1 responded that

*'When answering the question of the management of the taxi industry, the SDM only recognizes the associations in case there are issues to be discussed that will affect the industry as a whole, such issues range from traffic law abidance, commuter treatment and their safety'. Reflection: '... there is no denial that the management of the taxi industry is characterized by tribal and political shades'*

SDR1 further alluded that;

*'In SDM, taxi routes contribute to road accidents due to factors such as intense competition, which leads to reckless driving among taxi drivers that obviously do not comply with safety regulations'.*

SDR1 added that;

*'Some taxi operators will be found on a route that is not assigned to their association, they will operate there due to its lucrateness irrespective of the laws they will be speeding for passengers, thus getting involved in road accidents'*

SDR1 emphasised that;

*'The respective taxi association does not seem to reprimand its operators in terms of the routes that are allocated.' Reflection on '...even if the taxi driver is handed over a taxi without clarity in terms of route allocation'.*

SDR1, TOM1, TOE1, and TOL1 similarly indicated that;

*'This clearly shows poor management within the taxi industry in this region, one is citing this because we always get in the middle when conflicts arise due to routes, and worse even reported accidents will show that the taxi was not to be on that route'.*

#### **6.2.1.2.1 Analysis of theme two: Route allocation (poor management of the taxi industry)**

The responses offered by SDR1 clearly indicate that route allocation is important for this root of accidents involving taxis in SDM. Taxi operators are allocated with certain routes to operate in, and one finds that the municipality is not aware that certain routes are more lucrative than others. Thus, allocation is made without proper research on profits related to collecting of passengers using such

routes. There is a point raised; the taxi operator deliberately misleads the taxi driver by not being clear regarding the route they should be using during their work. These taxi drivers then decide on themselves that they have to encroach other routes, and it becomes clear that this taxi driver will have to speed so that the rightful owners of such route will not be in conflict with them, thereby accidents are occurring. This shows that the municipality does not set proper limits for taxis to operate. There seems to be a misunderstanding that the municipality should take care that competition is rife within this industry.

### **6.3.1.3 Views on the contributing factors identified by SDM office taxi road accidents.**

The data collected on the contributing factors directly answer the research questions and objectives mentioned in chapter 1. These are the factors that will help the researcher make the appropriate recommendations for the study. It is imperative to indicate that these were collected from the views of municipal officials which will be used as yardstick when more data are to be compared with responses from other participants.

SDR1, TOM1, TOE1, and TOL1 all concur that;

*'...in terms of speeding as is always on our table when discussions are held with taxi operators or any other commuter member, there is no point in holding workshops with associations, but it is not necessary because the responsible people do not get the opportunity to be held accountable.'*

In this instance, reference was made to the taxi drivers.

The officials also added that;

*'Taxi drivers cannot afford to be sent to workshops as is often suggested given their working conditions and hours that might be lost'*

SDR1 emphasised that;

*'Taxis are speeding for a number of reasons that are not popular and acceptable within the ambit of the law'*

SDR1 hinted at this.;

*'Pressure seems to come from taxi owners, as I suspect'*

SDR1, TOM1, TOE1, and TOL1 indicated that;

*'It becomes difficult for us to monitor speeding in taxis, as this is one of the main reasons why so many accidents have been reported in our region.'*

SDR1 said that;

*'Taxi operators, so-called owners, will not budge if they refer them to incidents involving taxis, they always deny that taxis are involved because of the speeding of their drivers. At the end of the day, they are to blame because they are the ones who need or profit during the collection of fares made a day '*

SDR1, TOM1, TOE1, and TOL1 added that;

*'It's really difficult to step in where these taxi drivers exceed the speed limit other than by using the speed trap, as if they will abide, these people don't care about the speed ticked. Our law enforcement is always having this challenge brought to this office '*

SDR1, TOM1, TOE1, and TOL1 share the same sentiment:

*'It's as if taxi drivers are not aware of the dramatic increase in crashes that occur as a result of speeding'*

Reflection: *"Reports are submitted to this office by even members of the public claiming that taxi drivers drink alcohol, especially on weekdays"*

SDR1, TOM1, TOE1, and TOL1

*'Taxi operators know that their taxi drivers are the roots of road accidents due to reckless and aggressive driving'*

SDR1, TOM1, TOE1, and TOL1

*'This reckless driving clearly shows that taxi drivers disregard the rules of the road'*

SDR1 alluded that;

*'If I can be asked to draw conclusions about the causes of road accidents, i can also add the inexperienced teens that taxi operators often hire, cheap labor if you ask me. They know that these young stars are easily manipulated by their bosses '*

SDR1 commented that;

*'In our region, we generally face a higher number of road accidents involving taxis at night. Most taxis have what they call 'staff ride', this is an instance in which a group of workers who drop off at night organise their own transport to collect them from their specific place of work'.*

### **6.3.1.3.1 Analysis of theme 1: Speeding and reckless driving**

This study found that disregard for the law on the part of taxi drivers is mainly to blame for an increase in road fatalities and injuries. There is a general tendency among taxi drivers to disobey rules of road, the researcher found that there is increasing frustration by commuters (as often reported to SDM office) about the unbecoming behaviour of taxi drivers on the road, which could be blamed for increasing road fatalities. There is concern that taxi drivers act with impunity. The key point of concern is speeding (exceeding the speed limit). During the interviews, the word (speeding) came out frequently.

Below is the image taken by the Road Traffic Management Corporation in highlighting the consequences of speeding. This R59 road within the SDM.



(Source: RTMC, 2025)

It is a challenge for taxi drivers to establish safe and reasonable speed limits. Clearly the speed limit is not taken into consideration within the SDM region according to the responses of the participants. Taxi drivers do not take speed restrictions within which a taxi can be operated safely under normal traffic conditions and allow sufficient time to react to unexpected conditions.

The participant hinted that in the region it becomes a challenge to deal with drivers in the taxi industry recklessly driving. During the interview, the concept of reckless driving came often. However, there seem to be a million possible causes that can result in reckless and distracted driving by taxi drivers. It is impossible to list all these causes, only a few. Of relevance to this study, the researcher list these; Jaywalking, bad weather, poor road conditions, and faulty minibuses.

#### **6.3.1.4. During the interview, it became imperative to inquire regarding the measures taken by the SDM authorities.**

It became imperative to inquire on the measures that are proposed by SDM in order to curb the participation of taxis in road accidents.

SDR1 hinted at this.;

*'Several interventions are always proposed for implementation, but the challenge rests with taxi operators. I don't mean to blame them, but these people are so adamant when they have to attend the meeting that we organise.'*

Researcher's Reflective Question (Why the need for meetings?) *'We need to attract them into the decision making process, especially when such proposed interventions are going to involve them'*

SDR1 added that:

*'The intervention strategies are just at the face value level not really regulatory'.....reflection (meaning)???' 'Improvement of driver training and improvement of vehicle roadworthiness in addition to superimposing stricter laws'*

SDR1 emphasised that:

*'We have committed to the month of public transport (October) in the region, but as the office can attest, the taxi operators do not take this month routinely. During this period, a number of workshops are held in various places. The turn-up is always very low. '*

SDR1 indicates that;

*'The workshops are designed to raise a number of difficult to understand challenges to bring about effective ways to curb the scourge of road accidents'.*

According to SDR1;

*'The SDM has on many occasions raised intersections (also known as raised junctions or plateaus) of pavement with ramps designed to reduce speeds to required levels, but taxi drivers still ignore as usual'*

SRD1 further hinted that;

*'Some of the proposed interventions involve lowering posted speed limits using static signs to safer levels. However, this is a widely applied speed management measure aimed at encouraging lower speed, thus reducing crash and injury severity'*

SDR1 emphasised that;

*'The office has on many occasions attempted public forums and community engagement initiatives to help address these concerns and foster a culture of road safety.'*

*Analysis*

#### **6.3.1.4.1 Theme 1: Meetings**

In response to the question of SDM intervention strategies, the SDR pointed out that the majority of meetings are not attended by the taxi operators. This has been mentioned during the concern of regulations. In this regard, the municipality is trying to call all the taxi operators to be there when decision is made regarding road safety. It was also mentioned that they refuse to play a role in ensuring that the office has a way of addressing the challenge. In all fairness, it will be difficult to remind the taxi operators if they cannot be part of the meeting that is held to come up with means to address the high rate of road accidents involving taxis in the region. However, it suffices to wonder why the municipality is not involving the law enforcement if they are accused by this tendency from the taxi industry.

#### **6.3.1.4.2 Theme 2: Ramps and static signs**

The SDM official has indicated that they use ramps in those areas where there seem to be a high accident spot in the region. The challenge is that these taxi drivers tend to drive on the pavement when they see these ramps. Even when they see static signs, they ignore them. It will not be concluded that taxi drivers drive past those ramps with the speed they applied prior to approaching. The researcher put

it that such ramps are not placed in those critical areas if they are not displaying their sensitivity to lowering the taxis.

Central to responses by the office of the SDM the following does not seem to be refred to;

- a) Enforcement to ensure compliance with road safety laws;
- b) Education in which there will be empowerment of taxi operators with knowledge to make safer choices;
- c) Engineering from the SDM side in designing safer roads and infrastructure.
- d) Continuously monitoring and improving road safety efforts

### **6.3.1.5 The opinion regarding the taxi industry is commitment to road safety.**

In this instance, the question was asked to inquire on the views of the directorate regarding the commitment of the taxi operators within SDM.

SDR1, TOM1, TOE1, and TOL1 pointed out that;

*'Taxi operators are not committed at all, one can confidently say this since they are reluctant to follow rules or attend to issues concerning road safety, as they know they also play a role.'*

SDR1 also added that;

*'Taxi operators do not want to increase awareness among drivers of the level of road safety and customer service. This is evident since they expect the municipality to organize such initiatives.'*

SDR1 also added that

*'Taxi operators do not ensure that taxi owners are informed that they must manage their taxi business better and more efficiently and adhere to roadworthy requirements.'*

SDR1 added that;

*'Taxi Association executives are not inspired to comply with the basic requirements of ensuring the administration of their associations and financial matters are in good order. In essence, this is what they are like when their taxi drivers take over the load''.*

SDR1 indicated that;

*'Our office makes it clear that we are strict in terms of the application of permits and route allocation.'* Reflective SDR1 *'allocation of routes is crucial, as it plays a critical role in taxi accident, these taxi operators argue their taxi drivers to make a lot of money on certain routes allocated to a specific association'*

SDR1 made references to the following points;

*'Man can cite the human impact in which the consequences of road accidents extend far beyond the immediate physical injuries sustained by victims on the road.'*

SDR1 hinted at this.

*'We have reports in which survivors are identified on the health side as often facing long-term health problems, including chronic pain, psychological trauma, and disabilities that are going to affect their quality of life.'*

SDR1 hinted at this.;

*'These accidents have an emotional toll on families and communities and can be profound' reflective... ', as the loss of a loved one in a road accident can lead to grief, financial instability even in the face of the municipality this financial loss is dire'.*

SDR1 added that;

*'There are social disruptions as a result of these road accidents.'*

According to SDR1;

*'Support systems, including counselling and community resources, are vital to helping families cope with the aftermath of such tragedies.'*

SDR1 commented that;

*'On a social level within our district, road accidents lead to higher insurance premiums, greater presence of law enforcement, and the implementation of stricter traffic regulations.'*

SDR1 indicated that;

*'Communities have experienced a decline in public trust in transportation systems as a result of taxi involvement in road accidents, leading to calls for improved safety measures and infrastructure investments.'*

SDR1 commented that;

*'The social fabric of communities can change as families cope with the aftermath of accidents, leading to a collective sense of vulnerability on the roads.'*

In the majority, the associations perceived government to have a great deal of responsibility in relation to improving the industry and protecting drivers, through better regulation and other measures. Members expressed a desire for government intervention, both to regularize their work conditions and to enforce road traffic rules and vehicle roadworthiness requirements.

### **6.3.2 Law enforcement**

Law enforcement in SDM plays a critical role in road safety, in which it is expected to enforce traffic laws, conduct road safety campaigns, and collaborate with other stakeholders. The SDM works closely with the Road Traffic Management Corporation (RTMC) as it is the lead agency for road safety, tasked with coordinating and facilitating traffic law enforcement across national, provincial, and local levels.

#### **6.3.2.1 Views on the contributing factors involving taxis in road accidents.**

The researcher realises that it is imperative to obtain the views of law enforcement officers regarding road safety involving taxis. Thus, the question of contributing factors became relevant.

TOE1 indicated;

*'Even though minibus taxis are required to maintain a speed limit of 100km/h by law, taxi drivers are caught in the act of speeding all the time irrespective of the fact that it is a cause of accidents.'*

TOL emphasized that;

*'Speeding among taxi drivers has dramatically increased the number of crashes taking place in our region'*

TOE1 added that;

*'It is popular belief that a big concern for many road users, especially during the festive season, is road safety. However, taxi operators in our region are notorious for high road fatality rates 'reflective...' generally attributed to reckless driving.'*

TOM1 indicated that;

*'In most of the accidents investigated by our collisions it is clear that accidents occur due to distracted drivers, causing their attention to be diverted from the road to other activities.'*

Distracted driving is any activity that diverts attention from driving, including talking or texting on the phone, eating and drinking, talking to people in your vehicle, fiddling with the stereo, entertainment or navigation system, or anything that takes your attention away from the task of safe driving.

TOL1 reiterated that;

*'The emergence of advanced technological devices is to be blamed as one of the easily identifiable distractions for taxi drivers.'*

TOM1 also added;

*'Our office has been aware that taxi drivers do not realize that driver distraction is an important risk factor for road traffic accidents or injuries.'*

TOE1 emphasised that;

*'Reckless driving among taxi drivers in emfuleni is the simplest challenge. We have being engaged with taxi drivers who are so aggressive in their driving in our region. '*

TOE1, TOM1, and TOL1 share the same sentiment that:

*'Taxi drivers change lanes improperly in the name of attracting commuters when they see a hand sign being raised'*

TOL1 responded that...

*'In our region the main challenge is with heavy traffic violations such as ignoring red lights and stop signs... whereby it is found that accidents occur as a result '*

TOL1 added that;

*'even though we try to enforce traffic signals and stop signs using automated red lights.'*

TOM1 emphasised that

*'Taxi owners have a tendency to hire teenage drivers, and we often find many transgressions by such young men. Teen drivers lack the experience and judgement that comes with years of driving '.*

TOM1, TOL1, and TOE1 commented similarly that:

*'Vehicle defects, ranging from faulty brakes and airbag problems to engine failures, are common challenges for taxis roaming our roads'*

TOE1 commented that;

*'We always ensure that taxi operators understand that operating licenses are the key lever to regulate the taxi industry, as they determine access to economic activity and a barrier to entry'.*

TOE1 added that;

*'The struggles of the taxi industry since time immemorial have always revolved around the manner in which they conduct their business.'*

TOM1 hinted that;

*'The first taxi permits that are allocated are area-based and allowed taxi drivers to operate in regions with a radius of 100 km around a central point. However, we often find taxi drivers beyond those points and that is where they are involved in road accidents according to the investigations '.*

TOE1 alluded that;

*'We always identify that competition for passengers becomes fierce, resulting in a conflict between drivers over the ownership of routes'.*

TOM1 alluded that;

*'Many taxi operators in our region have a problem with permits, they have not yet changed operating licenses. This shows an intense engagement between our government and industry'.*

TOM1 concluded;

*'One of the challenges we have is issuing operating licenses as these taxi industries seem to drag its feet'*

### **6.3.2.1.1 Analysis of theme 1: reckless driving**

The researcher should note that reckless driving is the core. There is a sentiment whereby different types of driver distraction, usually divided into those where the source of distraction is internal to the vehicle, such as tuning a radio or using a mobile phone, and those external to the vehicle, such as looking at billboards or watching people on the side of the road. A split second is all it takes for an accident to happen, keeping your eyes on the road, your hands on the wheel, and your mind on your driving remain the most basic and crucial rules of the road for the safety of drivers and of other drivers, cyclists, and pedestrians.

### **6.3.4 Responses of Taxi Association**

In South Africa, buying a combi (15 to 28 seats) to use as a taxi, one must register it with the Department of Transport to become the owner (in this study ‘operator’) of a small business. To receive a permit from the District Municipality (SDM), an operator must present the letter of recommendation that they will have received when joining a taxi association. This means two things: Firstly, every member of a taxi association is a small business owner, hence an association is a small business collective, and second, that the association structure is a necessary enabler of small business creation. From this premise, the researcher deemed it necessary for the study to include the perception of taxi association.

#### **6.3.4.1 The nature of the SDM relationship of your office.**

In SDM, the management of the minibus taxi industry is perceived with a mix of trust, frustration, and concern. While the industry is a vital part of public transport, providing essential services, it also faces negative perceptions due to safety concerns, poor service quality, and a reputation for violence. The South African National Taxi Council (SANTACO) has a collaborative relationship with the Sedibeng District Municipality, as evidenced by its joint participation in initiatives like the Provincial Taxi Summit focused on modernizing the taxi industry. SANTACO also engages with the municipality on issues related to taxi operations and infrastructure within the district.

STA1 alluded to the following.

*'In the context of the minibus-taxi industry, SANTACO can only help taxi owners and minibus-taxi entrepreneurs grow their businesses in effective and respectable ways of not encroaching*

*on others' routes. Allowing minibus-taxi entrepreneurs to use their assigned routes is the only way not to compromise the quality of others in generating income”.*

STA1 also added that;

*'There is no actual document that provides instructions on the development of minibus-taxi businesses within our association, however, we monitor how minibus taxis operate and if they ever follow safety precautions, because our growth and development depend on ensuring the acceptable safety standards for transport passengers'.*

STA1 further alluded to that

*'The owners of minibus taxis were not entirely impressed with the way the government SDM treats them.'*

STA1 indicated that:

*'We are confronted with the challenges of high fuel prices, forcing us to increase our taxi fares, and this becomes a huge problem for passengers to accept and adapt to, especially at the beginning of the announcement. High fuel prices mean low profit making, since some days are not the same.'*

STA1 indicated that:

*'Relative to funding, government support and any other private sector support, all minibus-taxi owners had different opinions. However, all respondents attested that banks, commercial banks, financial institutions and government support and funding were the least to be considered.'*

FTA1, VDT1, GTA1, and MTA1 all agree that:

*'It's hard to secure any funding when you are a taxi operator, especially from banks because they require a lot of financial records, and sometimes we do not understand the language of financial records since we make immediate profits and these profits often take care of our personal and family matters. In most cases, we are less respected in some financial institutions and even on the roads, as we are often labelled as uneducated and having a bad attitude with reckless driving skills. Our business is complex and complicated, but we are the first group that makes readily available transport to most passengers, yet the government still does not regard us as equal to bus drivers and owners receiving government support”.*

One has to note that the recommendation letter mentioned above is more than a legal prerequisite for a taxi permit (operating licence). It can also assist in acquiring a combi from certain dealerships and in securing credit or other financing plans. The recommendation letter is both a gateway and a jump start

into the taxi industry for the small business owner. According to the participants interviewed, most operators start with a single car that they drive for themselves. Saving up the money to buy another even though paying the combi off is hard, the participant noted.

The association, particularly through its training officer, attempts to educate its members about the labour law applicable to a small business, including things like Unemployment Insurance Fund payments, sector mandated minimum wages and hiring and firing policies. While the execution of these is the sole mandate of each small business owner, much in the same way that they are responsible for paying their own tax, the association appears to provide support, education, and checking to ensure that the members can and do employ their drivers legally, respecting their constitutional rights. According to participants in his capacity as training officer, this is partly because it is the right thing to do and respects the democratic transition of the country and partly to avoid drivers taking members to the labour court. The association will sometimes, depending on the case, provide support in court for a member. This role of support for the business-management and employee-management aspects of owning a taxi mark association as support structures for these kinds of small business.

#### **6.3.4.1.1 Analysis of the theme: lack of commitment of officials**

As discussed earlier in reference to SDM comments, this is a different side from the associations pointing finger to the very same SDM that they are not committed to address challenges facing the taxi industry in their region. It is, however, debatable that government support and appropriate funding for the South African minibus-taxi business remain complex, let alone for the development of the industry through collaboration between taxi entrepreneurs, taxi owners, and their respective associations. Although the industry has to strictly comply with the rules of the roads and business, its informal business nature still remains a huge challenge for them to have a proper business document advocating for the development and growth of their individual businesses.

### **6.3.5 Taxi drivers**

#### **6.3.5.1 Factors that contribute to road accidents**

In posing the question of the nature of the relationship between the taxi industry and law enforcement. Minibus taxi drivers often expressed their concern about the unwelcoming behaviour of law enforcement towards them. During the engagement with these participants, the behaviour of law enforcement against the minibus taxi drivers was highlighted as follows:

Participants in TDE indicate that:

*"When we are trying to pick up passengers every time a traffic officer sees a quantum (minibus taxi), he or she sees a cold drink. It becomes difficult for us especially when it is not even loading many passengers, one can never drive a quantum without being requested a cold drink".*

*The TDE participant further emphasized that 'it becomes necessary that we try to take even wrong routes immediately, because we see law enforcement officers packing vehicles to stop road users for any other transactions, at times this forces us to increase our speed'.*

*The TDE participant also hinted that 'we even change lanes regardless of oncoming traffic'... potential for road crashes!*

The TDL participant also added that

*"When we see a local traffic officer, one will immediately take out R50, and for a provincial or national traffic officer, you must take out R100 or more as these ones they do not play, they threaten will arrest".*

*Furthermore... 'one must remember that these officers are not from anywhere and we do not even know them, at least those who are from around, some of them can even just point you with a finger when they realise that they have charged you often'.*

The TDL participant even jokingly stated that *"Traffic officers are moving e-tolls"*

The TDM participant hinted that

*"Between the cops and the taxi drivers there seems to be a fight for survival, although these law enforcement officers have a decent salary as compared to us taxi drivers earning peanuts."*

These encounters are further supported by a news article from Business Live (2019), in which a minibus taxi driver was reported to be nabbed for offering only a "cold drink" bribe of R70 to the National Traffic Police. Lastly, the results are supported by Time live (2019) news headlines titled *"Metro cop takes R10 bribe, is among seven arrested"*.

The TDL participant also added:

*'We have mental stress.... If I don't get enough money, I'm in trouble... It could cause a fight or a physical fight between me and the owner; the owner wants money regardless'*

Participant TDM participant listed;

*'The vehicles we drive most of them are in poor condition and this is a key reason for taxi accident on the road.'*

The participant TDE also echoed this, referring, for instance, to situations where

*'The vehicle tyres are not changed in time'.*

The participant TDL also commented,

*'The Zola Budd (minibus-taxi) usually has a problem with the brakes, but mostly the engines will collapse because they are overused'.*

TDL felt strongly that;

*'Government should help with better vehicles...government should provide more cars and in better condition that are approved by the South African Bureau of Standard (SABS).'*

In essence, general sentiments are highlighted as follows by TDL, TDE, and TDM;

'When vehicles break down, there is a breakdown in customer service, which means that full-time services are interrupted'. They also briefly commented on some taxis not being "fit for purpose", but when asked whether they were aware of the so-called 'Killer Quantum' vans (Toyota Quantum panel vans that are illegally converted to 'lookalike' Quantum minibuses), they denied having heard of these. On the contrary, some participants were aware of this alleged practice, commenting that "at first Quantums were not designed for passengers and then later Toyota was producing Quantums for passengers, giving the impression that all Quantums are minibuses". There was a brief discussion between the participant and the interpreter on the term used for Quantums that are not designed for passengers; with the participant stating that they are 'stationary vans'.

Based on observation, drivers work very long shifts, often starting long before dawn and continuing until after dark. However, off-peak hours do provide some opportunity for driver downtime. Passengers pay driver fees after departure. Often, a helpful passenger in the front seat will collect the fares on behalf of the driver and will ensure that everyone on board pays the appropriate fare based on their intended destination. The driver will check that the correct total has been collected, and the helping

passenger will deposit the money in the taxi cash register (ashtray). Fares vary according to distance. On a long route, a taxi may charge three different prices, depending on the destination of the passenger.

However, the fare structure is flat, which makes longer routes less profitable and less desirable for drivers. Drivers are expected to meet financial targets that depend on the route they take, and their income depends on meeting these targets. High owners' targets are a major cause of overloading and reckless driving in the taxi industry. However, since the business is almost entirely cash-based, drivers pay owners based on expected, rather than actual, occupancy. This amount is called the 'check in'. There are some variations in how the check-in is calculated, but generally the model provides opportunities for drivers who hustle to pocket what they earn in excess of their targets. This again incentivises overloading and speeding. It also explains why many drivers are not interested in labour protections that impose shorter working hours on them. The cash nature of the business suits owners, who can avoid taxation, as well as drivers, who can earn excess profit off the top, but it also suits passengers very well. Most passengers work low-income jobs, and many of those jobs, especially in domestic work or garden labour, are paid off the books, in cash. Many South Africa's poorest commuters do not have bank accounts into which salaries can be paid or bank cards with which to make payments.

#### **6.3.5.1.1 Analysis of theme 1: money and vehicle roadworthiness**

The researcher has commenced the thematic content analysis with a simple frequency count of words that appear in the interview transcripts during data collection. The word 'money' was the most featured, being used by the participants at some point in their interviews. As the interviewees also sometimes provided monetary information without using these two words, this is in fact an undercount of how significant the issue of money was in the interviews.

Furthermore, the driver is under pressure to meet the strict daily requirements of numbers, both in trips made and passengers ferried. This in turn impacted his/her earnings. In the ultimate event of a replacement of the brake pad or lining, the driver would purchase the cheapest available, as this has a direct bearing on his wages. Because the minibus taxi industry has grown rapidly in the last decade in South Africa, numerous replacement brake pads and linings are available, which are manufactured locally or imported. The cost of the product is generally proportional to the quality. In most cases, the original manufactured braking components that came with the chassis are used only until the maintenance plan.

There is a picture emerging from the interviews as it was overwhelmingly incomplete, in which none of the drivers volunteered the amounts they can 'pocket' from the daily takings, in addition to their wages. My impression is that these amounts probably vary widely due to the drivers' needs to cover operating costs, as mentioned in the previous section of the thesis. As Randall (2019) alluded, "these costs range and contain unpredictable components – for instance, traffic fines, unexpected needs to do minor repairs to vehicles, the need for extra vehicle washing (eg, after bad weather or after driving through muddy areas) and the like. It fell beyond the ambit of the study to question the drivers about the specifics of these operating costs and, in any event, they may not have been able to give accurate figures due to marked daily variability and a lack of written records. They may also have preferred not to do so, due to a preference to conceal this aspect of their 'earnings' from others such as taxi owners.

Drivers work very long shifts, often starting long before dawn and continuing until after dark. Off-peak hours do provide some opportunity for driver downtime. Passengers pay driver fees after departure. Often, a helpful passenger in the front seat will collect the fares on behalf of the driver and will ensure that everyone on board pays the appropriate fare based on their intended destination. The driver will check that the correct total has been collected, and the helping passenger will deposit the money in the taxi cash register (ashtray).

The prices differ depending on distance. On a long route, a taxi might charge three different fares, depending on the passenger's destination. The fare structure is flat, however, which makes longer routes less profitable and less desirable for drivers. Drivers are expected to meet set financial targets that depend on the route they take, and their income depends on meeting these targets. High targets set by owners are a major cause of overloading and reckless driving in the taxi industry.

Since the business is almost entirely cash-based, however, drivers pay owners based on expected, rather than actual, occupancy. This amount is called 'check-in'.<sup>79</sup> There are some variations in how the check-in is calculated, but generally the model provides opportunities for drivers who hustle to pocket whatever they earn in excess of their targets. This again incentivises overloading and speeding. It also explains why many drivers are not interested in labour protections that impose shorter working hours on them. The cash nature of the business suits owners, who can avoid taxation, as well as drivers, who can earn excess profit off the top, but it also suits passengers very well. Most passengers work low-income jobs, and many of those jobs, especially in domestic work or garden labour, are paid off the books, in cash. Many of South Africa's poorest commuters do not have bank accounts in which salaries can be paid or bank cards with which to make payments.

### **6.3.7 Taxi Commuter**

In addition to the above section, the researcher put forward that taxi drivers are perceived as the most reckless road transport drivers in the SDM region. Minibus taxi drivers, often referred to as 'Magez'empompini' (bathing with the tap) by commuters and motorists, form a large group of workers within the South African minibus taxi industry. When defining a minibus taxi driver, or should the researcher rather posit them as "uno taxi" and "makhanda", a minibus taxi driver was defined as someone that normally works for an individual who owns a minibus taxi, and that minibus taxi is operated to carry commuters.

The driver of a minibus can also be someone who owns a minibus taxi and drives it himself. Minibus taxi drivers are employed privately and informally, which means that there is no formal work contract. The researcher refers to this process of informality as "gentlemen's verbal agreement". As discussed previously, it is evident not only that many taxi drivers have a well-deserved reputation for driving dangerously, but also that commuters using public transport such as minibus taxis are at increased risk of being involved in accidents. Concerns about vehicle road-worthiness, dangerous driving, and risk of accidents were very prominent in accounts and were volunteered by almost all of the participants.

#### **6.3.7.1 Views and perceptions of the contributing factors identified with respect to the involvement of taxis in road accidents.**

*TCE1 exclaimed;*

*'How common we perceive taxi accidents to be. I have seen many taxi accidents, so many of them where I will attest that the taxi driver was at fault in the whole incident on the road while we are in the taxi'*

*TCM1 added that;*

*'...taxi accidents, hey! They are so common! (laughs) I don't know why I laugh at these things hey. '*



These two comments convey that, as commuters, they are very aware of the frequency with which taxis are involved in accidents. Their observations resonate with research findings that indicate types of vehicles on the road in South Africa, taxis are involved in a disproportionately higher number of accidents than other vehicles.

The above picture attests to the comments made by the participants.

TCM1 stresses that:

*'Like there was this lady with whom I travel, I think she is still traumatised, she told me that she and her friend got into an accident or something, and both flew out the front window and were severely hurt, so until this day she refuses to sit in the front seat because of what happened that day, and you know taxis do not have seat belts, so it's very dangerous.'*

TCL1 expressed the experience as follows:

*'The other time we were involved in an accident. Yah, it's been like, almost a year now, but I just cannot get over it... it was bad because we were injured and stuff, we were hospitalized... the brakes failed because the driver was like 'yoh there go the breaks' and he swerved and crashed into another car and the other car was damaged. I still have a scar on my leg'*

TCL1 also describes;

*'There was an incident in which someone I know was severely hurt in an accident in which access to the seatbelt became difficult.'*

TCE1 relate:

*'My brother was hit by a taxi once... he was crossing the street onto Moshweshwe street... he was hit on the leg and his ankle still hurts a lot even now, this taxi driver overtook another vehicle while I was crossing.'*

TCM1 alluded to the following:

*'... there was a time when we actually got bumped by another taxi at the Vereeniging taxi rank actually... the taxi I was in was coming out of the taxi rank and the other was coming into the taxi rank and there is only a small passage for incoming and outgoing so they bumped into each other'*

In addition to the description of the incident at the Participant 4 voiced that nearly being involved in a further recent taxi accident was as anxiety provoking as actually experiencing one. Her anxiety was revealed in the exclamation in her voice as well as her tendency to laugh when describing an incident that was evidently frightening for her and which she recollected in some detail.

TCM1 added that:

*'...this morning the taxi driver, he wanted to jump the red robot (laughs). And then no one came because they saw it was green, but the taxi did not move, he just drove straight through the red robot, and the other person actually had to brake so hard to stop before they hit each other. '*

About four commuters appeared to share similar sentiments as participants in TCM1:

TCL1 added that;

*'Our taxi driver drives high speed even within the township and does not wear seat belts at all'*

TCL1:...

*'The driver can be reckless, then he puts us all at risk of being in an accident, you know? Their speed is too much and there is nothing you can do about it. '*

TCM1 alluded that;

*'... I have been in the worst kind of taxi, like it was in such a bad condition, no windows, and you can literally see the tar underneath you as the taxi is moving'*



It is quite striking that out of the ten students interviewed two (TDM1 and TCL1) had sustained direct injuries in taxi accidents, one had been in an accident in which no one was actually injured, and two could recount instances in which they had been involved in near misses in terms of accidents. It is evident that the unsafe and often frustrating driving behaviour of minibus taxi drivers (as well as the often poor quality of their vehicles) was realistically

appreciated to be one of the most prevalent risk factors in commuting, contributing to the potential trauma that the population in this study was regularly exposed to.

## **6.4 Participant and non-participant observation**

### **Data Presentation and Analysis**

#### **6.4.1 Road infrastructure**

It can be deduced from the observation that poor road infrastructure in SDM contributes significantly to a high number of road accidents, injuries, and fatalities. This claim is made due to the number of accidents that occurred in areas where the road is not favourable for commute. Inadequate road maintenance, potholes, and deteriorating road conditions exacerbate the risks. This creates a dangerous environment for all road users and has serious social and economic consequences for the country. When the investigator moved around, it was noticed that there seems to be a crumbling local infrastructure that clearly contributes to the region's poor road safety levels and which is not urgently addressed with meaningful steps to improve the region's terrible road safety record.

Based on observation conducted, the region has dangerous potholed streets (see evidence below);



In many cases, human factor is blamed for road crashes when, in fact, prevailing road conditions are the culprit evident. This research showed that there is an upward trajectory that shows just how poor road environments are contributing to fatal crashes on our roads involving taxis.



When we hear of the high number of commuters killed annually in South Africa, we must ask if adequate provision is made for these stakeholders on the roads in the region. There are no adequate sidewalks for pedestrians to walk on, or are they forced onto the road surface with other vehicles? Are streetlights always working to make them visible when they walk early in the morning or at night? Are there sufficient crossings and bridges for pedestrians to cross busy roads and highways, or are they forced to take chances that may ultimately lead to serious injuries or even death? In this instance, one cannot point out the taxi industry as culprits again in terms of road accidents occurring under such conditions in the region.

One can tell that when it rains in certain areas, roads become gridlocked as even small streams become impassable. Stormwater drains are clogged, resulting in torrents of water flowing down busy roads, making it impossible for vehicles to use them. New potholes are created, and existing potholes get even bigger and deeper. Road markings and signage are there for a reason and should be well maintained, but this is also neglected in the region, sadly in many high-traffic areas where it is especially needed. Road users are vulnerable in these situations because the markings and signs that control and direct traffic are ineffective. (AA records attest to this observation). The Association says that road users across South Africa should actively report incidents of maintenance failure to their local authorities (AA, 2024). It is well known too well that such an approach often yields limited results, but it is believed that it is still a necessary step in dealing with problems and getting things working correctly. No action is taken to engage with local councillors and community leaders.

The research found the following regarding road infrastructure;

- SDM has failed to implement an effective use of increased infrastructure allocations within the region;
- The SDM has not prioritised on the right-road infrastructure projects;
- Projects within the region were not implemented cost effectively; and
- Road infrastructure projects have not been completed on time and within budget constraints (SDM Reports 2023-2024).

So far, the SDM has done so little to ensure that the roads are of quality for the purpose of ensuring the safety of commuters on the roads in the region. There are many factors that could be pointed out in observing the poor infrastructure of the region. The SDM region faces many challenges, particularly poverty, unemployment, and the urgent need for sustainable economic growth. To ensure economic growth, there needs to be adequate infrastructure, particularly road infrastructure. Roads play a crucial role in contributing to economic development as well as growth. More importantly, it also has several social benefits that help to contribute and improve the quality of life of citizens. With the development of road infrastructure, the country can work to improve employment, health care, society, and the education system. It is unnecessary to mention the safety of commuters on the road for the purpose of this study.

#### **6.4.2. Faulty robots and poor road signs**

Stop signs and traffic signals (robots) are inherently causes of road accidents, and rather failures to obey them or malfunctions in the systems are leading to more accidents. Common problems include drivers who ignore stop signs, run red lights, or malfunctioning signals that cause confusion or conflicting traffic flows.

The main roads (with many potholes and robots that are not functional used by taxis in the region are as follows;

- a) Emfuleni Local Municipality
  - Moshweshwe Street;
  - Wasselsmota joining Vilakazi Street;

- Adams Road
- Golden Highway Road
- Union Road;
- Evaton Road
- Frekkie Meyer Road
- R59
- Boy Louw Street
- N17 highway
- N3 highway

These roads are used by many taxis and other road users to the point where a month does not pass without any accident being reported on these roads, claiming that so many commuters live regularly. On the basis of observation these roads have poor tar, which was caused by a number of protests that take place whereby members of the community tend to burn objects resulting in potholes.

#### **6.4.3. Taxi industry**

In the region, it was observed that the taxi operators' practices five distinct roles make up the informal transport industry, namely the owners, the drivers, the passengers, the taxi associations, and the regulation authorities. The drivers are given vehicles by the owners and must earn a certain sub-minimum to make the business viable. The owners have very little control over the way their vehicles are used and have no control over the flow of cash. Routes are undocumented even though the SDM has a process of awarding routes to specific taxi associations, and those taxis that do have operating licenses are limited only by their route endpoints at taxi ranks.

Minibus taxis do not carry visible information about routes or destinations. There is also little or no signage in various areas of the taxi ranks in the region. Although formal taxi ranks typically exclude taxis without valid operating licences, there are many more informal ranks, at which regulation appeared lax or non-existent. This refers to an instance whereby the taxi can off-load a passenger according to the instructions of the commuters. However, despite this lack of formal documentation, routes are well known to drivers and passengers, as are the numerous stops along the route. These stops are also neither documented nor marked by signs (signs are taken for scrap yard purposes by so-called 'Nyaope' (boys using drugs), but others have informal names commonly used between drivers and passengers.

Taxi drivers can also be directed by commuters to stop anywhere they want. There are certain words used like; 'After robot' which is a common phrase used to indicate the next traffic light, and 'short left' or 'short right', which means stopping as soon as is convenient. Taxi drivers also have some leeway to make minor diversions from standard routes upon request (all of these incidents one can realise how fatal an accident may occur). Drivers are coordinated by marshals in formal or informal taxi ranks, and marshals are paid for their service by drivers. Depending on the route, direction of travel, and time of day, marshals will either direct passengers to taxis until a vehicle is full or signal that a driver may depart without a full complement of passengers.

Taxis that are not full will pick up passengers along the route; it is from this moment that one experiences drivers speeding to compete in this instance, thereby speeding. During the day, approximately 40% of taxi trips start at taxi ranks and approximately 60% start at stopping points along the route. It is an excellent example of an emerging market that arose out of a pressing need within the community, and its operations and interactions are a direct result of these grassroots origins. The language in taxis has a particular idiom. Besides creative nicknames for various stops and destinations, the taxis themselves are often nicknamed, almost all taxi names are in Zulu (Siyaya, Impendulo, Sesfikile, etc.). Perhaps the most popular nickname was that of the Toyota Super 10, a popular vehicle in the 1980s, which was called a Zola Budd, after South Africa's world champion barefoot track and field runner. Passenger overload is the order of the day; these taxi drivers are to pay the required amount by the owner. Traffic safety for commuters is not their concern when collecting the so-called 'check-in'.

Drunk driving is also one of the biggest threats to road safety in the SDM region. 'More than 21,000 people have been arrested on our roads in the 2024 year as a result of drinking and driving, and 50% of people who die on our roads are over the limit' (Ncube 2024:627). Penalty for drunk driving. Driving under the influence of alcohol in South Africa is not to be taken lightly. The gravity of the charges should be enough to sober you up to its fatal consequences. Getting caught driving under the influence of alcohol means you will need to appear in court. If you are found guilty, you could face up to 6 years in jail. The main objective of this study was to identify the determinants of road fatalities in South Africa. According to the results, the explanatory variables carried coefficient signs that confirmed economic theory except for seat belt usage.

## 6.5 Summary

In the above sections, the researcher attempted to ask questions that are going to solicit the answers regarding the way commuter road safety will be understood. However, frequent minibus taxi accidents in the industry contribute to SDM road death being more than triple other cities on average. Members of the public tend to vilify the drivers of the minibus taxi industry and ascribe a high degree of moral responsibility to them, but this intuitive reasoning seems to disregard their work conditions and how they affect their driving behaviour. It also fails to take into account the South African road safety status quo and the possibility that drivers are akin to an indicator species in relation to the ills of our road traffic system. The predominant views on road safety are shaped by the approach of the safe system philosophy, which assigns responsibilities to both road users (taxi drivers) and system designers (SDM Authority). In line with this, the study addresses the question of what moral responsibilities should be ascribed and to whom, in relation to reducing road accidents involving taxi industry in the SDM.

My position is that road incidents resulting in injury or death are seldom completely unforeseeable – instead, most are highly predictable if causative factors are properly analysed. This leads to my personal preference for the term “crash”. However, the term “taxi accidents” rolls easily off the tongues of many South Africans (including taxi drivers themselves), and thus I used interchangeably with “taxi crashes” during this study. In the thesis, I refer to both 'road accidents' and 'road crashes', with the knowledge that the former term can convey an unintended message in other contexts.

## **CHAPTER SEVEN**

### **SUMMARY OF FINDINGS AND RECOMMENDATIONS:**

#### **A TQM INTERVENTION FRAMEWORK DESIGN**

##### **7.1 Introduction**

In this chapter, the researcher summarises the whole report and draws together the threads from all the previous chapters. This chapter also provides a final answer to the research questions, confirming that the aim and objectives of the study have been met and offers a set of practical recommendations drawn from the closing argument of the previous chapter. The researcher offers recommendations which are based on the proposed intervention framework to enhance commuter road safety based on the Total Quality Management approach, philosophy and principles. In this chapter, the reflection is also made on how this framework was drawn with the aim of contributing to existing knowledge within academic fraternity.

##### **7.2. Reflection on Research Questions and Objectives**

In this section, research questions will be explained in line with objectives which were set for this study.

###### **7.2.1. Research questions and objectives**

- What are the developments within the minibus taxi industry in South Africa?

The literature reviewed related to the historical development of the taxi industry in South Africa. The description was given from the inception of the minibus-taxi industry in early 1970s with so many regulations, violence, feuds, illegal operations, and many more challenges. In this instance, the researcher intended to paint a clear picture on where the taxi industry comes from for one to then understand the current challenges and issues of road safety affecting the taxi industry and commuters in general.

- What is the state of the minibus and taxi industry in terms of road safety in the Sedibeng District Municipality?

The percentages were retrieved from StatSA and the WHO Status Report on Road Safety 2023-2024. It became clear that road safety is an important concern worldwide. This study used the pyramid face-down approach, by which the state of road accident was studied from a global perspective cascading down to continental, regional, and country level (South Africa). In the country, the focus was placed on the Sedibeng District Municipality (SDM) with its three local municipalities (Emfuleni, Lesedi, and Midvaal). The percentage was also found to be high even though the researcher compared the public transport sector with the taxi industry. This minibus-taxi industry was found to be involved in high road accident statistics. The main concern for this study was commuters who have no choice but to use taxis as a mode of public transport. The question to follow is mainly how these commuters feel about this mode of public transport.

- What are the perceptions, needs, and expectations of commuters in the minibus and taxi industry as key stakeholders related to road safety?

Perceptions, needs, and expectations were solicited through semi-structured interviews whereby participants identified must contribute with their insight regarding their experiences within the taxi industry. Much more descriptions will be part of the summary of findings, which were given in the previous chapter.

- What is a suitable intervention framework that can address the alarming road accidents involving minibus taxis?

The intervention strategy was sort from SDM officials; this was a way of gathering data to find out what the steps are taken by the SDM to curb nor application of measures to reduce the rate of road accidents involving taxis. In the same breath, the minibus-taxi association cannot be ignored in putting emphasis on road safety. These associations are regarded a key in terms of the management of the minibus taxi industry.

### **7.3. Summary of findings**

The summaries below are extracted from interviews conducted with identified participants. The description aimed to showcase the response to the research questions set and the objectives attained for the study. In the discussion below, the researcher has infused all responses from interviews in a manner that will shed light to high-road accidents involving taxis and the safety of the commuters.

### **7.3.1 Theme: Regulations within the taxi industry (Labour relations)**

In reference to responses from SDM officials, taxi associations, and taxi drivers, the concern was regulations which are not abided by the taxi industry. While at the same time there seems to be a lack of interventions from the municipality (SDM). Much of the information that emerged during the interviews focused on the very poor working relations between drivers and taxi owners in the minibus taxi industry, and a sense of powerlessness on the part of drivers to effect change. Furthermore, commuters have little to contribute to the way taxis operate to ensure safety for commuting. This is related to the way the taxi industry lacks effective management tools to ensure that they create harmonious working conditions.

One participant simply put it, commenting that “government doesn’t care about us”. During many of the interviews the researcher gained a sense that even if the drivers themselves care about the human beings they commute, this caring and empathy does not extend to the taxi owners nor is it something they experience themselves when it comes to passengers, taxi owners, taxi association officials, and traffic cops, and definitely not from other road users. The usage of the so disrespectful (according to taxi drivers) name calling such as “*Mageza ’impompini*” (bathing with the tap) is clear.

Several interviewees perceived the Department of Labour as a very important role-player, even more important than the Department of Transport. This is in relation to improving your work conditions in a way that will directly improve road safety in the industry. The working conditions are mentioned here as a reference to the lack of a contract between the driver and the taxi owner. The contract will stipulate a fixed set of amounts to be cashed in after work, unlike the current situation whereby the owner will request exorbitant amounts that are causing the taxi drivers to overload, drive recklessly, and speeding, which is at the core amongst them all.

In interviews, some also specifically mentioned the need for higher levels of training of drivers and lower levels of variability in relation to how different taxi operators and associations run their activities. One participant pointed out the importance of government intervening in ensuring that the minibus-taxi industry is a major role player in socioeconomic empowerment of commuters specifically and members of the public in general. Under the theme 'It's not a proper driving job', to a lesser extent, the theme 'taxi drivers drive recklessly'. It has already been outlined regarding taxi drivers concerned with their work hours, pay arrangements, and general conditions of employment.

It is surprising that SDM officials and taxi associations did not mention the sectoral determination specifically or showed awareness of its provisions in relation to working hours, for instance, despite being offered an opportunity during the interview to do so. Furthermore, none mentioned the issue of overtime pay or nightshift allowances and there was no mention of the minimum wages stipulated by the determination (and adjusted periodically for inflation) or comment regarding whether their wages were compliant with these as added in (Randall, 2019). Taxi drivers did not mention the Commission for Conciliation, Mediation, and Arbitration (CCMA), which is generally very well known among South African employees as an avenue for addressing workplace disputes and grievances regarding unfair labour practices, and there was little (if any) spontaneous mention of unions as a mechanism for representing minibus taxi industry drivers and resolving their grievances.

As Randall (2019) emphasised that when opportunities arose to discuss the issue of unionization, this was universally dispelled as a possibility, for instance, on the grounds that one can only belong to a union if formally registered as an employee and in receipt of payslips and a bank-deposited (rather than cash-based) salary, and also on the grounds that union representation would be insufficient to deal with violent 'strong-arm' tactics within the industry. As a group, the interviewees appeared to be subdued rather than militant, mostly naïve or ignorant about their rights as workers under the Basic Conditions of Employment Act, let alone under the highly specific sectoral determination of the taxi sector. There are, of course, limits to what government can do and it is important to understand its responsibilities in relation to those of the road-using public and the minibus taxi industry itself.

In summary from the previous section, the data that emerged from the interviews paint a picture of South Africa's roads as a mirror of a broader society that has commuters. They are clearly characterized by conflictual interactions between different interest groups and sectors that are sharing the same constrained resources (road space and time) and without a strong sense of leadership or direction from those 'in charge' in terms of 'doing the right thing'. The researcher was struck by the lack of continuity at a leadership level, within government, there have been eight transport ministers since the advent of democracy in 1994, with four different ministers appointed in the past two years alone.

### **7.3.2 Theme: Speeding and reckless driving**

In the sections above, one has identified that speed has dire consequences, and it activates other factors of road accidents involving taxis. Excessively high speeds encourage further transgression of the law, such as ignoring red robots and unsafe overtaking, and further increase the effect of all the other contributing factors to road accidents. For example, driving at an excessive, inappropriate speed at

night and encountering a slow-moving vehicle with faulty lights; or a stray animal or a drunk pedestrian greatly reduces the response time and decision making for a driver in a fast-moving vehicle.

To effect a lasting change in the current road safety situation, all these issues should be vigorously addressed and improved. It must be recalled that the taxi owners have mentioned an amount which must be made by the taxi driver. These drivers found themselves in competition for commuters so that they should reach that amount requested. Reckless driving behaviour such as improper lane changes and not giving up the right of way becomes the order of the day and is one of the main causes of road accidents involving taxis in SDM (participant observation also confirmed). This kind of behaviour is a clear reflection of disregard for road rules and the safety of commuters within the minibus-taxi industry. Reckless driving increases the risk of causing a crash and has severe consequences.

#### **7.3.4 Theme: Bribery and corruption**

Traffic officers requesting a bribe was one of the themes that many of the drivers I interviewed referred to. These instances of bribery and corruption affected regulatory processes (including driver licensing, vehicle licensing, and roadworthiness testing), as well as the way in which road traffic rules are enforced – or not enforced – by traffic officials. This included mention of situations where there are conflicts of interest, for example, when traffic officials have some kind of connections with taxi owners, and abuse their positions to skew activities such as roadblocks. This serves to increase the profitability of taxi companies and detract owners from the profitability of their competitors. In the long run, this undermines the credibility and effectiveness of traffic officers when it comes to objectively enforcing road traffic rules. As Fobisi (2023) also explored this concern about commuter satisfaction, if taxi drivers are extorted, this means that they will have to go the extra mile in luring passengers, thereby risking commuter lives.

#### **7.3.5 Theme: Drinking and driving**

Drunk driving is an obvious risk factor that affects all road users, amongst commuters' participants, the mention was made of witnessing taxi drivers drinking with their "buddies" while driving. Alcohol is well known to impair driver judgement, coordination, and reaction times. This makes it much harder to operate vehicle safety. During interviews with traffic officers, it was attested that during their roadblocks, many transgressors were found to have alcohol above the regulated limit. In most accidents that occur one will find that the taxi driver is at fault, and when taken for breath-analysis, alcohol is found to be the preconclusive or presumptuous cause of accident.

### **7.3.6 Theme: In experienced teen drivers**

It was revealed that taxi owners have a tendency to hire young boys to drive taxis, among interviewees (commuters), most of them made references to inexperienced young drivers 'they lack experience and judgement that comes with years of driving'. Commuters and traffic officers claim that this lack of experience often leads to poor decision-making in a high-pressure situation within the taxi industry. It can be concluded that taxi owners resort to this tendency to hire young drivers, as they assume that these young drivers are faster and cannot be demanding when they are looking for salaries.

Young drivers should receive comprehensive driver education and ample practice before they can be offered driving duties for commute. It is proposed that there should be a driver licensing system as introduced in many developed countries (New Zealand, Australia, Britain, etc.). Taxi owners again do not take into account the safety of the commuter road when hiring taxi drivers; all they focus on is daily profits (cash in) of drivers.

### **7.3.7 Theme: Vehicle defects (unroadworthiness)**

The taxis that are found to be in accidents, most of them, are as a result of not being able to drive (this has been observed as many vehicles are scrap 'skorokoro' with the language used by the taxi stakeholders (commuters). In one of the interviews, it was hinted that "you can even see the ground when the taxi is on the road", the researcher can also attest to this based on the participant observation carried out. Vehicle defects ranging from faulty brakes, airbag issues, and engine failures were detected by traffic officers amongst other factors of road accidents involving taxis. These defected are not noticeable by drivers until it is too late; the question is: are the taxi owners going to allow taxi drivers to inspect their taxis? They will not even show concern if hired. Taxi owners do not keep up with maintenance; this was also attested by traffic officers interviewed.

In summary, the discussion comments of the participants included the enforcement of traffic laws around speeding, reckless driving, and un-roadworthy vehicles, better driver training, and infrastructural upgrades, commuters' desires for safer, more affordable and accessible public transport services that meet the needs of all. It was suggested that traffic regulations must be enforced to manage overloading and speeding, as well as to remove un-roadworthy vehicles. Recommendations for better driver training were made: Participants who had bad experiences with taxi drivers were especially adamant about this. It was popular belief that more frequent and reliable services can reduce wait times and overloading, especially during peak hours. Another called on the state to invest in transport

infrastructure. Referring to the above sections, when findings are presented and discussed, it became imperative for the researcher to draw an intervention framework that will enhance the safety of commuters within the minibus-taxi industry. As proposed in Chapter 1 and described as the rationale for the study, Total Quality Management philosophies and principles will be discussed to show relevance for the taxi industry.

#### **7.4 The importance of developing a framework in contemporary research**

According to Peralta (2023:02), many frameworks exist across the sciences and science-policy interface, but it is not always clear how they are developed or can be applied. It is also often vague how new, or existing frameworks are positioned in a theory of science to advance a specific theory or paradigm. Frameworks are important research tools across nearly all fields of science whereby it is expected that new knowledge should be made. The development of a framework is critically important for structuring empirical inquiry and theoretical development in the environmental social sciences, governance research, and practice. All these boil down to the sustainability of sciences and fields of social-ecological.

Every framework has a position, meaning that it is located within a specific context of a scientific field. As positioning tools, frameworks seem to 'populate the scientist's world with a set of conceptual objects and (non-causal) relationships between them' shaping (and sometimes limiting) the way we think about problems and potential solutions (Cox *et al.* 2016:47). In essence, using a specific framework will guide in part the work of a researcher in a field and its related concepts, theories, and paradigms. Furthermore, frameworks can also emerge from the bottom up by distilling empirical data across cases, and thus creating a knowledge bridge of more specified conceptual features and relationships that connect to a paradigm.

In both top-down and bottom-up mechanisms, frameworks can play a vital role in synthesizing and communicating ideas among scholars in a field from empirical data to a paradigm. However, a challenge may be that multiple frameworks have emerged attempting to specify the core conceptual features and relationships in a paradigm. A mature scientific field is likely to have many frameworks to guide research and debate. However, there is a lack of research and tools available to compare frameworks and their added value.

The framework visualizes the levels along the scale of scientific theory including paradigms, specific theory, and empirical observation. As coincided by Peralta (2023:4). Along this scale, three

mechanisms of logical reasoning are typical: induction, deduction, and abduction. Induction is a mode of logical reasoning based on sets of empirical observations which, when patterns within those observations emerge, can inform more generalized theory formation. Induction, in its pure form, is reasoning without prior assumptions about what the researcher thinks is happening. In contrast, deduction is a mode of logical reasoning based on testing a claim, often based on a body of theory, against an observation to infer whether a claim is true. In contrast to induction, which always leads to probable or uncertain conclusions, deductive logic provides true or false conclusions. A third mode of logical reasoning is abduction. Abduction starts with a single or limited set of observations and assumes the most likely cause as a conclusion. Abduction can only provide probable conclusions. In drawing these frameworks, the emphasis is placed on equipping students with more scientific knowledge and enabling them to contribute within their own fields of study.

### **7.5 Contribution of the study**

The review of public transport policies and strategies has been a challenge. Therefore, this study is the sheer volume of policy, strategy, and legislation that has been developed in relation to public transport since the dawn of South African democracy in 1994. Therefore, in reviewing the policies and strategies and in the context of this study, a focus has been placed on the high-level objectives of the policy and strategy. This is mainly in references to regulations that are not clearly effective in ensuring synergy between the taxi industry and the SDM. Regulatory provisions and strategic initiatives in terms of the minibus-taxi industry as a means of public transport should be monitored and evaluated to ensure that the goals set out are achieved, namely providing affordable, reliable and efficient transport services to the public. It is from this premise that the study of this nature must be undertaken.

### **7.6 Steps in developing a framework**

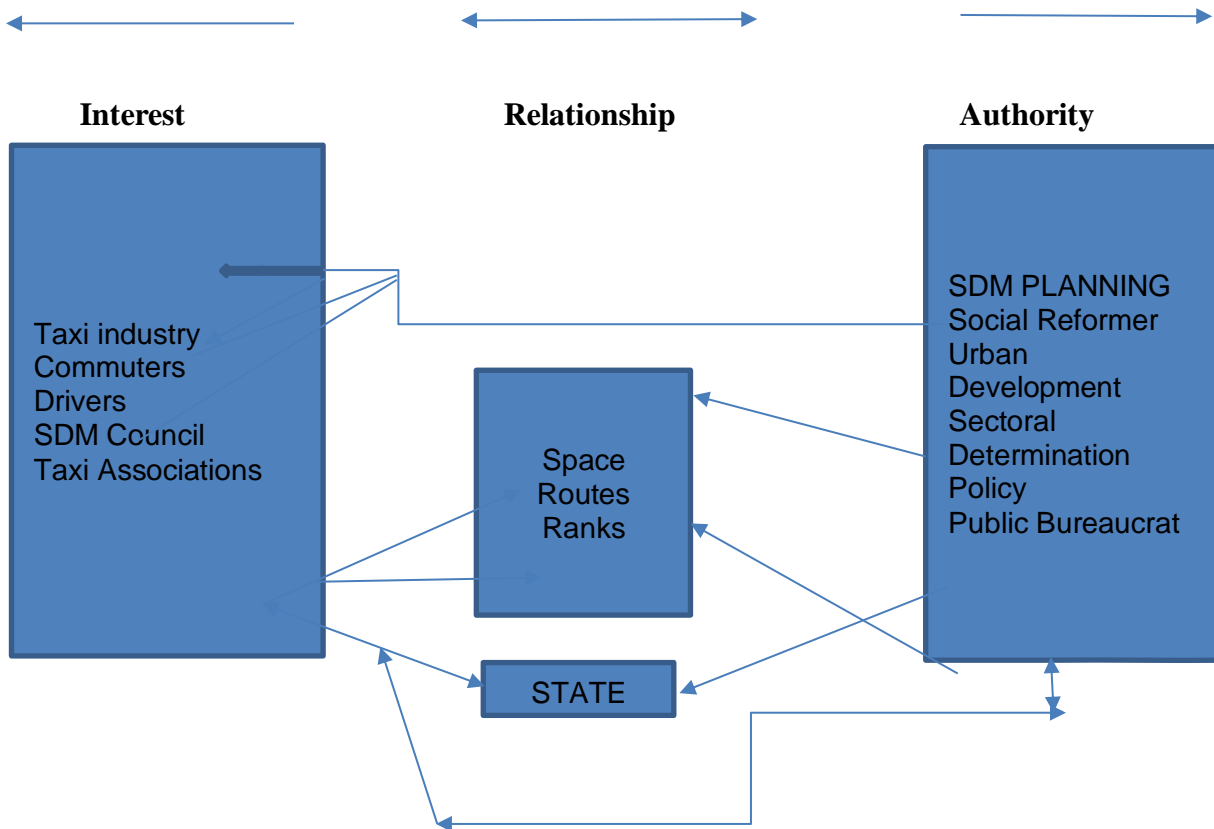
In the fields of social scientific studies, many scholars have different approaches in answering the question of steps to follow in developing a framework. In this study that approach followed was adopted from Mvhunge (2015:230) according to Table 7.1:

<b>Step</b>	<b>Activity</b>	<b>Objective</b>
<b>1</b>	Reflect on the research problem/primary questions	Ensure that the framework answers the research questions
<b>2</b>	Review the current knowledge of the phenomenon	Generate existing knowledge
<b>3</b>	Scrutinise applicable theories and models	Reflect on existing scholarly views
<b>4</b>	Review concepts, constructs and variables	Identify main concepts, constructs and variables
<b>5</b>	Analyse empirical findings	Incorporate empirical data
<b>6</b>	Develop themes	Identify key themes
<b>7</b>	Map the relationships between themes	Outline relationships between themes
<b>8</b>	Create a framework	The study's academic contribution

### **7.7 Assumptions underlying the development of intervention framework**

In research undertaking, the development of a framework is predisposed by the basic assumptions or the underlying beliefs systems of the researcher. Johnson, Adkins, and Chauvin (2020, in Mvunge 2025:230) assert that these framework developments are prerequisites and fundamental because they are the basis of creating new knowledge. They further motivate the researcher to contribute scientific knowledge to the professional field of practice. Based on the assertion depicted in Table 7.1 the following framework is drawn to shed light into the perspective of taxi industry relationship with the authorities (SDM)

**Figure 7.1: Conceptual Framework: a guide to understanding the relationship between the taxi industry and the local authority.**



*Source: Own construction*

The above conceptual framework maps out the interest, relationship and authorities of the taxi industry, focussed on taxi associations, planners, and the state. This is an attempt to ground the understanding of taxi associations in the context of shared authority over and relationship with space and state, respectively. From this map of status quo, the links, by virtue of shared interest and authority with planners, begin to become apparent. There is a direct relationship between associations and drivers, owners, and passengers. These are part of the group of regular citizens (commuters) needing mobility, who are the traditional focus of the social reformer. Associations also have direct ownership and authority over ranks and routes (spaces) and thus are indirectly related to urban managers because both have jurisdiction of portions of the spatial realm. Additionally, there is often a direct relationship between the state in the form of the city governance and associations that is of interest to planners like policy specialists and intermediators. Other relationships between the state and taxi industry exist, but the focus here is on the direct links between state institutions and taxi associations.

## **7.8 Total Quality Management approach**

The above discussion is intended to focus the reader on the reasons for the development of TQM as an applicable philosophy to draw the intervention framework that will enhance commuter road safety within the minibus-taxi industry in the Sedibeng District Municipality (SDM). In all the responses collected during that collection phase, it became of interest for the researcher to clarify the principles and philosophy of TQM. Then it will be understood as to its relevance within the taxi industry. Total Quality Management (TQM) practices are described as focusing on satisfying customer needs (road safety); for the purpose of this study customers are referred to as commuters. This implies making commuter needs the priority, expanding the relationship beyond traditional services, and incorporating commuter needs into taxi business plans and strategies.

The TQM philosophy is so called because:

- It involves every single piece of work done in the organization.
- It involves everyone in the organization.
- It requires total commitment

### **a) Quality System Improvement**

- **Quality Manual**

A quality manual is a document that states the quality policy and describes the quality system of an organization (ISO 8402, 1994). It includes the firm's quality policy and addresses each of the ISO 9000 requirements in broad terms related to the activities of the firm. In drawing up a quality manual, various people in the firm should be involved and relevant ISO 9000 standards should be referenced. The manual should be concise and easy to understand. Before issuing the manual, it should be subjected to review by responsible individuals to ensure clarity, accuracy, suitability, and proper structure. Finally, it must be reviewed and approved by the general manager (Bergman and Klefsjö, 1994; Burrill and Ledolter, 1999; Dale, 1999; Randall, 1995).

- **Quality System Procedures**

Documented quality system procedures describe the activities of individual functional units needed to implement the elements of the quality system (ISO 10013, 1995). Thus, the responsibilities and authorities of different functional departments are clearly defined by the system procedures. To define quality system procedures, it is important to solve interface issues among different departments. The quality system procedures should cover all the applicable elements of the quality system standard. They

should describe the responsibilities, authorities, and interrelationships of the personnel who manage, perform, verify, or review work affecting quality, how the different activities are to be performed, and the documentation to be used and the controls to be applied. As a rule, documented procedures should not enter into purely technical details of the type normally documented in detailed work instructions (Zhang, 2001:153).

The aim of TQM is to achieve zero defects in everything done in the organization, i.e., to do error-free work. To achieve this means that everything we do must be right, first time, every time. The common theme in TQM is 'get it right first time, every time' (Brits, 2007). In essence, quality system integration requires that the business looks out for the customer (commuter), while the customer looks out for the survival of the business by making the taxi industry an organization of choice with regard to their mode.

### **7.8.1 An intervention framework: Total Quality Management**

Davis and Heineke (2005:283 in Gule 2009:22) further define TQM as a quality improvement system that involves every functional department and all hierarchical levels in an organisation. TQM is designed to facilitate the functional integration and alignment of the organisation's activities and processes through various levels of an organisation. Important elements of TQM are leadership, employee involvement, product/process excellence, and customer focus.

#### **a) Leadership (Taxi Association)**

As discussed in chapter two of this study, Edward Deming, an expert in quality, claims that leadership causes 85% of firm quality problems (Davis & Heineke 2005:274). Werner (2004:332) also shares the same sentiment that it is the calibre of leadership in an organisation that determines the quality of its employees' performance. According to Werner (2004), leadership cannot be absolved from ultimate responsibility for quality, even if quality problems could be traced back to faulty equipment or an unskilled labour force. Leadership has the final responsibility to ensure that good equipment and a skilled labour force are available for the production process (Hitt et al. 2007). Leaders should safeguard the interests of the entire organisation.

### **b) Employee involvement (Taxi drivers)**

Total Quality Management (TQM) cannot successfully be implemented in an organisation, whether product or service orientated, without the genuine involvement of employees (Beckford, 2002). Zemke and Woods (1999:209) suggest that the best way to obtain and maintain enduring commitment of employees to high-quality performance is to create ownership among employees of the firm. Zemke and Woods (1999) argued that employees would be more willing to engage in productive activities if they had a stake in the firm (in Gule, 2009:22). In essence, employees are the epitome of what an organisation stands for as far as quality standards are concerned.

### **c) Excellence in service.**

The process of improving quality in an organisation can take many forms depending on strategic objectives and resource constraints. According to Juran (1989:30), most quality-enhancing initiatives involve the following:

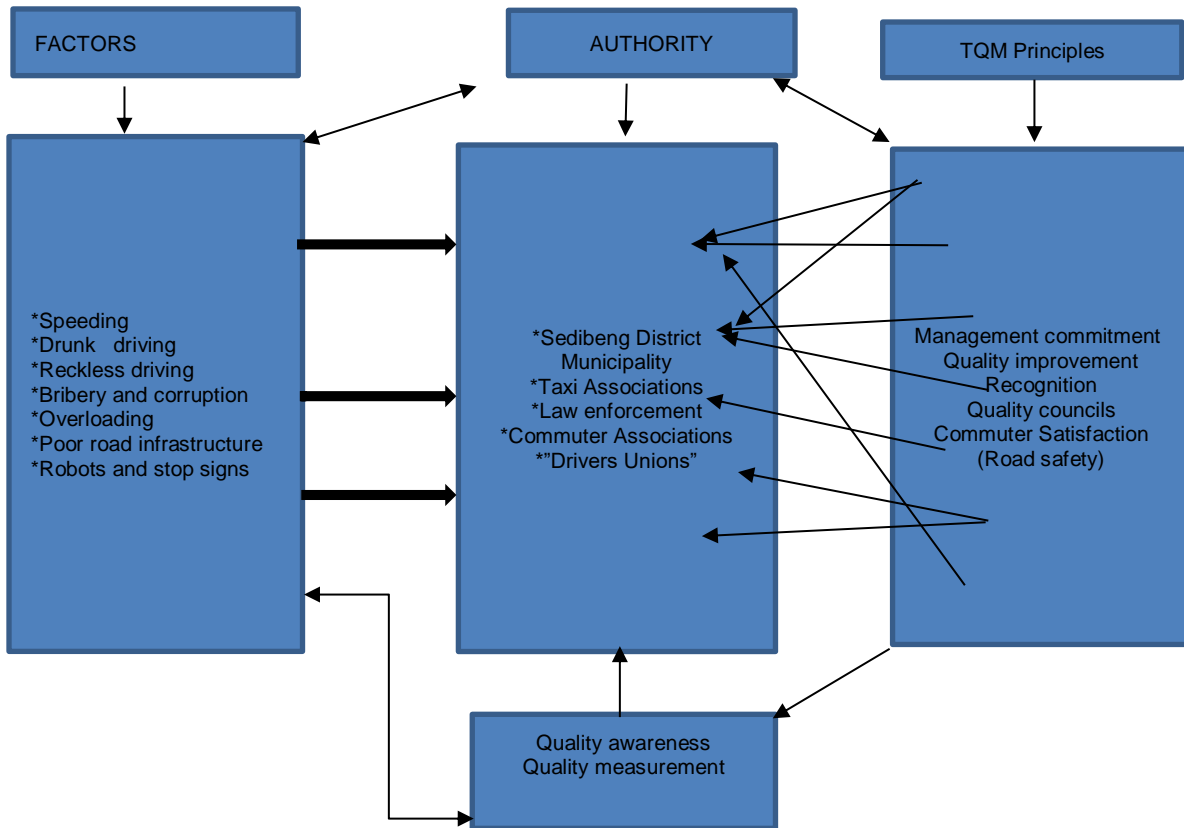
- Creating new products or services to replace existing ones
- Changing the technological systems used by the firm; and
- Revamping the production and delivery processes.

The researcher has drawn up the intervention framework adopted from Crosby's (1979) approach among all TQM experts. The reason for choosing Crosby's approach is its relevance to bring all stakeholders in the taxi industry on the table regarding the safety of commuter roads.

### **d) Customer focus (Commuters)**

Business strategy not informed by the needs of the customers is bound to fail (Kristin & Zemke 1998; Hitt et al. 2007; Zeithaml et al. 2006). The needs of every stakeholder in an organisation must be aligned with the needs of the customer. Grönroos (2000:3) calls this the customer perspective of services marketing. Grönroos (2000) suggests that a service offering must aim to solve customer problems successfully every time. Even in challenging economic circumstances, companies with an integrated customer focus in their service strategies are more likely to thrive compared to those firms who neglect customer needs (Walker, 1990: 5). Although some customer expectations are at times unrealistic and cannot be satisfied, Belding (2004) suggests that firms should nevertheless do everything in their power to meet customer expectations.

An intervention framework as in Figure 7.2 is as follows:



Source: Own construction

### 7.8.2 Description of an intervention framework

In the framework drawn (Figure 7.2), it identified several important principles and practices for a successful quality improvement program that will aid all involved in ensuring road safety for commuters in SDM. which include, for example, management participation, management responsibility for quality, employee recognition, education, reduction of the cost of quality (prevention costs, appraisal costs, and failure costs), emphasis on prevention rather than after-the-event inspection, doing things right the first time, and zero defects.

These steps are listed as follows:

- **Management commitment:** To make it clear where management stands on providing quality service on road safety for commuters. In this instance, Management as depicted reference is made to Taxi Association since it was indicated that they have the executive committees of associations that foresee the implementation of plans within the industry. The extent to which

their commitment will be shared with the SDM, whereby associations have to attend on all matters raised by the municipality in ensuring road safety within the region. This statement is narrated in line with the response which was given by the SDM officials that the taxi industry fails to attend a number of workshops arranged by the SDM Transport and Infrastructure Development Directorate.

As Parker (1995: vii) emphasized, the leadership of an organization must be committed to continuous improvement. This commitment must be visible throughout all layers of management. Management must "walk the talk." Only when management is committed will employees (in this instance, reference is made to taxi drivers and marshals) excel at what they do. It takes time to change work cultures and work habits, but with perseverance the message of enlightened management will prevail.

- **Quality awareness:** To provide a method of raising the personal concern felt by all taxi drivers in the industry toward the conformance of the transportation service and the quality reputation of the industry. As revealed from the responses given, taxi drivers indicated that law enforcement officers have a tendency to request 'coke' (Bribery). This has a negative impact on their operations; the work of taxi drivers is compromised since they will have to speed up more funds for the owner at the same time.
- **Corrective action:** To provide a systematic method to solve road accident problems that are identical through previous action steps.
- **Supervisor training:** To define the type of training that supervisors need, in this instance, the supervisor is referred to taxi owners so that there will be a need to actively carry out their part in improving road safety quality.
- **Goal Setting:** To turn promises and commitments into actions by encouraging individuals to establish improvement goals for themselves and their groups.
- **Causeway error removal:** To give the individual employee a method of communicating to management in the situation that makes it difficult for the employee to meet the commitment to improve.
- **Recognition:** To appreciate those who participate.
- **Quality councils:** Bring together the professional quality people for planned communication on a regular basis.
- **Monitoring:** To emphasize that the quality improvement program never ends.

## **7.9 Recommendations according to the total quality management framework**

Several recommendations are made to improve public transport services, in which TQM practices are proposed based on a thorough summary of the interviews' findings. The recommendations are discussed as follows;

### **7.9.1 Technological enhancement of the job evaluation process.**

Based on findings, it is recommended that there should be a formalised and streamlined driving evaluation process further so that it serves its purpose in terms of progression. The outcomes brought forward should be auctioned through a systematic digitised training programme for job analysts to enhance uniformity and precision in job assessments supported by (Singh & Shrivastava, 2022), citing uniformity as a strategic agenda for future actions in TQM. This review can offer information on the latest developments and research directions; adequately maintain the rules so that the associations responsible for evaluating taxi drivers' responsibilities can be evaluations with the principles of complete quality. Establish a feedback system that allows taxi drivers to offer suggestions about their processes in commuting passengers, encouraging openness and equity.

### **7.9.2 Strengthening the culture of the taxi industry**

Conduct regular cultural assessments to better understand the dynamics and potential areas for improvement within the industry, given the various influencing factors such as global operations. Promote a collaborative, idea-sharing, and empowerment-focused culture through forums and talks, as recommended by the interviewees. Expanding the range of training programs to provide drivers with opportunities for skill enhancement and professional development, promoting continuous learning and capacity development.

Put in place mentoring and coaching programs to help members develop and close any gap in leadership development. Expand the range of training programs through external institutions to provide drivers with opportunities for driving skill enhancement and professional development. Introduce a structured reward system that offers opportunities for participation in programs or meetings as a form of recognition of quality work, as suggested by the interview findings. In this instance, there will never be a need for reckless driving to source more money for the taxi owner.

### 7.9.3 Addressing challenges and external influences

Minibus taxis pose a serious threat to commuter safety on the roads, and this requires stricter regulations and enforcement to improve comfort and safety. This study has shown that the absence of an adequate public transportation infrastructure reduces quality of life, as safety and security are lacking. The structural defects and operational challenges of the facilities in relation to the road infrastructure highlight the severe oversight and underinvestment in the essential public infrastructure within the SDM. That said, there are indications that ride-hailing services are challenging the status quo by competing on convenience, reliability, and enhanced road safety issues. The adoption of such services suggests a gradual shift towards more accountable public transportation options.

The following recommendations can also be considered to address the challenges identified, particularly in adapting to modern practices and overcoming rigid prescripts:

- Establish a change management for the taxi association to facilitate the adaptation to modern practices and technologies, aligning with the fourth industrial revolution era (this is in line with the way taxi operators must manage the taxi industry).
- Strengthen collaboration with partner departments; this refers to the law enforcement, department of transport, Road Traffic Management Corporation (RTMC) to mitigate external influences that may impact operational efficiency for the taxi industry.
- Promote continuous improvement It is recommended to promote a culture of continuous improvement and innovation within the taxi industry;
- Encourage taxi drivers to participate in the suggestion and implementation of modern technologies that will help them with road safety concerns.
- Balance compliance with established directives with the adoption of innovative solutions, as emphasized in the interview findings.
- Improving employee (taxi drivers) morale and motivation

It is recommended to address the challenges related to low driver morale through the following initiatives:

- Implement a rewards and recognition program that recognizes and incentivizes performance, aligning with the emphasis of the interviewee on the importance of recognition and rewards.
- Strengthening capacity development; It is recommended to enhance capacity development and boost morale within the industry through the following initiatives:

- Expand the range of driver training programs, through external institutions, to provide drivers with opportunities for skill enhancement and professional development.
- Introduce a structured rewards system that offers opportunities for participation in programs or meetings as a form of recognition for quality work, as suggested by the interview findings.

These recommendations are aligned with the key findings of the interviews and aim to address the identified challenges while leveraging the strengths and opportunities within the minibus taxi industry. By implementing these recommendations, the industry can further improve its TQM practices, improve employee satisfaction, and foster a culture of continuous improvement and innovation.

The recommendations for enhancing TQM practices within the public service institution are supported by a variety of literature. Based on the perceptions of the participants, the conclusions drawn from the research findings and discussion are that TQM practices are prioritised, including the following elements: Flexible leadership, including commitment/team trust, which is linked to theme 1, where participants acknowledge diverse experiences with respect to the lack of commitment of SDM. A rigid culture advocates for a well-defined and structured working environment with procedures and can be experienced as more controlling.

Commuter satisfaction and quality performance instruments are needed and are related to theme 2, where participants acknowledged the risks associated with conflicting policy operations on various routes within the SDM. Participants envisioned a culture of empowerment and cooperation that aligned with the needs for training rather than just taking any available training because it was offered. Capacity building opportunities with well-working platforms are needed to adequately address the challenges of the organization. Change management surveys must be used regardless of whether the results are pleasing; the key is to create an environment that promotes a quality work culture.

It was imperative to explain the historical background of the taxi industry in South Africa to give the reader a clear picture of this gigantic industry that plays a role in economic empowerment. Thus, it is point to rise that the establishment of legislated apartheid after 1948 had accelerated the destruction of black settlements near urban centres and the removal of their populations to the urban periphery. In other cities, industrial zones, transportation corridors, or other buffers, the system separated black townships from white commercial and residential areas. As apartheid policy had managed to move the poor away from job opportunities and access to amenities. It became a burden for ordinary people to get to their intended destinations. The workforce burdened with enormous travel distances to their

places of employment and commercial centres, and thus with excessive costs. Taxis needed to emerge, even though they were neither regulated nor formalised.

No previous research of this nature has been conducted in relation to road safety in the Sedibeng district municipality, and this thesis represents an attempt to fill this gap. In conducting this study, the aim was also to expand the literature. The researcher began by providing background information about the history and development of the taxi industry. The researcher argued that South Africa's road traffic system represents a crash-organic environment. The researcher then offered a condensed history of the complex and conflictual minibus-taxi industry, framed within a broader discussion of paratransit systems, and provided background information on the economic hub of SDM in which my study is set. Next, the philosophical literature was reviewed to better understand key moral issues related to road safety as described. The researcher had selected a tool to develop a closing argument. Then it became important to lay out the results of mixed-method empirical research, constituting descriptive inquiry.

## **7.10 Limitations of the study**

### **7.10.1 Nature of the study samples**

The interviews tapped drivers from a range of routes, operators, and associations within SDM and were thus broader than they might have been had I focused on only one route, rank, or association. Choosing a driver-centric approach inevitably obscured some other vantage points, which could be equally worthy of study. Thus, while focusing on the drivers, I had only an oblique view of the possible perspectives of other role-players, like taxi owners. The advantage of a clear focus on drivers was that the study did not attempt to be 'all things to all people' and was less overwhelmed by the size and complexity of the minibus taxi industry than could otherwise have been.

### **7.10.2 Practical challenges in relation to accessing participants**

The minibus taxi industry, as an informal and unregistered industry, there are no easily accessible databases containing drivers' details, providing a challenging environment in which to access participants for this study. Many additional challenges arose due to the conflictual, turbulent, and suspicious nature of the industry, the need to pay careful attention to participant anonymity and confidentiality, and my outsider status. Other practical challenges related to budgetary constraints (for example, when it comes to hiring a fieldworker).

### **7.10.3 Naiveté and bias of the researcher**

As I noted earlier, being an outsider to the minibus taxi industry – and yet having encountered it daily over many years as a road user in SDM – was a source of both strength and weakness in relation to this study. It took me a while to get to grips with how the industry works and learn some of the terminology used by drivers. It also took me time and effort to reflect on how I might have been influenced by widespread social stereotyping of minibus taxi industry drivers and to deliberately deconstruct those stereotypes and open myself to whatever empirical data would emerge, without a priori identification of themes. This allowed some surprising issues to be uncovered that I may otherwise have missed.

### **7.10.4 Generalizability**

For other South African cities, my empirical results probably reflect some generic minibus taxi industry realities which are common. Paratransit has peculiar features that are not shared by formal public transport modes such as buses and trains. For instance, prominent stressors associated with scheduling are reported by drivers of the latter modes, while the key stressors reported by paratransit drivers relate instead to the target system, competition on the roads, their excessive working hours, and their informal employment arrangements. On the other hand, all road-based transport modes in South Africa – formal and informal, public and private, motorized and nonmotorized - share the same road traffic system, which I have argued represents a crashorganic environment. To that extent, my results may be generalizable to other transport modes. Certainly, the issue of crashes having a multiplier effect (due to the number of passengers carried) would apply to bus travel just as much as to the minibus taxi industry.

### **7.11 Dissemination of the results**

I intend to disseminate my research results both within the academic sphere and within the non-academic road safety advocacy sphere. This may include submitting articles to professional journals relating to public health, occupational health, occupational therapy, and transport sciences. I will also continue to participate in more journalistic presentations of my findings and recommendations, such as the magazine article. Furthermore, I will offer a summary of my results to relevant entities such as minibus taxi industry associations and mother bodies, the Gauteng Department of Roads and Transport, RTMC and the Transportation division within South Africa, as well as any other interested individual or organization requesting.

## **7.12 Suggestions for further research**

Numerous issues worthy of research became apparent during the course of this study, some strongly bioethical in nature, and others related to public health or occupational health in a more general sense. These include;

- An exploration of the moral collision course between minibus taxi drivers and private vehicle owners on Gauteng roads.
- An exploration of commuter views on moral responsibility for road safety in the Johannesburg minibus taxi industry.
- An exploration of taxi owners' views on moral responsibility for road safety in the Johannesburg minibus taxi industry.
- An inquiry into whether speed governors and alcohol interlocks in minibus taxis are overly paternalistic road safety measures would be appropriate
- An exploration of ethical issues relating to the unavailability of seatbelts and child restraints in South African minibus taxis.
- Do “Ubuntu ethics” offer a way to improve road safety in the South African minibus taxi industry?
- The emergence of “skorokoros” – road safety concerns relating to the resurrection of elderly and defective minibus taxis during peak travel periods.
- Ethical issues related to vehicle roadworthiness and scholar transport in South Africa.
- A Benchmarking Study: Road Safety in the Countries of the SADC Region

## **7.13 Conclusions**

This final chapter of the thesis has revisited the research question and objectives and pulled together the contextual, empirical, and normative threads from the previous chapters. It has set out my major conclusions, namely that the SDM minibus taxi industry operates within a broadly crashorganic system and its operating principles are contra-constitutional, creating a pressing need to better address road safety in the industry due to the high numbers of passengers it carries. Based on my moral responsibility ascriptions in relation to different minibus taxi industry role players, I have recommended three main interventions, the first in the nongovernmental sphere and the other two involving, respectively, the Department of Labour and Department of Transport. In this chapter, I have also acknowledged the limitations of my study and provided information which may be useful to future researchers, including

a synopsis of the practical challenges associated with accessing minibus taxi industry drivers, how I dealt with the possibilities of researcher naïveté and bias, my thoughts about how generalizable my results are and how best to disseminate them, and my suggestions for further research in relation to road safety (particularly research focusing on the minibus taxi industry).

## REFERENCES

- Ackerman, P. & Duvall, J. 2001. *A force more powerful: a century of non-violent conflict*. East London: University of Port Elizabeth
- Adu, E.L. & Okeke, C.I.O. 2022. *Fundamentals of research in Humanities, Social Sciences and Science Education*. Van Schaik: Pretoria
- Ahmed, Y. 1999. *Public Transport Micro-Enterprises-Formalisation Experiences in South Africa*. Cape Town. UCT
- Anderson, P. 2006. *Public policy making*. Pretoria: van Schaik.
- Arrive Alive. 2021. *Accidents statistics in South Africa*. Available at:  
<<http://www.arrivealive.co.za/pages.aspx?i=2826>>. Accessed: 20/4/2023.
- Babbie, E. 2008. *The basics of social research*. Belmont: Thomson Corporation.
- Babikir, H.E., Ali, A.B. & Elwahab, M.M. 2012. *Research methodology step by step guide for graduate students*. *Sudanese Journal of Pediatricians*, 9: 11-20.
- Bairagi, V. & Munot, M.V. 2019. *Research Methodology: A practical and scientific approach*. Tylor & Francis Group: New York
- Baloyi, M.M. 2013. *The taxi recapitalization policy: Is it a hollow dream?* *Journal of Public Administration*, 48 (2): 342-351.
- Barolsky, S. 1989. *Black Taxi Industry: A Case Study*. Johannesburg: University of the Witwatersrand
- Barret, J. 2003. *Organizing in the informal economy: A case study of Taxi industry in South Africa*. Geneva: International Labour Office (ILO).
- Bokaba, M .2002. "Taxi recapitalisation project"  
<http://www.satawu.or.o.za/news/press%20releases.htm> > Accessed 15 January 2024
- Bua News, 2003. "South African Travel Guide"  
<http://www.satravel,ouide.com/newsletter-4>. Accessed: 22 January 2024

- Carter, N, Bryant-Lukosius, D, DiCenso, A, Blythe, J, & Neville, A.J. 2014. The use of triangulation in qualitative research.
- Chinamona, R, Mofokeng, T. & Poee, D. 2013. The Influence of Condition of Minibus Taxis, Compliance with Road Rules on Quality of Service and Commuter Satisfaction in Harrismith, South Africa. *Mediterranean Journal of Social Sciences* Vol 4, No 14 (2013) Available at: <https://www.mcser.org/journal/index.php/mjss/article/view/1609> Accessed: 13/05/2023
- Croucamp, P.A. 2003. The social relations of the taxi industry in South Africa: Contending theories of corporatism, Pluralism and Systematic patronage. Bloemfontein:UFS
- De Klerk, J. 2012. Minibus-taxi or minibus-taxidermists staffing up the transport industry. [Online]. Available at: <[www.focusontransport.co.za](http://www.focusontransport.co.za)>. Accessed: 11/01/2023.
- Devlin, A.S. 2021. The Research Experience: Planning, Conducting, and Reporting Research. SAGE Publication: California
- Durgard, J. & Sekonyela M. 2004. A violent legacy: The minibus-taxi industry and government at loggerheads. [Online]. Available at: <<http://www.issafrica.org/uploads/3violent>>. Accessed: 4/03/2023.
- Dugard, J. "From low intensity war to mafia war: Taxi violence in South Africa"  
[http://www.idrc.ca/fr/ev-41686-200\\_1-1\\_1-DO-TOPIC.htm](http://www.idrc.ca/fr/ev-41686-200_1-1_1-DO-TOPIC.htm) Accessed: 30 January 2024.
- Dugard, J. 2001. Taxi violence in South Africa (1 987-2000). *Journal of Southern Africa Studies*.
- Eagle, G. & Kwele, K. "You Just Come to School, If You Made It, and Its Grace": Young Black Women's Experiences of Violence in Utilizing Public "Minibus Taxi" Transport in Johannesburg, South Africa. *Journal of Interpersonal Violence*. Volume 36, Issue 15-16. <<https://doi.org/10.1177/0886260519840395>> Accessed: 20 April 2024
- Evans, J.R. & Deans, J.W. 2001. Total Quality: Management, Organisation, and Strategy. Singapore: Thompson Learning.
- Evans, J.R. & Lindsay, W.M. 2005. An Introduction to Six Sigma and process improvement. South-Western: Thompson Corporation.

- Finn B. M. 2021. "The Popular Sovereignty continuum: Civil and Political Society in Contemporary South Africa." *Environment and Planning C: Politics and Space* 39 (1): 152–67. <https://doi.org/10.1177/2399654420941519>
- Fobisi, S. 2013. The minibus-taxi industry in South Africa: servant for the urban poor. [Online]. Available at: <<http://www.consultancyafrica.com/minibus-taxi-industry>> Accessed: 11/08/2023.
- Fobisi, S.C. 2019. Regulated set against unregulated minibus taxi industry in Johannesburg, South Africa- A contested terrain: Precariousness in the making. *World Journal of Social Science Research*. Vol, 6 No 3 2019 303-304
- Ford, R, 1989. in Umbono Corporate Advisors. 2002. Taxi recapitalisation objectives: Summary Presentation. Johannesburg: Umbono Publishers
- Fouche, C.B. & Delport, C.S.L. 2002. The place of theory and literature review in the qualitative approach to research. Pretoria: van Schaik.
- Fourie, L.J. 2003. Rethink in the formalisation of minibus taxi industry in South Africa. Dissertation: University of Pretoria
- Fourie, L.J. & Pretorius, P.J. 2005. A call for the radical restructuring of the minibus-taxi industry in South Africa. *South African Journal of Industrial Engineering*, 16 (1):1-11.
- Gedye, L. 2020. Public transport inequality. Mail & Guardian. [Online]. Available at: <https://mg.co.za/article/2020-02-25-public-transport-inequality>. Accessed on 2023-04-18.
- Glesne, C. 2016. Qualitative Researchers: An introduction. Pearson Inc: USA
- Gule, M.X. 2009. Improving the service quality of taxi operators in the Nelson Mandela Bay. Dissertation. EC: Nelson Mandela Metropolitan University
- Holtzhausen, S.M. 2000. External and internal influences on the development and implementation of quality assurance in higher education institutions. *South African journal of higher education*, 14(2):118–125.
- Ingle, M. 2009. An historical overview of problems associated with the formalization of the South African minibus-taxi industry. *New Contee Journal*, 57: 71-87.

- Iphofen, R. & Tolich, M. 2018. The SAGE handbook of qualitative research ethics. London: Sage.
- Jones, M. 1984. The stealing thing. New York: Prentice-Hall
- Khoza, M.M. 2003. Capital accumulation, the apartheid state and rise of the black taxi industry in Johannesburg and Soweto: 1930-1990. West Yorkshire: British Library Document Supply Centre.
- Kumar, S. 2006. Total Quality Management. New Delhi: Laxmi publications.
- Kumar, T.R., Varma, N., & Vidyarthi, N. 2013. An integrated framework for service quality: SQBOK Perspective. *Centre for quality of management journal*, 20 (2): 34-46.
- Lebelo, M. 2005. DELAYS in taxi revamp mav cost R5bn. City Press, 26 January
- Mabasa, M. 2001. Minister's foreword. [Online]. Available at: <<http://www.dot.org.za>>. Accessed: 07/09/2023
- Markman, D. 1984. Modes of land transportation. New York: Macmillan
- Machobane, T.G. 2008. TQM and effective urban public transport operations. M.A. Dissertation. Vanderbijlpark: NWU.
- Machobane, T.G & Pooe, D.K. 2023. Indelible imprint of the Covid-19 in reigning the mini-bus taxi industry in South Africa. Indelible imprint of the Covid-19 in reigning the mini-bus taxi industry in South Africa. Research Gate.  
<https://www.researchgate.net/publication/367090007>. Accessed: 21 April 2024
- Mahlala, S. 2019. Monitoring and evaluation policy as a tool for performance enhancement in the public service: The case of the Eastern Cape Department of Health. PhD. Thesis. Vanderbijlpark: NWU
- Maimela, K.K 2009. Total quality management: An imperative guide for leaders in the South African public service. *Journal of Public Administration*, 44 (2) 470-481.
- Majeke, A.C. 2003. Formalising the informal: The South African minibus-taxi industry at the crossroads. M.A. Dissertation. University of Cape Town.

- Manoharan, P.K. 2010. Research Methodology. New Delhi: A.P.H Publishing Corporation.
- Mansuri, S. 2022. What things are required to start a taxi business in a small town in South Africa? <https://www.yelowsoft.com/blog/things-required-start-taxi-business-small-town-south-africa/>  
Accessed 20 May 2023
- Maree, K. 2011. First steps in research. Pretoria: van Schaik
- Mashabela, M. 2000. New minibus-taxi to replace the existing fleet on show. Sowetan. 26 Jan 2000.
- Mathu, K. 2019. Driving Sustainability of Minibus taxi industry in South Africa. [Vol. 10 No. 4 \(2022\): European Journal of Applied Sciences](#). 20 January 2024
- Mathu, K. 2022. Driving Sustainability of Minibus taxi industry in South Africa. European Journal of Applied Sciences. Vol. 10 No. 4 Available at: <https://journals.scholarpublishing.org/index.php/AIVP/article/view/12873> Accessed: 13/05/2023
- Maxwell, J.A. 2012. A realistic approach for qualitative research. Los Angeles: Sage publications Inc.
- McCaul, C. 1990. No easy ride. Johannesburg: SAIRR Press.
- Mehra, S. & Ranganathan, S. 2008. Implementing total quality management with a focus on enhancing customer satisfaction. *International Journal of Quality & Reliability Management*, 25 (9): 913-927.
- Mayer, Z.N. 1987. Social movements' society. New York: New Brunswick
- Molobela, T.T. 2021. The Role of the minibus taxi industry in promoting the development of small businesses in South Africa: A case of Mankweng Taxi Association, Limpopo Province. M.A. Dissertation. Limpopo: University of Limpopo.
- Monare, M. 2000. Stiffer law, safer trips. The Star. 25 Feb 2003.
- Montana, L. 2004. "Government statement on taxi recapitalisation project" <http://www.pmg.org.za~briefing~lbriefings~pdp?id=1> Accessed: 17 February 2023

Moufhe, T. 2003. "Official opening of the provincial Taxi Council"

<http://www.pmg.org.zaldocs/2003/appendices/030625santaco>. Accessed: 07 January 2024

Moyle, D.1999. "Memorandum of understanding signed with the minibus taxi industry".

<http://www.polity.org.zalgovdocs/pr/1999/pr0527c.html> Accessed: 17 January 2024

Mouton, J.2001. How to succeed in your masters and doctoral studies: South Africa guide and resource book. Pretoria: van Schaik.

Mthunge, M.M. 2022. Defensive advanced driving, law enforcement and working conditions: a minibus taxi driver's perspective. The 40th Annual Southern African Transport Conference – 4 to 7 2022. Available at: <https://repository.up.ac.za/bitstream/handle/2263> Accessed: 20/05/2023

Oakland, J.S. 2003. Total Quality Management: text and cases. Butterworth: Oxford.

O’Leary, Z. 2021. The essential Guide to doing your research project. SAGE Publication: Carlifonia

Partelow, S. 2023. What is a framework? Understanding their purpose, value, development and use. Journal of Environmental Studies and Sciences <https://doi.org/10.1007/s13412-023-00833-w>

Partelow, S .2018. A review of the social-ecological systems framework: applications, methods, modifications and challenges. Ecol Soc Partelow S, Fujitani M, Soundararajan V, Schlüter A (2019) Transforming the social-ecological systems framework into a knowledge exchange and deliberation tool for management. Ecol Soc 24(1). <https://doi.org/10.5751/ES-10724-240115>

Patton, M.Q. 2002. Qualitative evaluation and research methods *3rd ed*. Thousand Oaks: Sage Publications Inc.

PIARC. 2019. Road Safety Manual for Practitioners and Decision Makers on implementing safe system <https://roadsafety.piarc.org/en/subscribe?destination=node/52> Accessed: 14 June 2024

Pearce, K. 2000. "Taxi Recapitalisation Programme Gets Positive Response"

<http://www.polity.org.za> Accessed: 22 January 2024.

Pearce, K. 2000. "New taxis will have positive effect for all South Africans"

<http://www.polity.org.za/govdocs/pr/2000/prO124c> Accessed: 24 January 2024

Productivity Commission Report. 1999. Regulation of the taxi industry. Canberra: Australian Information Commission

Rautela, P. & Sharma, R. 2004. Insight into the nature of road accidents from data on injured and dead. *Disaster Prevention and Management*, 13 (5): 374-378.

Rautela, P. & Pant, S.S. 2007. Delineating road accident risk along mountain roads. *Disaster Prevention and Management*, 16 (35):334-343.

Republic of South Africa. 1977. Road Transportation Act, No. 74 of 1977. Pretoria: Government Printer.

Republic of South Africa. 1996. Road Traffic Act, No. 93 of 1996. Pretoria: Government Printers.

Republic of South Africa. 1996. Constitution of the Republic of South Africa, No.108 of 1996. Pretoria: Government Printer.

Republic of South Africa. 1996. Transitional Local Government Act, No. 12 of 1996. Pretoria: Government Printers.

Republic of South Africa. 1996. Consumer Affairs Act, No. 7 of 1996. Pretoria: Government Printers.

Republic of South Africa. 2009. National Land Transport Act, No. 5 of 2009. Pretoria: Government Printers.

Republic of South Africa. 2013. National Land Public Transport Act Amendment Bill 2013. Pretoria: Government Printers.

Remler, D, K. & Ryzin, G.G. 2022. Research Methods in Practice: Strategies for description and causation. SAGE Publication: California

Repko, A. & Szostak, R. 2021. Interdisciplinary Research: Process and Theory. SAGE Publication: California

- Richards, L & Morse, M.N. 2013. *Qualitative Methods*. California: SAGE Publication.
- Road Traffic Management Corporation. 2023. National Road Safety Strategy 2016-2030.  
<https://www.rtmc.co.za/images/rtmc/docs/nrss/National%20Road%20Safety%20Strategy1.pdf> Accessed: 14 June 2024
- Rouboutsos, A. & Macario, R.M. 2013. Public Private Partnership in transport: theory and practice. *Built Environment Project an Assets Management*, 3 (2): 160-164.
- Rubin, H.J & Rubin, I.S. 2012. *Qualitative interviewing: the art of hearing data*. Los Angeles: Sage publications.
- Robertson, D. 2002. 'New-look taxis could be on the roads by year-end'  
<http://www.sundaytimes.co.za~2002/04/28/bsiness/news/news15>. 22 January 2023
- Sahney, S., Banwet, D.K. & Karunes, S. 2004. Conceptualising total quality management in higher education. *Total Quality Management magazine*, 16(2):145–159.
- Schalekamp, H. & Behrens, R. (2010). 'Engaging paratransit on public transport reform initiatives in South Africa: A critique of policy and an investigation of appropriate engagement approaches. *Research in Transportation Economics*, 29 (1), pp. 371–378
- Sharkansky, I. 1978. *Public Administration: policy-making in government agencies*. i Chicago: Rand McNally.
- Shaw, L. 1998. "Consistency and Quasigroup completion"  
<http://www.citeseer.ist.psu.edu/60890> Accessed: 17 December 2023
- Slob, G. 1990. "Politics of separation"  
<http://www.roedi-er.co.za~touring:%20/documents/seera.pdf> Accessed: 22 February 2024.
- South Africa. 1923. *The Native Land Act 27 of 1923*. Pretoria: Government Printers
- South Africa. 1926. *Mines and works Act 26 of 1926*. Government Printers

South Africa. 1950. Population Registration Act (Act 23 of 1950). Government Printers

South Africa: 1957. Report on National Transport Commission. Government Printers

South Africa. 1977. Road Transportation Act (Act 74 of 1977). Pretoria: Government Printer

South Africa. 1977. Report of the commission of inquiry into Road Transport Bill, 1977.  
Pretoria: Government Printer

South Africa. 1983. Final Report of the Bus Public Transport in South Africa RP50 1983.  
Pretoria: Government Printer

South Africa. 1988. Transport Appeal Tribunal Act 39 of 1988. Government Printers

South Africa. 1996. The White Paper on Public Transport Policy. Pretoria: Government  
Printer

South Africa. 1996. The Constitution of the republic of South Africa, (Act 108 of 1996)  
Pretoria: Government Printer

South Africa. 1997. Basic Conditions of Employment Act (Act 35 of 1997). Government  
Printers

South Africa. 1998. South Africa Competition Act. (Act 89 of 1998). Government Printers

South Africa. 1998; Interim Minibus Taxi Act (Act 4 of 1998). Government Printers

South Africa. 1998. Transport Deregulation Act (Act 27 of 1988). Government Printers

South Africa. 1998. South Africa Competition Act. (Act 89 of 1998). Government Printers

South Africa. 2000. Gauteng Public Passenger Road Transport Act (Act 7 of 2000).  
Pretoria. Government Printer

South Africa. 2000. National Land Transport Transition Act 19 of 2000. Pretoria:

Government Printer

South Africa. 2000. National Land Transport Transition Act 22 of 2000. Pretoria:

Government Printer

South Africa. 2000. National Land Transport Transition Act 34 of 2000. Pretoria:

Government Printer

South Africa. 2000. Road Transport Act (Act 74 of 2000). Pretoria. Government Printer

South Africa: 2000. Publication of explanatory summary of National Land Transitional

Bill. Department of Transport (Government Gazette Notice No. 390). Pretoria:

Government Printers

Sedibeng District Municipality (RSA). 2013. *Integrated Development Plan. 2012-2013. Annual Report.*

Sedibeng District Municipality (RSA).2022. Integrated Development Plan IDP 2022/2027.

[http://www.sedibeng.gov.za/a\\_keydocs/2022-2023%20MFMA/draft%20idp%202022-23.pdf](http://www.sedibeng.gov.za/a_keydocs/2022-2023%20MFMA/draft%20idp%202022-23.pdf) Accessed 24 April 2023.

Silverman, D. 2011. Qualitative research. California: Sage publications Inc.

Sohail, M., Mitlin, D. & Maunder, D.A.C. 2003. Partnership to Improve Access And Quality of Public Transport -Guidelines: Leicestershire: Water, Engineering And Development Centre (WEDC).

Statistics SA (RSA). 2009. Roads Traffic Accident Deaths in South Africa 2001-2006 Report No 03-09-07.

Sedibeng District Municipality (RSA).2022. Integrated Development Plan IDP 2022/2027.

[http://www.sedibeng.gov.za/a\\_keydocs/2022-2023%20MFMA/draft%20idp%202022-23.pdf](http://www.sedibeng.gov.za/a_keydocs/2022-2023%20MFMA/draft%20idp%202022-23.pdf) Accessed 24 April 2023.

Silverman, D. 2011. Qualitative research. California: Sage publications Inc.

Statistics SA (RSA). 2009. Roads Traffic Accident Deaths in South Africa 2001-2006 Report No 03-09-07.

Tari, J.J.2006. Components of successful total quality management. *Total Quality Management Magazine*, 17 (3)182-184. [Online].

Available at: <<http://www.emeraldinsight.com/0954-478.htm>>. Accessed: 11/04/2023

Teddllie, C. & Tashkkom, A. 2009. Foundations of mixed methods research. California: Sage Publications Inc.

Thomas, G. 2023. How to do your research project: A guide for students. SAGE Publication: Carlifonia

Thale, T. 2003. "Taxi group go on strike"

<http://www.joburg.org.za/2003/feb-taxis.stm> Accessed: 12 January 2024

The Natal Mercury (1987), in McCaul, C. 1990. No easy ride. Johannesburg: SAIRR Press.

Thompson, J.L. 1995. Strategy in Action. London: Chapman and Hall

Tobisi, C. 2021. Lack of strategic intervention in the regulation of the minibus taxi industry in <https://www.witpress.com/Secure/elibrary/papers/UT21/UT21015FU1>. Urban and Maritime Transport XXVII. Accessed: 22 January 2024

Tuner, M. 1999. "Low-Dollar Bruiseryy

<http://www.impotuner.com/features/0608impp1999hondacivic.hmt> Accessed: 20 January 2024.

Umbono Corporate Advisors. 2002. Taxi Recapitalisation Objectives: Summary Presentation. Johannesburg: Umbono Publishers

Tari, J.J.2006. Components of successful total quality management. *Total Quality Management Magazine*, 17 (3)182-184. [Online].

Available at: <<http://www.emeraldinsight.com/0954-478.htm>>. Accessed: 11/04/2023

Teddlie, C. & Tashkkom, A. 2009. Foundations of mixed methods research. California: Sage Publications Inc.

Thomas, G. 2023. How to do your research project: A guide for students. SAGE Publication: Carlifonia

Van Schalkwyk, D. 2011. A troubled journey: South African government and the minibus-taxi industry. M.A. Dissertation. Bloemfontein: UFS.

Von Bertalanffy, L. 1968. General systems theory. London: Penguin.

Van Schalkwyk, D. 2011. A troubled journey: South African government and the minibus-taxi industry. M.A. Dissertation. Bloemfontein: UFS.

Vegter, I. 2020. South Africa's Minibus taxi industry: Resistance to Formalisation and Innovation. <https://irr.org.za/reports/occasional-reports/files/web-irr-south-africas-minibus-taxi-industry-report.pdf> Accessed: 20 January 2024

Wills, J.M. 2007. Foundations of qualitative research: interpretive and critical approaches. California: SAGE Publication.

World Health Organisation. 2009. Global Status Report on Road Safety. [Online] Available at: <[Http://injuryprevention.bmj.com/content/15/4/286.short](http://injuryprevention.bmj.com/content/15/4/286.short) >. Accessed: 23/03/ 2023.

World Health Organisation. 2009. Global Status Report on Road Safety. [Online] Available at: <[Http://injuryprevention.bmj.com/content/15/4/286.short](http://injuryprevention.bmj.com/content/15/4/286.short) >. Accessed: 23/03/ 2023.

Walter J. 2008. Overview of public transport policy developments in South Africa: Research in Transportation Economics. *Volume 22, Issue 1 98-108*

Yin, R.K. 2016. Qualitative Research: from start to finish 2<sup>nd</sup> Edition. London: Guilford

Zairi, M. 2013. The TQM legacy-gurus contributions and theory impact. *The TQM Journal*, 25 (6): 659-676.

Zimmerman, I. 1988. An economic investigation into the deregulation of Road Passenger transportation in South Africa. Cape Town: UCT

## ANNEXTURE A: NWU Ethics approval letter (Bassrec)



Private Bag X1290, Potchefstroom  
South Africa 2520

Tel: 018 299-1111/2222  
Fax: 018 299-4910  
Web: <http://www.nwu.ac.za>

**Basic and Social Sciences Research Ethics  
Committee (BaSSREC)**

**Faculty of Humanities Ethics Office for Research,  
Training and Support**  
Tel: 018 285 2457

Email: [Erhabor.Idemudia@nwu.ac.za](mailto:Erhabor.Idemudia@nwu.ac.za)

**Senate Committee for Research Ethics**

Tel: 016 103 4446

Email: [Feziwe.Mseleni@nwu.ac.za](mailto:Feziwe.Mseleni@nwu.ac.za)

20 May 2025

### ETHICS APPROVAL LETTER OF STUDY

Based on approval by the **Basic and Social Sciences Research Ethics Committee (BaSSREC)** on **30/04/2025**, the Basic and Social Sciences Research Ethics Committee hereby **approves** your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SERC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

<b>Study title: An intervention framework to enhance commuter road safety within the minibus-taxi industry in Sedibeng District Municipality.</b>																															
<b>Study Leader/Supervisor (Principal Investigator)/Researcher: Dr. S. Mahlala and Dr. B. Rapanyane</b>																															
<b>Student/Research Team: M.S. Moyake (13133276)</b>																															
<b>Ethics number:</b>	<table border="1"><tr><td>N</td><td>W</td><td>U</td><td>-</td><td>0</td><td>0</td><td>9</td><td>0</td><td>8</td><td>-</td><td>2</td><td>5</td><td>-</td><td>A</td><td>7</td></tr><tr><td colspan="3">Institution</td><td colspan="5">Study Number</td><td colspan="2">Year</td><td colspan="5">Status</td></tr></table> <p><i>Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation</i></p>	N	W	U	-	0	0	9	0	8	-	2	5	-	A	7	Institution			Study Number					Year		Status				
N	W	U	-	0	0	9	0	8	-	2	5	-	A	7																	
Institution			Study Number					Year		Status																					
<b>Application Type: Single study</b>																															
<b>Commencement date: 30/04/2025</b>	<b>Risk:</b> <table border="1"><tr><td><b>Low</b></td></tr></table>	<b>Low</b>																													
<b>Low</b>																															
<b>Expiry date: 30/04/2026</b>																															
<b>Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.</b>																															

#### Special in process conditions of the research for approval (if applicable):

##### General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the BaSSREC:
  - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and
  - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.

## ANNEXTURE B: PERMISSION SDM



Sedibeng District Municipality  
Corner Leslie and Beaconsfield Avenue, Vereeniging  
PO Box 471, Vereeniging, 1930  
Gauteng, Republic of South Africa  
Tel: +27 16 450 3240  
Fax: +16 427 1014  
Email: sizakelem@sedibeng.gov.za  
Website: www.sedibeng.gov.za

### Transport, Infrastructure & Environment Cluster

Sedibeng District Municipality

Mr Mxolisi Samuel Moyake  
North West University  
Vanderbijlpark

24 October 2024

Dear Mr Moyake

#### PERMISSION TO CONDUCT RESEARCH

Your request to conduct the research study for the completion of PhD at North West University which is entitled:

**An intervention framework to enhance commuter road safety within the minibus-taxi industry in Sedibeng District Municipality.**

The permission is hereby granted. You are required to make appointments with officials relevant for your study. It would be of great appreciation if you could kindly share all your findings upon completion of the research.

Yours Sincerely

**B. NGOBESE**  
DIRECTOR: TRANSPORT & INFRASTRUCTURE PLANNING

## **ANNEXTURE C: ETHICS CERTIFICATE**



### **Certificate**

**March 12, 2023**

**This is to certify that Mxolisi Samuel Moyake has successfully completed the Macquarie University Human Research Ethics Online Training Module for the Social Sciences and Humanities.**

**Macquarie University**

## ANNEXTURE D: INTERVIEW CONSENT FORM



PO Box 1174  
Vanderbijlpark 1900, South Africa  
E-mail: 13133276@mynwu.ac.za/ms.moyake

### **Semi-structured interview questions for an intervention framework to enhance commuter road safety within the minibus taxi industry in Sedibeng District Municipality.**

#### **Introduction**

You are invited to participate in the study with the title outlined above being undertaken by Mxolisi Samuel Moyake (Student No.: 13133276) as part of an academic degree of Doctoral in Public Management and Governance at North-West University. The study will focus on contributing factors to high rate of road accidents involving minibus-taxis in our roads whereby commuters are harshly affected. This study premise on systems theory whereby the needs, interest and expectation of commuters will be highlighted regarding road safety. The study will further investigate challenges faced by the minibus taxi industry pertaining to its management in addressing road safety. Application of Total Quality Management will be reviewed to determine its relevance for commuter satisfaction.

#### **Background to the research**

High rate of road accidents involving minibus taxis has impacted detrimentally on the development of the minibus-taxi industry in South Africa. As compared to water and air transport, land transportation contributed the highest proportion (99.8%) to the total transport accidents during the period of 2015 to 2023 (Stats SA 2023:01). Contributing factors such as speed and the roadworthiness of some minibus-taxi vehicles presented a point of concern for the safety of commuters. Commuters usually do not have the capacity to assess safety aspects of taxis in relation to the general roadworthiness of vehicles (Majeke 2003:48). Thus, this study intends to propose recommendations to relevant authorities based on analysis of findings on how to address road safety challenges facing minibus taxi industry.

#### **Procedure**

This study aims to recruit officials from the department of transport, executive committee's officials of minibus taxi associations, taxi drivers, taxi marshals, and officials within Transport and Infrastructure of Sedibeng district municipality, as well as commuter's organisation's designated officials. If you agree to participate voluntarily in this study, you will be invited to complete a semi-structured interview where you will be able to share your experiences and perceptions. You are free to ask questions or concerns regarding the research to the researcher.

#### **Risks or discomforts**

There are minimal risks associated with participation in this interview. The process may sometimes become exhausting as you answer the questions. All information given by you will be held in strict confidence and will be used for the purpose of this study only. No personal identification will be possible when the information is used. The principal researcher (Mxolisi Moyake) will consider and respect the participants throughout the study.

#### **Benefits**

There will be no direct benefit to you from participating in this study. Your participation will help the researcher in compiling research thesis that will have recommendations to address road safety within the minibus taxi industry.

#### **Consent**

You are free to decline to participate in this study or withdraw or stop participation at any time without any consequences or penalty. Your decision to participate or not to participate in this study will not have influence on any level.

---

**Participant's signature**

---

**Date**

## ANNEXURE E: INTERVIEW QUESTIONS



### SEMI-STRUCTURED INTERVIEWS

#### QUESTIONNAIRE SURVEY

#### INSTRUCTIONS

1. The participant who volunteers to participate should please answer ALL the questions.
2. The principal researcher study will keep this page with your personal information separate and safe. The information will only be used when there is a need for a follow-up visit.

#### Participant's identification (For record keeping)

1.1 Participant's registration		
<b>a</b>	Participant's official designation	
<b>b</b>	Name/s of the participant providing the information to the researcher	
	Name of the Division/Unit	
	Contact number (Cell/Tel)	
	Work address	

#### Proposed Semi-structured Interview Questions

<b>1. Explain the nature of your office's relationship with the taxi industry.</b>
<b>2. What is your perception with regard to the management of the taxi industry by taxi associations as the leadership of the industry?</b>
<b>3. What are the contributing factors identified by your office with regard to the involvement of taxis in road accidents?</b>
<b>4. Can you describe your office's engagement with the minibus taxi industry on road safety?</b>
<b>5. What are the challenges you face in addressing the road accidents involving taxis?</b>

**6. What are the measures taken by your office as an intervention to curb the challenges of taxis involvement in road accidents?**

**7. What is your opinion concerning the taxi industry's commitment to road safety?**

**8. Describe how do you encourage commuters organisations to participate in discussions of road safety as stakeholders? Reflective question; based on your opinion what measures applied to encourage commuters commitment on road safety?**

**9. Describe the consequences faced by the department as a result of road accidents involving minibus-taxis?**

**THANK YOU!**