Walden University

College of Management and Technology

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Paul G. Zanule

has been found to be complete and satisfactory in all respects,
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Walden University
2015

Abstract

Road Management System and Road Safety in Uganda

by

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MBA, University of Liverpool UK, 2008

Diploma in Building & Civil Engineering, UTC Elgon Uganda, 1992

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

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Abstract

Traffic collisions cost Uganda millions of dollars each year. The purpose of this descriptive case study was to describe the strategies and processes needed to implement a road management system. Such a system would significantly reduce the fatalities and accidents in Uganda, improve the transportation within Kampala's business district, and increase business profitability. Three conceptual theories framed the research study: management theory, strategic management theory, and criminology theory. Using a snowball sampling strategy, data were collected from open-ended interviews, questionnaires, observations, and archived documents from 20 administrative participants in the government and organizational leaders involved in the transport operations and transport services in the Kampala business district in Uganda. Data were analyzed using 3 phases: (a) interpretational analysis, coding, and grouping segments; (b) structural analysis, consistency, and quality; and (c) reflective analysis, consequences, what, when, where, and how. Five themes or action requirements emerged from the data analysis: to improve transport operations and transport services profitability, reduce traffic jams and fatalities, provide sufficient driving training, maintain road infrastructure, and maintain traffic law enforcement. The findings and recommendations from this study may improve the profitability of businesses, reduce the traffic jams and fatalities, and improve the gross domestic product of Uganda, thereby contributing to positive social change.

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Dedication

I dedicate this to my wife Josephine, and our children Joshua, Joseph, Benjamin, and Enoch for the understanding and cooperation accorded to me over the entire period of pursuing this qualification that often took me away from home.

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Section 1: Foundation of the Study

Leaders of Uganda's urban transport system and officials within the road management system have not been able to reduce traffic congestion and road accidents within the Kampala business district. The current weak transport, regulatory agencies, and the poorly maintained roads contribute to traffic congestion and road accidents and, consequently, affect the business and economy of Uganda (Kiggundu, 2007; Sietchiping, Permezel, & Ngomsi, 2012). Roads are among the conduits for transporting goods and services (Cornish & Mugova, 2014; Dewar, 2011; Gollin & Rogerson, 2010; Uganda National Road Fund [UNRF], 2010b). Road accidents negatively affect national income through the loss of tax revenues collected from transport services and goods transported on the roads.

Staff members of the Road Management System (RMS) oversee the following

- The coordinating
- Planning routine
- Preventive maintenance
- Rehabilitation and reconstruction of roads

The officials of road management determine standards for the (a) sizes, (b) load capacities, (c) distribution routes, and (d) numbers of motor vehicles on the roads (Misra, Roohanirad, & Somboonyanon, 2003). In Uganda, government officials through the Ministry of Works and Transport (MOWT) manage RMS, whereas weak regulatory agencies manage Transport Operations and Transport Services (TOTS; Kamuhanda & Schmidt, 2009). Leaders of the Uganda Bus Operators Association (UBOA) superintend the business related to bus-coaches and minibuses, and officials of the Uganda Taxi

Operators and Drivers Association (UTODA) are responsible for minibuses, locally known in Uganda as *matatus*. The two organizations, UBOA and UTODA, do not have properly regulated business management schemas (Benmaamar, Ellis, & Dunkerley, 2002; CrossRoads, 2013). Business management models, such as supply chain management, detailed value chain analysis, general forces matrix analysis, and Porter's (2008) industry forces analysis are not used in the urban transport business and management. The poor business management creates lapses in (a) the control of the car and bus fleets, (b) transit fares regulation, (c) driver training, and (d) behavioral attitudes of drivers toward venerable road users.

Traffic injuries and fatalities numbers are growing, making Ugandan roads unsafe. Uganda has the highest instances of international traffic injuries and fatalities rating with 190-deaths per 10,000 vehicles (Castillo-Manzano, Castro-Nuño, & Fageda, 2013; Krug, 2012; Raffo, Bliss, Shotten, Sleet, & Blanchard, 2013; Sleet, Baldwin, Dellinger, & Dinh-Zarr, 2011). The World Health Organization (WHO; 2009) reported 2,838 fatalities for the period 2006 to 2007. The two figures indicated that the traffic injuries and fatalities in Uganda are high undermining road safety in urban transportation.

The intent of this qualitative, descriptive, case study was to describe the elements connected to the phenomena of increasing road accidents and traffic jams to reduce the gross domestic product (GDP) loss. The division of the study is in three sections.

Background

The increasing road accidents and traffic jams are caused by weak road management systems and a lack of urban transport regulator. Increasing road accidents and traffic jams within the Kampala business district of Uganda cost businesses 23,813

person-hours per day (Kamuhanda & Schmidt, 2009). Road accidents cause (a) damage and destroy business assets and human capital, (b) increase stress to health facilities, and (c) death of family members and societal and communal settings without strategies to stem the causes (Osoba, 2012). The Uganda Police (2010) indicated that there were 2,954-traffic fatalities in Uganda. According to the Uganda Bureau of Statistics (UBOS; 2010), road crashes increased by 30% from 11,758 in 2008 to 22,699 in 2009, and about 33,900 vehicles were involved in road crashes during 2010. There are increasing traffic fatalities and destruction of vehicles involved in traffic crashes (Ministry of Works and Transport [MOWT], 2011).

The leaders of developing countries lack adequate technical resources and expertise to build safer roads, leading to poorly constructed roads. Few trained professionals are available, and those who are present may lack sufficient road management and road safety knowledge, may be unable to use an appropriate interdisciplinary approach, or are not familiar with recent developments and techniques (Roehler et al., 2013; Transport Research Laboratory, 1991). The existing institutional capability does not adequately cope with road construction and urban transportation demands.

A high percentage of persons and vehicles involved in the road crashes affect human capital and business assets (Demyttenaere et al., 2009). The lack of institutional capacity to maintain, rehabilitate, and reconstruct roads within the RMS leads to poorly maintained roads, missing or incorrect road signs and markings, and poor vertical and horizontal alignments, which render road users prone to accidents (Misra et al., 2003; MOWT, 2011). The increasing road accidents and traffic jams phenomenon increases the

competition at regional and global levels for cities' capital investment. Table 1 shows the road fatalities of different road users in Kampala between 2007 and 2010.

Table 1

Road Traffic Fatalities in Kampala between 2007 and 2010

Year	Drivers	Motorcyclists	Pedal cyclists	Passengers	Pedestrians
2007	15	72	24	57	174
2008	45	110	37	184	292
2009	28	128	42	97	186
2010	23	174	48	139	374

Note. Source: Uganda Police – Ministry of Internal Affairs

Within the urban transport sector, analyses of supply chain management, detailed value chain, general forces matrix, or Porter's industry forces are seldom performed (Benmaamar et al., 2002; Cârlan, Rosca, & Rosca, 2014). Benmaamar et al. (2002) cited barriers to entry in the Porter's industry forces analysis, economics, and government in the external general industry forces analysis and supply chain management. The lack of (a) robust urban transport regulator, (b) requirement of minimum amount of capital investment in TOTS, (c) expertise knowledge on urban transport management, and (d) size vehicle fleet encourage new entrants to urban transportation business. The lack of TOTS expertise knowledge as a barrier of entry to urban transport business tends to increase informal entrepreneurship. Informal entrepreneurs thrive on business duplication without differentiation leading to high competition in the market. Informal entrepreneurship is prevalent in Uganda. The driver for informal entrepreneurship is social capital (Amu, Offei-Ansah, & Gavor, 2012; Da Felice & Martucci, 2012; Szerb et al., 2007).

Considering the barriers to entry, transport operations, and transport services, business management style encourages starters without the necessary expert knowledge,

economies of scale, cost advantages, and technology to enter the TOTS business. The time and cost for new entrants moving into the urban transport market are not a formidable barrier to operate in the transportation sector. The practice of encouraging new entrants has allowed lapses in the process of issuing driver license and vehicle operating license, reflected in the form of traffic injuries and fatalities because cars and buses are not mechanically worthy because drivers have not been adequately trained to learn how to drive (Madeley, 2004; Ramessur, Seetanah, & Rojid, 2010).

There is no proper business analysis regarding the acquisition of vehicles, drivers, mechanics, spare parts, transport governing regulations, maintenance workshops, and taxes on the transportation business done in Uganda as it hinges on informal entrepreneurship (Benmaamar et al., 2002). Road accidents, which lead to a loss of business assets, entrepreneurship, and transportation services, are the result of a lack of proper business analysis. Furthermore, political leadership that favors foot hawkers, open-air markets, and motorcyclists operating without safety gear lead to increased frequencies of road accidents. These political decisions contribute to traffic congestion and high passenger travel time (Mahmud, Gope, & Chowdhury, 2012; Santosa, 2011).

The Ugandan economy and state had steady growth in between 1986 and 2001 following a peaceful and stable state, enabling growing investment in TOTS (Demyttenaere et al., 2009; Mulengani, 2009). The concentration of TOTS' investments within the Kampala business district resulted in traffic congestion. Traffic congestion is counterproductive because the time for employees to be productive for the businesses diminishes, increasing employee turnover (Adler, Alfred, Kornbluth, & Sher, 2012; Barrett-Gaines, 2005; Huggins, 2012). Kiggundu (2007) asserted that commuters in

Kampala lose 23,813 person-hours per day due to traffic jams. There is a loss of businesses profitability due to late arrival of employees to start work.

Suppliers within the supply chain to TOTS also lack efficient and effective supply chain management. The ineffective and inefficient supply chain leads to a continual supply of older vehicles on the road (Benmaamar et al., 2002). Spare parts and new vehicles involved in road collisions need replacements manufactured outside Uganda. The imported goods for vehicle fleet supplies lead to high vehicle operation costs (VOC), reduced customer base, and loss of foreign exchange (Babirye, Engebretsen, Rutebemberwa, Kiguli, & Nuwaha, 2014; Barabino, Deiana, & Tilocca, 2011; Benmaamar et al., 2002; Dahalan, Abdullah, D'Silva, Ismail, & Ahmad, 2013; Zeng, 2010). These literature review findings affirm the reduction in businesses profitability, loss of taxable revenue and GDP reduction.

The intent of the qualitative research study was to describe a business management framework for TOTS and fill the information gap on road safety to reduce incompetent driving practices (Barabino et al., 2011; Dahalan et al., 2013; Zeng, 2010). The results of the data analysis may lead to a business solution that will influence political leadership and the decision-making processes that will increase the RMS. In addition, the study findings could be vital to reducing the GDP losses resulting from traffic injuries and fatalities among road users in Kampala, Uganda.

The geographical location of the study was Kampala, the capital of Uganda. The city is located upon seven hills in central Uganda. The city population includes 8.5% of the people of Uganda and 50% the total vehicles driven in Uganda (Kiggundu & Mukiibi,

2012). Kampala lacks modern road safety features and traffic features comparable to international standards.

Problem Statement

Traffic crashes are one of the world's most significant health problems (Trillo, Bertolli, Heuler, & Paterson, 2013). The road traffic collisions in the business district of Kampala, Uganda cost the Uganda economy 2.9% of the GDP with 2,954 traffic fatalities reported in 2010 (WHO, 2013). Road crashes, injuries, and deaths cost Uganda US $101 million each year (WHO, 2013). The customers, employees, and business owners in Kampala's business district are negatively affected by road crashes. The general business problem is the lack of efficient road management systems to improve roads, safety of vehicles, traffic flow, traffic crime, and safe access to businesses in Uganda. The specific business problem is that the administrators within Uganda's TOTS and the National Road Safety Council need information to design transportation regulations for improving road safety for business, storeowners, customers, employers, and employees' mobility and to obtain business managers' feedback on transportation regulations for their road management system in Kampala's business district.

Purpose Statement

The purpose of the qualitative, descriptive, case study was to provide TOTS managers with the information they need to identify changes in transport regulations that can decrease road accidents and traffic jams that contribute to the loss in GDP to improve customers', storeowners', and employees' mobility and safety. Data collection occurred via observations, questionnaires, achieved documents, and interviews. The participant population consisted of governmental, nongovernmental, and corporate organizational

leaders involved in TOTS within the Kampala business district in Uganda. This population was appropriate because the Kampala business district has the majority of the state-owned enterprises and governmental and nongovernmental head offices and contains over 50% of the vehicle population in Uganda (UNRF, 2010b). Furthermore, the sample from the desired population included top managers for nongovernmental and corporate organizations of small to medium enterprises (SMEs) and government officials of governmental ministries and departmental heads. The population sample was appropriate because top managers formulate and design the overall enterprise strategy and oversee daily activities of their departments.

The implication for positive social change includes preventing the loss of GDP by reducing road accidents to save lives, protect property, and ensure safe transport service delivery to the people. Traffic fatalities deprive families, society, and community of members in the productive age segment from 15 to 54 (Ackaah & Adonteng, 2011; Borowy, 2013; Desapriya et al., 2011; Ericson & Kim, 2011; Hyder et al., 2012; Peden et al., 2004; Sukhai, Jones, Love, & Haynes, 2011; Yannis, Antoniou, Papadimitriou, & Katsochis, 2011). The age group from 15 to 54 is the prime age in the life of an individual. There is positive social change while addressing the negative social implications of road accident.

Nature of the Study

A qualitative, descriptive, case study was used for data collection. Qualitative methodology is appropriate for identifying the perceptions of participants (Allwood, 2012; Marshall & Rossman, 2010). A qualitative case study was used instead of a quantitative study due to the goals of the research. The purpose of this research study

was to describe the perceptions and understanding of road transportation among drivers and stakeholders. The stakeholders came from governmental, nongovernmental, and corporate organizations and their experiences of leadership practices and daily decision making as applied to future road maintenance, rehabilitation, and reconstruction.

Qualitative studies are suitable for research on themes associated with leadership practice and decision making for RMS with a focus on road safety (Blake & Gutierrez, 2011; Bøgh Andersen & Holm Pedersen, 2012; Van De Camp, Vernooij-Dassen, Grol, & Bottema, 2004). In qualitative studies, researchers do not test hypotheses, nor do they offer new theories (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). The purpose of the qualitative study is to describe the rationale of the particular phenomenon in its natural setting and then to interpret, gain insights, derive concepts, identify and verify concerns, and beliefs in real world settings (Allwood, 2012; Marshall & Rossman, 2010; Neuman, 2006).

I selected a descriptive case study over other designs to conceptualize and explain the increasing road accidents and traffic jams phenomenon in Kampala through descriptions and meanings from road users. A case study design is useful for investigating trends and particular situations (Kamanda et al., 2013; Pan & Tan, 2011). Data gathered from the archival documents describing records, processes, activities, and events were instrumental to triangulate the case study primary data (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). Data collected from archival documents met the following criteria: (a) review of data published, (b) application of the reviewed document information, (c) achieved data, (d) missing data, and (e) desired improvement data.

Research Question

The overarching research question was the following: What are the strategies to design transportation regulations for improving road safety for business, storeowners, customers, employers, and employees' mobility for their road management system in Kampala's business district? Interview questions enabled me to develop a research question further:

Interview Questions

The answers to the following interview questions contributed information to the research overarching research question:

1. Why are road accidents and traffic jams increasing within the Kampala business district?
2. To what extent do driver training and issuance of driver licenses affect road safety?
3. To what extent do the age of the vehicles and the issuance of vehicle operating license affect urban transport business and management?
4. What are the necessary urban transport business and management needs to improve the increasing road accidents and traffic jams?
5. To what extent do the traffic offense punitive measures improve driver training programs and attitudes?
6. How do the traffic enforcement efforts improve road safety?
7. How can the road safety features and road signs be improved and protected to serve the designed objective?

8. What help do the existing business organizations involved in transport operations and transport services require improving institutional capacity?
9. How can the road safety information be availed to all road users?

Conceptual Framework

In this explorative description of road management system with a focus on road safety, I used the following three theories as a foundation for the study: (a) management theory, (b) strategy management theory, and (c) criminology theory. The RMS focus is on five issues (a) the planning, (b) coordinating, (c) managing road maintenance, (d) rehabilitation, and (e) construction. Road management involves a confluence of people, processes, and technology. Road safety is a union of (a) road users, (b) vehicles, (c) traffic laws and enforcement, and (d) driver training (Bhatti, Sobngwi-Tambekou, Lagarde, & Salmi, 2010; Chen, 2010; Hammer, Pratt, & Ross, 2014; Hauer, 2010; Larsson, Dekker, & Tingvall, 2010; Novoa et al., 2011). The outlines of the three business theories for guiding this research study are as follows:

1. Management theory: The classical and scientific management theory and human relations management theory.
2. Strategy management theory: Design theory, planning theory, and position theory of strategy.
3. Criminology theory: Psychological modeling theory, culture conflict theory, and biochemical theory.

For urban transport management to function well, the coordination of road management, traffic management, and transport services is essential. Road management and traffic management, as provided by governmental departments, need capacity

building and newer technologies to cope with the changing demands of the Kampala business district transportation system (Dimitriou & Gakenheimer, 2011; Fu & Murray, 2014; Mahmud et al., 2012; Santosa, 2011). Continuous organizational development in terms of human resource skills and acquisition of appropriate technology are prerequisites for personal and organizational success. Considering the number of departments and organizations involved in road management, road safety, and urban transport management, the leadership development themes required for leaders are

1. Development of leaders at all levels (Ely, Ibarra, & Kolb, 2011; Hartley, 2011; Storey, 2013).
2. Further develop leaders on differentiation according to tasks and capabilities (Dalakoura, 2010; Gardner, 2011; Plotner, & Trach, 2010).
3. Identifying, understanding, and investing in social capital and leadership development (Apaliyah, Martin, Gasteyer, Keating, & Pigg, 2012; Bilhuber Galli, & Müller-Stewens, 2012; Espedal, Gooderham, & Stensaker, 2013; Gutiérrez, Hilborn, & Defeo, 2011; McCallum & O'Connell, 2009; Van De Valk & Constas, 2011).
4. Pledging continual commitment to developing leadership capabilities (Figl, 2010; Gentry & Sparks, 2012; Lee, Chiu, Liu, & Chen, 2011; Stokes & Oiry, 2012).
5. Developing leadership capabilities across groups in the business and for across the business (Hogg, Van Knippenberg, & Rast, 2012; Mendenhall, Oddou, Osland, Bird, & Maznevski, 2012).

The classical and scientific management theories of Fayol and Taylor (as cited in Wren, 2011), and the human relations management theory of Maslow (Gambrel & Cianci, 2003; Maslow, Frager, & Fadiman, 1970), and Mayo (as cited in Wren, 2011) are relevant for RMS. For the framework of this study, the primary three theories are classical, scientific, and human relations management theory. These two theories have the following subthemes:

1. Human resource management as it relates to human relations (Armstrong, 2012; Bringselius, 2014; Chow, 2014; Guest, 2011; Jimoh & Danlami, 2011; Kim, Wright, & Su, 2010; Mahoney-Phillips & Adams, 2010; Makadok & Coff, 2009; Pritchard, 2010; Schuler, Jackson, & Tarique, 2011).
2. Continuous commitment to developing and improving human relationships (Boichuk & Menguc, 2013; Jaros, 2012; Liu, Ghauri, & Sinkovics, 2010).
3. Governance forms as to management (Bass & Bass, 2009; Ericson & Haggerty, 1999; Griffin, 2013; Huczynski, 2012; Watson, 2013).

The strategy management theory, culture conflict theory, and biochemical theory under criminology theory are suitable for road safety. The descriptions of the identified theories for the study follow.

Management Theory

The managing of road systems requires attracting, training, and retaining competent employees in the appropriate profession. Among other incentives providing an effective working environment, attractive and competitive reward employee packages

are necessary to attract and retain competent employees. Organizations in TOTS should plan, implement, and coordinate opportunity for strategic employee leadership training and promotion programs (Easterby-Smith, Thorpe, & Jackson, 2012; Johannsen, Leist, & Zellner, 2011; Kristine, 2013; Lohrmann & Reichert, 2013; Seddon, Calvert, & Yang, 2010; Smart, Hannay, Sonia, & Earl, 2013; Thriscutt, 2010d; Trkman, 2010; Vom Brocke, Simons, & Cleven, 2011; Vom Brocke & Sinnl, 2011). The analysis of management theory as being appropriate to RMS focuses on the classical management theory, scientific management theory, and the human relations management theory. An analysis of each theory follows below. The purpose of the analysis is to present the intent and the criticisms of each theory.

Classical and scientific management theories. Fayol theorized that management is a process of planning, organizing, and managing that is executable by the top, middle, and low management (as cited in Wren, 2011). Top management is responsible for organizing and managing middle management for coordinating, and low management must ensure the completion of all jobs (Rodrigues, 2001; Wren, 2011). Taylor theorized that improving labor productivity is possible through the division of labor by breaking down production tasks to the smallest units called piecework attached with incentive pay (as cited in Bonet & Sauquet, 2010; as cited in Jensen, 2010; as cited in Wren, 2011).

RMS and road safety are multidisciplinary subjects that bring together (a) physical planning engineers, (b) architects, (c) civil engineers, (d) water engineers, (e) city council administrators, (f) revenue collectors, (g) traffic police constables, (h) law enforcement and transport regulatory agencies professionals, and (i) ultimate road users

(Mahmud et al., 2012; Meyer, Amekudzi, & O'Har, 2010; Santosa, 2011). Such a diverse group makes a sizable employment base, which requires formal knowledge of organizational management. Employee-to-employee, employee-to-organization, and organization-to-organization relationships emerge and require planning, managing, and coordinating.

The classical and scientific management theories relate to the study due to the existence of employees in the TOTS, RMS, and road safety organizations. Attention to employee interpersonal skills, motivation, and general well-being is vital to the shaping of organizational performance attributable to the long-term success of the business. For instance, drivers as employees could be self-employed; employment with a car could be a fringe benefit for the employee and a professional driver in a governmental department or private corporate business.

Researchers who have criticized classical and scientific management theories have claimed that no attention was devoted to employee interpersonal skills, motivation, and general well-being. The participants' sample of the classical management theory predetermined by the theorist was small, and the consequences of the scientific management theory were dehumanizing and destruction of worker alienation and over centralization of organizational control (Bonet & Sauquet, 2010; Jensen, 2010; Wren, 2011). The criticism of the classical and scientific management led to the human relations management theory.

Human relations management theory. Human relationships, such as attitude, behavior, and interpersonal skills, influence the management of companies. The conditions of work and incidences of breakdown and fatigue affect human relationships.

Maslow (1970) theorized that the human behavior was organized in hierarchical levels of needs portrayed at basic, belonging, esteem, and self-actualization (as cited in Ericson & Haggerty, 1999). The critics of the Maslow theory asserted that human needs do not always follow a defined pattern (Ericson & Haggerty, 1999). The differing levels of development in society have a bearing on hierarchical human needs and prioritization of needs by individuals. For example, the priority of human needs in road safety for the vehicle owner, a driver, and an enforcement official are different.

The role of human relations in management continues to evolve. Mayo (as cited in Wren, 2011) theorized that employee motivation, employee care, and leadership style could improve productivity, supervision, and quality of products. In an urban transport environment, professional drivers, road construction professionals, and leaders of traffic enforcement and regulatory agencies need to exercise appropriate leadership. To engender able leadership, the leaders should understand the relevance of (a) gender and culture, (b) diversity of leadership in a changing world, (c) engaging employees within leadership ethics, and (d) keeping with values of the business culture (Abrhiem, 2012; Ayman & Korabik, 2010; Den Hartog & Belschak, 2012; Eagly & Chin, 2010).

Leaders of companies align different employee rewarding systems for employee motivation. The working conditions and the company leaders' response to incidences of breakdown and accidents affect employee attitude towards work and the organization (Kim et al., 2010). Good employee rewarding systems, working conditions, and response to incidences are incentives to attract and retain good employees.

The criticisms of the Mayo management theory allude to equating humans to machines (Wren, 2011). However, people are human beings with social needs and do not

perform as machines. Human beings are creative with different production rates. Four strategies to improve production rates resulted in the emerging of strategy management theories (a) employee motivation, (b) efficient use of tools, (c) technology, and (d) methods.

Strategic Management Theory

The strategic management theory hinges upon design, planning, and positioning schools of approach of strategy. Strategic management is the knowledge of the corporate identity, position, and dynamics of the business in order to use the available resources and capabilities of the organization within its industrial setting for competitive advantage (Hong-Wei & John, 2013; Wilson, 2012). Strategic management is concerned with how people, operations, technology, and marketing are aligned for competitive advantage (Griffin & Moorhead, 2012).

The Porter position theory, the Mintzberg and Hunsicker design theory, and Hamel and Prahalad planning theory are relevant to road management and road safety. The TOTS, RMS, and road safety leaders should know how the employees and customers should perceive the organization by designing and planning strategy to achieve company position. In the light of providing TOTS, involving public-private partnerships, and overcoming barriers to safe road transport in the transport sector use of strategic management is appropriate to RMS and road safety (Lichtenthaler, Ernst, & Conley, 2011; Ryals & Davies, 2013).

The criticism of strategic management is the failure of organizational leaders to understand internal capabilities, the conflict between top management values and organizational values, and the ethical issues associated with strategy formulation and

implementation (Ahenkora & Peasah, 2011; Griffin & Moorhead, 2012). The ethical misconduct in issuance of driver licenses and transport service operator licenses, traffic enforcement, and regulating transit fares relates to strategic formulation and implementation of urban transport management. The self-paid bonuses to boarding and tax collection lead to an increase of ethical misconduct within the urban transportation business industry.

Criminology Theory

The discussion of criminology theory revolves around the psychological modeling, culture conflict, and biochemical theories of criminology (Cowell, Lattimore, & Krebs, 2010; Thrasher, Glueck, & Glueck, 1951; Williams & McShane, 1994; Yeh, 2010). People commit crime when the benefits outweigh the costs in the absence of effective punishments (Cullen & Agnew 2011). The criminology theory was used to explore the ethical issues that may emerge within the TOTS, road safety, and RMS.

The psychological modeling theory of criminology relates to sensitization in order to deter people from committing a crime and the treatment and rehabilitation of traffic law offenders. The right driving training and proper vehicle inspection for mechanical condition for road worthiness are necessary to deter and minimize the occurrence of road crashes (MOWT, 2011). Even with good driving training and proper checking of vehicle mechanical condition, road crashes still occur due to poorly maintained roads, poor eyesight, and abusive use of drugs (Ackaah, & Adonteng, 2011). The individuals involved in traffic crashes and who are implicated to be in the wrong become traffic offenders. The traffic offenders need rehabilitation and retraining in driving.

The culture conflict theory is associated with *them against us* scenario. The enforcing of traffic laws, driving training regulations, and vehicle operation regulations by enforcement teams is a strain for noncompliant drivers and vehicle owners. The noncompliant drivers and vehicle owners cannot obtain money and social status due to traffic laws and regulations strain. Under these conditions, the drivers and vehicle owners respond to this strain by committing a crime. The culture conflict is in road safety enforcement between the enforcement teams and transportation operatives.

The biochemical theory pertains to the use and abuse of alcohol and drugs (Williams & McShane, 1994). The long haul truck drivers, bus drivers, and special hire drivers consume substances to keep them from sleeping when driving. The drivers consume more alcohol than is permissible for safe driving. The traffic offenders conduct regular checks on intake of alcohol and drugs. Mainly, the three identified criminology theories are relative to the road safety (Hoffman & Akers, 2000; Meneses & Akers, 2011).

The management, strategy, and criminology theories interweave with road management system and road safety because all deal with people, technology, and process. The topics of planning, implementation, and securing of political support, as well as funding for road maintenance, rehabilitation, and construction, are within the conceptual framework identified for the study. Further topics of vehicle operation costs, travelling time, retaining of road workers, and ethical issues under road management systems are in the conceptual framework of the study (Hensher & Chung, 2011; Luyimbazi, 2007; McPherson & Bennett, 2005; Misra et al., 2003; Popovic, Vasic, Lazovic, & Grbovic, 2012; Thriscutt, 2010a).

Definition of Terms

The Road Management System (RMS) is predominant in the highway construction industry with terms that may not be familiar to the business management audience. Additionally, RMS is a computerized tool and model used in the management, planning and managing of road maintenance, rehabilitation, and reconstruction. The terms efficient RMS and effective RMS stem from the business management arena that require defining. The purpose of the following 13 definitions of operational terms is to ensure consistency and understanding of terms and definitions used.

Effectiveness: The measure to which the reduced frequency for sections of the road to maintain, rehabilitate, and reconstruct, reducing vehicle operation costs, traffic accidents, traffic congestion, and passenger travel time (Hensher & Chung, 2011; Misra et al., 2003).

Efficiency: The securing of the political leadership and existing road institutions' commitment, choosing of the appropriate planning, programming, processing of the data collected, and reporting to decision makers to fund the maintenance, rehabilitation, and reconstruction of the roads (Hensher & Chung, 2011, Misra et al., 2003).

Human capital: The individual's competence as encapsulated by formal (e.g., degree courses) and informal (e.g., learning on the job) education (Szerb et al., 2007).

Road infrastructure: Road infrastructure consists of facilities and equipment, including the network, parking spaces, stopping places, draining system, bridges, and footpaths (Peden et al., 2004).

Roadside furniture: The functional objects by the side of the road, such as lampposts, telegraph poles, and road signs (Peden et al., 2004).

Road traffic accident: A collision involving at least one vehicle in motion on a public or private road resulting in at least one person being injured or killed is a road traffic accident (Peden et al., 2004).

Road traffic crash: A collision or incident that may or may not lead to injury, occurring on a public road, and involving at least one moving vehicle is a road traffic crash (Peden et al., 2004).

Road traffic fatality: A death occurring within 30 days of the road traffic crash is a road traffic fatality (Peden et al., 2004).

Road traffic injury: A fatal or nonfatal injury incurring because of road traffic crash is a road traffic injury (Peden et al., 2004).

Road user: A person using any part of the road system as a nonmotorized or motorized transport user is a road user (Peden et al., 2004).

Social capital: An individual's position in a social network of relationships and the resources embedded in, available through, or derived from these networks is considered social capital (Apaliyah et al., 2012; Bilhuber et al., 2012; Espedal et al., 2013; Gutiérrez et al., 2011; McCallum & O'Connell, 2009; Van De Valk & Constas, 2011).

Traffic management: Traffic management involves the planning, coordinating, controlling and organizing of traffic to achieve efficiency and effectiveness of the existing road capacity (Peden et al., 2004).

Vulnerable road users: Road users most at risk in traffic, such as pedestrians, cyclists, motorcyclists, horse riders, and public transport passengers are regarded as vulnerable road users. Children, older people, and disabled people may also be included

in this category (Department for Transport U.K., 2007; Ministry of Works, Housing & Communications [MOWHC], 2004; Peden et al., 2004).

Assumptions, Limitations, and Delimitations

The purpose of this section is to discuss the assumptions, limitations, and delimitations made in narrowing the research topic. Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), and Silverman (2013) advised that researchers should establish the assumptions, limitations, and delimitations of the study. The assumptions, limitations, and delimitations section are a checklist to guide the research project.

Assumptions

I assumed that a need exists to improve the road safety status that affects the gross national income. A road safety disparity is present between the current standard and desired standard, or between Uganda's standards and international standards (Department for Transport U.K., 2007; MOWHC, 2004). The Highway Code for Uganda is similar to that of the United Kingdom. The road safety disparity attributed to a lack of information in the urban transport business and management is reversible. A further assumption is that not all drivers in Kampala have sufficient training and have difficulty in understanding road signs and markings (Akanbi, Charles-Owaba, & Oluleye, 2009; Hammer, Pratt, & Ross, 2014).

Limitations

The study limitations are the nature of the qualitative research data. These data are prone to varying interpretations by different readers. Because qualitative research is interpretative in nature, it is subject to potential researcher bias during analysis of the

findings; not all people are equally articulate and perceptive (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013).

Delimitations

A delimitation of this study included a sample. The sample was comprised of road users within Kampala, the capital of Uganda, with transportation organizations and related governmental departments. The volunteer participants had to be working in the Kampala central business district (KCBD), even though persons residing outside the central business district were eligible to participate in the study. Restricting the study participants to those residing and working within KCBD was a delimitation. The sample participants for the study did not include other regions of the country (Bryman, 2012).

Significance of the Study

The significance of the study is that the relationship of business management and the highway construction industry and positive social change is described. The road safety standards will improve when the recommendations of the study are implemented; importation of new cars and spare parts will follow internationally acceptable business management models. The literature review and topics for future research explores contributions to business practices.

Contribution to Business Practice

The literature review gaps include the following 10 themes:

1. Roadside bombs due to terrorism.
2. Street demonstrations.
3. Persons with mental disorders.
4. Open-air street markets.

5. Drying of cereal foodstuffs on the road.
6. Straying domestic animals.
7. Foot hawkers.
8. Street football.
9. Garbage dumped in the streets.
10. Vandalizing and destroying of road signs.

The gaps identified in the literature review are the issues that leaders of the traditional RMS seek to correct to enhance road safety. It is significant for RMS leadership to correct the shortfalls to achieve desirable road safety.

Roadside bombs due to terrorism. Terrorists use radio signals to denote impoverished explosive devices (IEDs) as roadside bombs (Gilmore, 2008). Upon explosion, the roadside bombs damage the road pavement and / or bridge structure. Roads and bridges are investments with an expected rate of return as well as a performance period (Bivens, 2012; Inderst, 2009; United States Department of the Treasury, 2012). The damage to the transport infrastructure, prior to the end of the performance period, is a loss to the national income (Bivens, 2012; Inderst, 2009; United States Department of the Treasury, 2012). Efforts made to protect and prevent terrorism attacks upon transport infrastructure increases the costs of roads and bridges related to maintenance, rehabilitation, and construction.

Street demonstrations. Street demonstrations involving burning tires and erection of barricades disrupt normal road traffic operations. Nonpeaceful demonstrators not only disrupt traffic, but also destroy vehicles, property, and road furniture. The costs incurred by security companies to protect people and property from nonpeaceful

demonstrators, as well as the replacement and repair of private and public property, are high. The enforcement equipment and remuneration of the security companies associated with the government departments, and other costs, come from the national income.

Persons with mental disorders. Persons mentally and behaviorally challenged resort to the streets for habitation and survival. These people search for food in garbage heaps and do not follow traffic signs while using the road. The actions of persons with mental challenges are traffic safety hazards.

Stray domestic animals. Domesticated animals, such as dogs, cats, cows, goats, and fowls, stray into streets interrupting traffic flow, occasionally causing a traffic accident. The damage to an automobile from a big domestic animal such as a cow is substantial. The costs of repairs to the damaged vehicle and investigations into the roaming domestic animals have an impact on the individual and the national budget.

Open-air street markets. It is common that the street corners change into open-air markets in the twilight hours of the day. The street markets reduce the available traveled traffic surface area to road users, thereby creating a traffic jam, traffic congestion, and occasional traffic crashes. These street corner markets are a source of garbage on the street or side drains thereby clogging them.

Foot hawkers. The foot hawkers prefer to sell their merchandise at junctions identified by traffic jams. The foot hawkers will move in between or along slow moving vehicles conducting business transactions with drivers. A business transaction is a distraction to the driver and becomes a road safety hazard.

Street football. Sections of nonbusy streets turn into playgrounds for children in residential neighborhoods. The common game in these streets is street football. The

street footballers enjoy the game without consideration that the playground is in the street. The section of street turned into a gaming playground is a traffic safety hazard to street footballers and motorists.

Drying of cereal foodstuffs on the road. People using roads as drying grounds for foodstuffs appear to be unaware of road safety. The exhibition of ignorance of road safety is common during inclement weather conditions. Young family members will run to the road to prevent the foodstuff from the coming rain downpour, without taking notice of motorized traffic. The act is a road safety hazard.

Garbage dumped in the streets. The dumping of garbage in the road is from either street corner markets or residents and businesses without garbage bins. Garbage dumped in the roads impacts road users in two ways. The garbage heap blocks the road, and foul air from rotting activity is a pollutant to the environment. This garbage heap attracts scavengers such as straying domestic animals and the homeless.

Vandalizing and destroying of road signs. Road signs, and road furniture are prone to destruction by vandals. Vandalizing and destroying road signs contributes negatively to road safety. For example, if the road signs for a one-way road are missing due to vandalization, users will commit a traffic offense of contraflow. The missing road sign and contraflow driving behavior are traffic hazards.

The identification of such information missing in the encountered literature review reduces the gaps on the RMS and road safety. Including such information in the study would inform the expected audience, who would benefit and use it. There is a lack of education and awareness about road safety. There is also a lack of analysis for business models in TOTS within the road transport subsector as envisaged in the problem

statement in the study location. The intent of the research study is to reduce the gaps, as well as propose strategies to the RMS leadership and management. The leadership and decision-making discussion in political and business management terms follows.

Political leadership. Political leadership and decision making by political entrepreneurs encourage foot hawkers and open-air street markets, as well as allow pedal cyclists and motorcyclists to operate in street sections of fast lanes. Mixing slow moving and fast moving traffic render the streets unsafe (Kinzenbaw, 2008). The populace involved in such unsafe ventures and activities appear not to consider human well-being and human development. Able, knowledgeable, and appropriate leadership is a requisite to address political leadership (Hodges, Ferreira, & Israel, 2012; Lichtenstein et al., 2006; Raza & Standing, 2011).

Decision making. Political leadership and political entrepreneurs make business management decisions without consideration for road safety. The efficiency and effectiveness of business leaders' decision making are influenced by the management of information overload, shareholder pressure, and business time cycle (Nguyen & Schüßler, 2013; Reimers, 2014). TOTS, as a developing small business enterprise, is continuously making business decisions about (a) car fleets; (b) allocation of routes; (c) drivers' acquiring, training, and retaining; and (d) steep business competition. The decision-making process, in such circumstances, requires more human capital than social capital. Proper human resources are a necessity to deal with the increasing information overload, several available suppliers, and the changing marketplace terrain (Da Felice, & Martucci, 2012; Amu et al., 2012; Nguyen & Schüßler, 2013; Reimers, 2014; Szerb et al., 2007).

Implications for Social Change

The different societal difficulties linked to road accidents are social, economic, and environmental concerns (Peden et al., 2004). .The social difficulties have lead to a loss of people who would be resourceful to society as (a) financial supporters in the family, (b) resourceful employees, (c) social change agents in the community, and (d) traffic offenders who are confined to a prison cell. The loss of a breadwinner, resourceful employee, and social change agent in the community are consequences of traffic fatalities. The isolation and confinement of individuals to prison cells because of traffic offenses take from society breadwinners, resourceful employees, and change agents within the time they are away serving the sentence. The social problems can be overcome when there is improvement in transport subsector business and management that prevent and minimize road accidents. The economic aspects related to traffic crashes include the following five themes:

- Loss of goods, revenue, and assets;
- Trigger of insurance compensation procedures;
- More constraints to the over-stretched health services and police traffic departments;
- Cost of clearing of the accident salvage from the accident scene; and
- Families' financial constraints for paying police bonds, medical bills, court bonds, and court fines.

The existing insurance organizations offer basic insurance services, such as motor third party insurance policy and comprehensive insurance policy services. In Uganda, occasionally when a traffic accident occurs, the community rushes to the accident scene

to take the property, goods, and personal belongings of the victims instead of providing first aid and safety. The communities may apply the law incorrectly by beating the assumed traffic offender, confiscating the transit vehicle, or burning the vehicle. Traffic crash victims require both medical attention and security services in the form of secure protection and law and order by police. Frequent and multiple occurrences of traffic crashes increase constraints on both health facilities and the police force.

The environmental aspects of traffic accidents partially address the following three themes: (a) oil products spillage leading to land degradation and contamination of water sources; (b) noise nuisance due to accident impact, maintenance, and repair of the salvage at poorly managed workshops; and (c) landfill effect of the accident salvage. The vehicles on the roads use fossil products such as petrol, diesel, engine oil, and brake and clutch fluids that spill on the scene of the accident upon the collision impact. The fossil products enter into the surrounding road surface, as well as land and water supplies. The people living within the proximity of the collision impact site who use the water may suffer from illness. The noise coming from the crash impact, maintenance, and repair of the salvage at makeshift workshops is a nuisance. The metal cut-offs, wielding fire drop offs, filler, and paint remains, as well as irreparable parts, go to the landfill. The wastes from the workshops do not decompose and are harmful to human life, leading to land degradation and contamination. Family members are hurt by the steel metal cut-offs while working on the land and get poor crop yields due to high metal concentration affecting soil composition and fertility.

Furthermore, the resources used in the manufacturing, repairing, and recycling of vehicle parts are depleting. Road accidents are preventable. Road accidents attributed to

(a) human error, (b) insufficient driver training, and (c) poorly maintained cars are unsustainable, because raw materials required for vehicle production, and replacing spare parts are exhaustible (Asbridge, Brubacher, & Chan, 2013; Gjerde, Christophersen, Normann, & Moerland, 2013; Nordfjaern, Joergensen, & Rundmo, 2012; Pearce, 2012; Senge, Smith, Kruschwitz, Laur, & Schley, 2008; Zimmerman, Mzige, Kibatala, Museru, & Guerrero, 2012).

The intent of this research study was to identify business management strategies that, through the implementation of the identified business management strategies, road accidents might reduce by 50% on average by 2020. Improvement in human well-being and human development and an increase in GDP is possible. The business community would have an added investment portfolio within the study area to combat road safety concerns. Capital investment is feasible for (a) car seat belts, (b) driver reflective jackets, (c) radar photo camera equipment, (d) infant car seats, (e) traffic lights at junctions, (f) retro-reflective paint and equipment for road markings, (g) crash barriers, and (h) closed circuit television (CCTV) cameras.

The two construction projects, a helmet factory and toll roads, are a response and remedy to the road safety aspect of the study, especially for motorcycle riders and ease of traffic congestion on the Entebbe-Kampala road. Entebbe has the international airport, and Kampala is the national capital of Uganda that are essential business hubs in Uganda. Ease of traffic congestion shall lead to an increase in capital investments thereby creating employment opportunities for family members as a social change implication.

A Review of the Professional and Academic Literature

The purpose of the qualitative, descriptive case study was to enable TOTS managers to understand and identify changes in transport regulations that might contribute to (a) decreasing road accidents; (b) traffic jams; (c) increasing the GDP; (d) improving road safety for business storeowners and customers and employees' mobility; and (e) improving social, economic, and environmental influences.

A literature review is an exploration of the conceptual foundation of the study. The goal of the exploration was to address (a) transport regulations, (b) gaps in the existing literature, (c) modes of road transport, (d) the carbon footprint due to automobile exhaust fumes, (e) sustainability, (f) leadership, (g) decision making, and (h) barriers to safe road transportation. The terms considered applied to RMS and can only provide a partial view of the applicable interdisciplinary literature.

A search for peer-reviewed journal articles, dissertations, and research documents commenced with Walden online library Internet search engines ABI/INFORM Global, Academic Search Premier/Complete, Business Source Premier/Complete, Emerald, LexisNexis, and ProQuest. The review began in the online library collection using primary search terms. Search terms included *road accidents, traffic fatalities, urban transport management, business management, strategy management, business management theories, and road management systems*. The minor search terms were *efficiency, effectiveness, leadership development, and roads in Uganda.* The research also included books purchased for doctorate of business administration academic courses.

The search resulted in over 339 sources. A search of physical and electronic resources at the search libraries of Google Scholar, Yahoo Scholar, and other global

Internet search engines yielded additional sources for a complete exploration of relevant sources. An exhaustive attempt to cite both historical and current sources resulted in 339 references. Of the 339 sources, 284 have publication dates from the year 2010 and are in the literature review. The percentage of peer-reviewed resources of the total references is 92% (see Table 2).

Table 2

Title Searches, Articles, Research Documents, and Journals Researched Pre-2010

Category	Scholarly books	Empirical research & dissertations	Scholarly reviewed articles in journal and periodicals	Founding theorists	Total
Road Management System	2	0	5	0	7
General	1	0	2	0	3
Traffic composition	0	1	1	0	2
Road safety	2	0	3	0	5
Driver training	0	0	1	0	1
Traffic enforcement	0	0	4	0	4
Change management	0	0	0	0	0
Business context	0	0	0	0	0
Non-business	0	0	0	0	0
Leadership	1	0	4	0	5
Public-private partnerships	0	0	3	0	3
Decision-making	0	0	1	0	1
Criminology theory	1	0	3	0	4
Strategic management	0	0	2	0	2
Sustainability	1	0	2	0	3
Management theory	1	0	2	0	3
Research Methods	3	0	2	0	5
Descriptive case study	1	0	1	0	2
Traffic fatalities	0	1	4	0	5
Totals	13	2	40	0	55

Access and review of resources on the theorists identified for management theory, strategic management, and criminology theory was also conducted. The sources addressed the research methodology and designed the theorists used to derive the theory. The information was vital in understanding the theories chosen for this study.

Table 3 consists of 284 articles on the search themes after 2010. The contents are similar to Table 2 for literature review consistency. Details of the discussions of each section follow Table 3.

Table 3

Title Searches, Articles, Research Documents, and Journals Researched from 2010

Category	Scholarly books	Empirical research & dissertations	Scholarly reviewed articles in journal and periodicals	Founding theorists	Total
Road management system	6	0	18	0	24
General	3	0	14	0	17
Traffic composition	0	0	10	0	10
Road Safety	2	0	29	0	31
Driver training	0	0	11	0	11
Traffic enforcement	0	0	8	0	8
Change management	0	0	11	0	11
Business context	0	0	26	0	26
Non-business	0	0	2	0	2
Leadership	6	1	26	0	33
Public-private partnerships	1	0	10	0	11
Decision-making	0	0	10	0	10
Criminology theory	0	0	6	0	6
Strategic management	0	0	9	0	9
Sustainability	0	1	18	0	19
Management theory	4	0	4	0	8
Research Methods	11	0	8	0	19
Descriptive case study	4	0	9	0	13
Traffic fatalities	1	0	15	0	16
Totals	38	2	244	0	284

Similar to the pre-2010 sources, the literature review sources from 2010 were outside the geographic study area. This observation is partially due to the low coverage of the subject and to the association of scholarly writers with internationally recognized journals.

The themes gleaned from the literature review are (a) driver training, (b) functions of the companies in the study area, (c) leadership, (d) modes of transportation, (e) origin of roads, (f) public-private partnerships (PPPs), (g) road infrastructure, (h) road

management systems, (i) road safety, (j) strategy, (k) sustainability, (l) traffic composition, and (m) traffic enforcement. The driver training, road safety, traffic composition, and traffic enforcement are interconnected. Similarly, functions of the companies in the study area, leadership, and public-private partnerships complement each other. The study of each theme is under the relevant heading in the content from peer-reviewed journals heading.

Applied Business Problem Statement

RMS is under road infrastructure and highway construction that presents a business problem of efficiency and effectiveness, road accidents, and traffic congestion (Adler et al., 2012; Huggins, 2012; Pollitt, 2009; Witte, Wiegmans, van Oort, & Spit, 2014). The business themes of efficiency and effectiveness, leadership and decision-making, capital investment considerations and strategies, sustainability, and change management emerged (Bamberg, Fujii, Friman, & Gärling, 2011; Barr, Shaw, Coles, & Prillwitz, 2010; Hodges et al., 2012; Holden & Linnerud, 2011; Lichtenstein et al., 2006; Prillwitz & Barr, 2011; Raza, & Standing, 2011; Xenias & Whitmarsh, 2013). Therefore, the business management strategy to improve business profitability for storeowners, TOTS operatives and to reduce GDP loss due to road accidents is an applied business problem statement.

Management Theories Relevant to the Research Study

Leadership, strategic planning, and change management theories are relevant and necessary in addressing the research study problem as well as the literature review gaps identified. The erosion of road asset value is due to a lack of strategic management research in road construction and supportive political and institutional frameworks (Lillis

& Sweeney, 2013, Sarpong, Maclean, & Davies, 2013). Officials of China are building new cities, resulting in the creation of rural and urban migration as a means to have well-planned cities. A replication strategic planning with modifications in the study area to improve urban shacks would be a feasible alternative. Housing projects supplement financing of transportation infrastructure systems (Burchell, Crosby, & Russo, 2011; Kiggundu, 2009; Lucian, 2012).

Comparisons with Previous Research and Findings

Kiggundu and Mukiibi (2012) attributed inadequate parking space, dilapidated and neglected road network, lagging public transport, and inadequate local funding to traffic congestion within Kampala. Recommendations are to use overhead or underground parking as well as improved public transport services to de-congest the city. To achieve the de-congesting of the city with traffic, the private and public developers should invest in constructing car parking facilities and bus terminals.

Kobusingye, Guwatudde, and Lett (2001) considered traffic accidents as a major killer along with others such as malaria, tuberculosis, and human immune virus/acquired immune deficiency syndrome (HIV/AIDS). The goal of the study was to show that the leading causes of fatalities and disabilities in the city were due to road traffic. The study findings contrast with a similar study conducted in the United States in a similar setting, in which traffic crashes and fatalities were due to speeding on rural interstate roads (Friedman, Hedeker, & Richter, 2009). The particular contrast is attributable to the different geographical locations and level of growth in the two countries. Differences and contrasts in transportation are due to current policies, behavioral orientation of

citizens, and sustainability (Bamberg et al., 2011; Barr et al., 2010; Holden & Linnerud, 2011; Prillwitz & Barr, 2011; Xenias & Whitmarsh, 2013).

Mutto, Kobusingye and Lett (2002) evaluated the effect of an overpass on pedestrian injuries in the study area to ascertain the perceptions of the participants. The concern was that traffic accidents continued to occur at the overpass area notwithstanding the existence of an overpass as a safety provision. The goal of the study was to show that male participants had a mindset of being brave and strong enough to walk through traffic as compared to the female participants. The safety issue was not paramount to the men.

Benmaamar et al. (2002) conducted a study on TOTS of the public transport particularly minibuses within the study area and other two locations in the east and west of Uganda. The purpose of the study was to show that cars are more than eight years old without proper routine maintenance and with drivers possessing insufficient training skills. Benmaamar et al. recommended a review of the vehicle importation policy and adoption of private-public partnerships in TOTS.

The Benmaamar et al. (2002) study recommendations provided the foundation for this current study. The current study builds upon the identified gap in the literature as lack of strategy management review. The strategy management analysis on the routine maintenance of cars, driver training under the road safety and car importation policy within TOTS is lacking.

Innovation and technology in a road traffic management and enforcement has progressed over time. Dual application of manual and technology-aided enforcement is a common practice in the developed world. Chen and Warburton (2006) and representatives of Department for Transport U.K. (2007a) explained that photo radar

cameras and CCTV cameras are necessary for the enforcement of traffic laws and regulations. In the proposed study area, use of technology-aided enforcement is at leisure pace. Chen and Warburton demonstrated that the use of technology-aided enforcement reaped financial benefits.

Rationale of the Conceptual Framework for Improved Business Practice

The intent of the proposed study was to address the phenomenon of increasing road accidents and traffic jams leading to the loss of GDP (Dragu, Roman, & Roman, 2013; Kiyaga et al., 2013; Prasad & Shekhar, 2010; Worku, 2013; WHO, 2013). The design of previous studies conducted in the study area was on a theoretical framework to establish institutional and infrastructure solutions. The frameworks among others included (a) injury patterns, (b) effect of greenhouse gases emissions, and (c) recommendations for reform on urban transport (Benmaamar et al., 2002; Bi, Zhang, Wang, Liu, & Wu, 2011; Glaeser & Kahn, 2010; Kobusingye et al., 2001; Kudryavtsev, Nilssen, Lund, Grjibovski, & Ytterstad, 2013; Kulak, Graves, & Chatterton, 2013; Mashayekh et al. 2012; Sovacool & Brown, 2010; Strohbach, Arnold, & Haase, 2012; Tiwari, 2012;). The design of the case study research was to describe the growing phenomenon of road accidents, traffic jams, and trends of urban transport regulation contributing to the loss in GDP in Uganda.

The conceptual framework calls for improved business practice to alleviate the phenomenon of increasing road accidents and traffic jams. Analysis of the following improved practices would serve this effort (a) chain supply management, (b) chain value management, and (c) Porter's (2008) forces tailored to Ugandan business matrix. The leaders of governmental and nongovernmental organizations involved in the road

transport subsector are adapting a corporate stance and should embrace improved business practices for day-to-day planning, programming, and operations in the subsector. The Uganda National Roads Fund (UNRF) and the Uganda National Roads Authority (UNRA) are now in existence to function as SMEs.

Representatives of the Uganda National Roads Fund [UNRF] (2010a) published that road; railway, air, and inland water are the current modes of transport in Uganda, with the road mode of transport being principal. The government policy is to improve transport services that shall be safe, effective, and efficient for agricultural and industrial production. The safe and efficient transport services would improve trade and tourism, social, and administrative services to the populace.

Potential Themes of Qualitative Study

Various potential themes for a qualitative study emerge from the literature review. Considered themes for the study design are

- Leadership
- Decision making
- Efficiency and effectiveness
- Road accidents
- Safety information and knowledge
- Gross domestic product (GDP)
- Positive social change
- Driver training and licensing
- Importation of vehicle policy
- Public and private partnerships in the transportation sector

The other themes emerging and supporting the identified research study themes are sustainability, change management, organizational development, and business strategy management.

Content from Peer-reviewed Journals

The discussions under the content peer-reviewed journal section are under 14 subheadings. The subheadings include:

1. Driver training.
2. Functions of the companies in the study area.
3. Leadership.
4. Modes of transportation.
5. Origin of roads.
6. Public-private partnerships (PPPs).
7. Road infrastructure.
8. Road management systems.
9. Road safety.
10. Strategy.
11. Sustainability
12. Traffic composition.
13. Traffic enforcement.
14. Themes to inform the research project.

Focus of the discussion is on the research problem statement. The subheadings discussion details follow below.

Driver training. Road safety, driver training, and vehicle handling are inseparable. Driving is a skill dependent on

- Knowledge and practice of the driver (Walker, Stanton, Kazi, Salmon, & Jenkins, 2009; Wang, Zhang, & Salvendy, 2010)
- The situation on the road (Salmon, Stanton, & Young, 2012)
- Driver's various information process and decision-making (Wang et al., 2011)
- Driver training how to respond to hazards (Crundall, Andrews, Van Loon, & Chapman, 2010)
- Driver's performance at junctions, flashing lights, rail level crossings (Lenne et al., 2011)
- The driver's approach to safety (Wang, Zhang, Guo, Bubb, & Ikeuchi, 2011)
- The driver's validation of hazards (Underwood, Crundall, & Chapman, 2011)
- Young and inexperienced drivers on-road driving (Isler, Starkey, & Sheppard, 2011)

As a skill, it is prone to abuse by (a) attitude, (b) peer pressure, (c) speeding, (d) competition, (e) aggressive driving, and (f) religious beliefs (Asbridge et al., 2013; De Winter & Dodou, 2010; Gjerde et al., 2013; Hammer et al., 2014; Lheureux, 2012; Li, Simons-Morton, & Hingson, 2013; Nordfjaern et al., 2012; Pitt, 2008; Tronsmoen, 2010; Zimmerman et al., 2012). Road rage is an example of abuse of driver training, is an exhibition of impatience, and disregard on the part of offending drivers about traffic laws

and other road users (Asbridge & Butters, 2013; Cavacuiti et al., 2013; Mir, Khan, Ahmed, & Razzak, 2012; Nabatilan, Aghazadeh, Nimbarte, Harvey, & Chowdhury, 2012). Organizational leaders in the transportation subsector cannot afford to overlook driver training. Driver training provides information and skills to the driver regarding how to control the car under different weather conditions and road surface texture. Furthermore, it provides understanding and correct interpretation of road markings and road signs. In addition, drivers' exposure to the importance of regular and routine mechanical checks on a car before commencing a journey and necessary steps of how to plan an itinerary and right time to travel.

Functions of the participating organizations. The eight organizations identified for what and how the phenomenon of increasing road accidents within the RMS with a focus on road safety are below. The eight organizations comprise governmental ministries in the government of Uganda and nongovernmental organizations. The following identified organizations are interrelated to RMS and road safety:

1. Ministry of Education and Sports (MOE&S).
2. Ministry of Finance, Planning, and Economic Development (MFP&ED).
3. Ministry of Health (MOH).
4. Ministry of Internal Affairs (MIA).
5. Ministry of Works and Transport (MOWT).
6. Multiplex Uganda Limited.
7. Uganda Bus Operators Association (UBOA).
8. Uganda Taxi Operators and Drivers Association (UTODA).

The functions for the eight organizations are diverse. A description of the functions is only to those about the study. A description of the functions of each participating organization follows in alphabetical order.

The goal of the *Ministry of Education and Sports (MOE&S)* is to ensure universal and equitable access to quality education to all children. Leaders of the ministry ensure equal access at all levels of education by gender, district, and the special needs persons (MOE&S, 2011). The MOE&S is relevant to driver training as a vocation.

The *Ministry of Finance, Planning, and Economic Development (MFP&ED)* has the responsibility of planning and designing strategies that enable rapid economic growth and transformation. Leaders of the ministry mobilize internal and external resources, as well as monitor and account for the resources (MFP&ED, 2014). The objective of the *Ministry of Health (MOH)* is to evaluate and monitor the entire health sector performance in the country (MOH, 2011).

The goals of the *Ministry of Internal Affairs (MIA)* are (a) to keep the peace, law, and order and (b) to ensure safe custody, humane treatment, and rehabilitation of offenders. The ministry is the home of Uganda Police and Uganda Prisons (MIA, 2011). Leaders of the *Ministry of Works and Transport (MOWT)* are responsible for planning, developing, and maintaining an efficient and effective (a) transport infrastructure and (b) transport service by road, rail, water, and air (MOWT, 2011a). The leaders *of Multiplex Uganda Limited* are in charge of managing street parking within Kampala, Uganda (Hakiza & Basheka, 2012).

The design of the *UBOA* is to bring bus operators together who are working within and outside Kampala (Benmaamar et al., 2002). The objectives of the *UTODA*

included (a) uniting taxi operators, drivers, and vehicle owners; (b) extending taxi services to the public in an organized manner; (c) providing welfare department for drivers; and (d) controlling traffic in Kampala (UTODA, 2009).

Leadership. The leadership literature reviews involved business peer-reviewed articles and books, with complexity leadership in complicated adaptive systems. The following summaries include Lichtenstein et al. (2006) and Raza and Standing (2011), Hodges et al. (2012). The articles intend to prescribe what organizational leaders should do in order to be successful long-term. Paramount to this result is for leaders to be adaptive and flexible and to create opportunities for conversation.

Lichtenstein et al. (2006) asserted that a complex leadership should emerge to lead complexity adaptive systems based on the notion that "*leadership is an emergent event*, the outcome of relational interaction among agents. In this view, leadership is more than a skill, an exchange or a symbol. Leadership *emerges through* dynamic relations. Systemic change needs collaborating of different stakeholders on the three realms of conceptual, relational, and action-driven (Hodges et at., 2012, Raza & Standing, 2011).

A deliberate will by the stakeholders should be present to formulate ideas that will guide them in a healthy relationship while producing a collective action-driven implementation. The lack of information on how to reduce road fatalities entails a number of stakeholders that should be brought together to understand the problem and brainstorm solutions. Collaboration of stakeholders is possible on the conceptual, relational, and action-driven realms that relate to the managerial levels of strategic

guidelines, organizational practices, and organizational outcomes. The leaders are to understand that leadership is

- Complex
- Distributed within the organization
- Subject to the concepts of learning organization and complex theories
- To embrace the leadership loci and mechanism
- To use applications of measurement and understanding leadership (Bolden, 2011; Dayton, 2011; Hernandez, Eberly, Avolio, & Johnson, 2011; Morrison, 2010; Shondrick, Dinh, & Lord, 2010)

Modes of transport. Road users prefer different modes of transport at different times. The determinants for these preferences are (a) cost, (b) safety, (c) travel time, (d) comfort, and (e) convenience (Gonzales, Geroliminis, Cassidy, & Daganzo, 2010; Guell, Panter, & Ogilvie, 2013; Heesch, Sahlqvist, & Garrard, 2012; Páez & Whalen, 2010; Young & Caisey, 2010). The existent modes of transport in Uganda are road, railway, air, and water. The land surface modes of transport, such as road and railway, are predominant. Air transport is mainly international out of Entebbe while water transport is inland across rivers, lakes with regional ferry service between Mwanza in Tanzania, Kisumu in Kenya, and Portbell and Jinja ports in Uganda on Lake Victoria.

Road transport is on foot, bicycles, motorcycles, cars, mini buses, buses, and long haul articulated trucks. Representatives of the Uganda National Roads Fund [UNRF] (2010b) published that residents of greater Kampala area use bicycles, motorcycles, taxis or *matatus*, and buses to travel. The taxis are multi-occupancy with a seating capacity of

up to 14 passengers, although bigger ones could have a 25-seating capacity. About 8,500 taxis existed in Uganda (UNRF, 2010b).

Representatives of the UNRF (2010b) asserted that the *matatus* have allocated routes with intermediate alighting and boarding points defined by the user. Designated car parks exist for *matatus*' drivers to commence and terminate their journeys on the particular routes. The intermediate alighting and boarding points by the user are a traffic safety hazard, without specific boarding and alighting points from the *matatus* along the route.

Origin of roads. Bellis (2007) suggested that the origin of roads date back to 4000 B.C. with stone-paved roads at Ur in present day Iraq. Representatives of Highways Agency U.K. (2010) alluded that the origin of roads dates back to the Stone Age. The construction of roads was in the gravel, then stones as the underlying base. In the 16th century, construction of roads was self-draining with a raised center. In the 19th century, a Scottish McAdam launched the use of bitumen or tarred roads that are in use to the present day as all weather or season roads.

The basis of road construction was on (a) esthetic, (b) engineering, and (c) cultural routes (Marriot & Bryan, 1999). The design of road construction was to provide rural farmers access to local, national, and international markets. Uses of roads continued to evolve and included the desire to communicate (mail delivery services) and access raw materials upon discovery of mines (Calmette & Kilkenny, 2012). Ancient Romans also used roads for military exploits and conquests.

The identification of roads in geographic locations is by global coordinates, latitudes or longitudes, and technological advancements of satellite navigation systems

using Google earth, geographic information positioning (GIP) and global positioning system (GPS) (Barrero, Toral, Vargas, Cortes, & Milla, 2010; Gerla & Kleinrock, 2011; Zeng, 2010). Names or numbers as a convention differentiate and identify roads from each other. Properties along particular roads in urban centers, in the study area, are allocated address numbers. The technology developments make it easy for global citizens to travel around the world.

Public-private partnerships. Public-private partnerships' literature sources include scholarly articles. The sources are in regard to the funding of transport infrastructure development, advanced traveler information systems (ATIS), social marketing, and the funding of vehicle fleet acquisition and maintenance. The following summaries below include Blanc-Brude, Goldsmith, and Välilä (2009), Burchell et al. (2011), Christie, Sleney, Ahmed, & Knight, 2012, Kiggundu (2009), Lawther (2005), and Lucian (2012).

Christie et al. (2012) demonstrated that engaging the community in road safety agenda plays a vital role in achieving the objectives of road safety team in the community of the U.K. city council. The objectives of the road safety team were to use different sections of the community to develop and advance safety knowledge. For example, school-age children, their parents, school crossing patrol service individuals, and leaders of the road safety education, training, and publicity group (ETP) use the social marketing strategy to affect the performance of different sections of the public.

Kiggundu (2009) analyzed in a parallel approach the financing of transport infrastructure development as well as the acquisition of new and maintenance of vehicle fleets in the city of Kuala Lumpur Malaysia. Kiggundu demonstrated that the public

transport systems in Kuala Lumpur under the private sector required the input of the public sector from the Federal Government of Malaysia. The situation required regulating the issuance of operating licenses, control of fares, mitigation, and ramifications for volatile market conditions and inflation. Furthermore, the construction of toll rails and roads was possible due to public and private partnerships. The thrust of the public and private partnerships was toward improving road safety (Blanc-Brude et al., 2009; Delmon, 2011; Engel, Fischer, & Galetovic, 2013; Forrer, Kee, Newcomer, & Boyer, 2010; Hill, 2011; Hodge & Greve, 2010; Mouraviev & Kakabadse, 2012; Mu, Jong, & Koppenjan, 2011; Poulton & Macartney, 2012).

Lawther (2005) asserted that the construction of new roads increases road injuries and fatalities, whereas an increase of traveler information, reduces road injuries and fatalities. Lawther discussed and defined public, private partnerships (PPPs) as "an arrangement of roles … [between] two or more public and private entities … combines complementary resources to achieve … one or more common objectives" (p. 1120). Leaders of the public and private entities agree on the traveler information data collection and means of dissemination to the public. Despite PPPs being alternatives for investment and fighting enemies of road safety, there are obstacles to overcome (Liu & Wilkinson, 2011). In the study area, frequency modulation (FM) radios provide the public with traffic updates at peak hours as a voluntary service.

Road infrastructure. Development of the road infrastructure plays a pivotal role to the country's growth and GDP (Gollin & Rogerson, 2010). A comparison of well-developed road infrastructure in countries of India, China, Brazil, and the United States led to this observation. However, this was not entirely accurate since leaders of well-

developed countries, like the United States, did not depict the same result. The explanation for this observation is in other well-developed core infrastructure facilities and service-based businesses (Sharma & Vohra, 2009).

Road infrastructure in developing countries, such as Uganda, dates to the colonial time and is no longer able to accommodate the current traffic composition and volumes (Transport Research Laboratory, 1991). The roads are narrow with bordering properties close in proximity, and no room is available for expansion. In order to preserve the buildings along the streets in the study area, the narrow streets now allow only one-way access (UNRF, 2010b).

The changing of city streets to one-way access is a good approach, in addition to using multi-occupancy vehicles such as bus rapid transit (BRT) system that Uganda government officials plan to introduce in Kampala by 2014. However, Lu, Chen, Pernia, and Lu (2012) and Retting, Persaud, Gardener, and Lord (2001) advised that the safety performances of making such changes require careful evaluation. In addition, Foster and Briceño-Garmendia (2010), Hensher and Chung (2011), Neeley and Richardson (2009) advocated for the formulation of regulations and effective enforcement for incorporation into road infrastructure features.

Road management systems. The five RMS scholars included in this literature review are Hensher and Chung (2011), Misra et al. (2003), Thriscutt (2010), Luyimbazi (2007), and McPherson and Bennett (2005). The choice of these scholars was due to their experience, contributions, and recommendations on RMS. Robinson urged the success of RMS is in choosing the appropriate model tailored to the needs of the

implementing agency, whereas, Misra et al. provided guidelines on how to implement RMS.

Thriscutt (2010c) addressed the efficient and effective operations and maintenance of RMS and Luyimbazi (2007) demonstrated that the achievement of desired RMS objectives and goals was reduction in GDP loss is attainable. McPherson and Bennett (2005) reiterated that the successful implementation and operation of RMS converged on technology, people, and processes with adequate funding. In general, RMS is evolving with challenges on acquisition and implementation costs, as well as demand for more variables to include in the current computer software omitted in the earlier software models.

Hensher and Chung (2011) described how previous efforts to select and implement RMS were disappointing in many countries for the following reasons

- Lack of responsibility and resistance to change by implementers
- Cultural issues that are without management traditions
- Filling or failing to fill key positions with competent staff

Misra et al. (2003) provided guidelines to choose the appropriate RMS for local governments in the United States. The objective of RMS is to utilize business investment considerations, such as (a) internal rate of return (IRR), (b) net present value (NPV), and (c) life cycle cost (LCC) to predict the appropriate time and cost when to maintain, rehabilitate, and reconstruct the road. The themes that emerge for discussion include leadership, decision-making, change management, efficiency and effectiveness, road accidents, funding of roads, and the GDP.

Efficiency and effectiveness are strategy management terms referring to the alignment of organizational goals and objectives by using minimum resources for the business to remain profitable (Ahenkora & Peasah, 2011; Camisón & Monfort-Mir, 2012; Ettlie & Rosenthal, 2011). To be efficient and effective, a pragmatic approach to innovative methods should embrace current and future industry trends (Castro, Montoro-Sanchez, & Ortiz-De-Urbina-Criado, 2011). Efficiency is the measure of the relationship between inputs and outputs whereas effectiveness is a measure to which business leaders achieve goals. In RMS, efficiency is the securing of the political leadership and existing road institutions responsibility, choosing of the appropriate planning, programming, processing of the data collected, and reporting to decision makers to fund the maintenance, rehabilitation, and reconstruction of the roads (Doloreux & Shearmur, 2012). Efficiency involves bridging the public policy formulation and shaping of the public service delivery (Osborne & Brown, 2011). Conversely, effectiveness is a measure to which reduced frequency of the sections of the road maintained, rehabilitated, and reconstructed to reduce (a) vehicle operation costs, (b) traffic accidents and traffic congestion, and (c) passenger travel time (Fagerberg, Mowery, & Nightingale, 2012; Hensher, & Chung, 2011; Misra et al., 2003).

An efficient and effective RMS requires an understanding of the following (a) the facts of life, (b) whom to pay for the road, (c) efficiency, and effectiveness in managing roads, and (d) making things better (Rheinberger, 2011; Thriscutt, 2010a, 2010b, 2010c, and 2010d; Yunus, Zulkifli, & Hassan, 2010). Roads are expensive to construct and require constant and proper maintenance. The asset value estimate for road network in Uganda is about U.S. $2.7 billion (Luyimbazi, 2007).

Road management scholars estimated that road maintenance costs are 10% of the vehicle operation cost (VOC), whereas road users incur 90% road transport costs (Rheinberger, 2011; Thriscutt, 2010b). Luyimbazi (2007) analyzed and published that the existing road maintenance status in comparison to the desired state would create the VOC saving of U.S. $69.93 million, equivalent to 1.5% of national GDP. The shortfall on road maintenance status exhibited as the created VOC saving transcends as an extra cost of U.S. $251.45 per motorist annually.

The leaders of the MFP&ED pay for road construction and maintenance with the assistance of various development partners such as the World Bank, European Union, and Africa Development Bank through the National Road Fund. Locally, money generated from taxes levied upon the road users in the form of vehicle operating licenses and fuel and lubricants used to run the cars. The opinion of the practitioners of road management is that the heavy road users should pay more and have their consent on expenditure of the funds they pay (Thriscutt, 2010c; Yunus, & Hassan, 2010). The aid from development partners is in grants and loans that attract substantial interest rates that are not sustainable.

The four enemies of efficient and effective RMS are (a) late, incomplete, unreliable, and unpredictable road funding; (b) inappropriate, slow, and bureaucratic decision delivery; (c) low-staff morale and lack of professional cultures; and (d) high level of waste, corruption, and other losses (Thriscutt, 2010d). The delays in road funding and decision making in the road transport sector amount to further deterioration of a road section or bridge structure, making these unsafe for road users. Low wages and salaries in relation to acceptable market value for professionals within the road sector

contribute to brain drain syndrome and corruption. The condition of roads and bridges consequently deteriorates, too.

The RMS has room for improvement, demonstrated by the newer and variant RMS models available and road construction technology (Barrero et al., 2010; McPherson & Bennett, 2005; Queiroz & Kerali, 2010). The development is possible when definite funding arrangements are in place for roads, instituting a wholly managing board with the directors answerable to the public and development partners (Dragu et at., 2013; Kiyaga et al., 2013; Prasad & Shekhar, 2010; Thriscutt, 2010d; Worku, 2013). Furthermore, the participation of the private sector on a competitive, efficient, and innovative platform along the public enterprise in the transport and road transport sector is to be encouraged (Burchell et al., 2011; Kiggundu, 2009; Lawther, 2005; Lucian, 2012). McPherson and Bennett concluded that successful RMS is a convergence of processes, people, and technology.

In Uganda, the road management evolved from road maintenance initiatives. The initiative is to manage roads as a real marketplace, commercial, and business entity. The effort further stands on four-building blocks of (a) ownership, (b) financing, (c) responsibility, and (d) management. Regarding the management, the focus of the initiative, is to use effective systems and procedures in sound business practices and managerial accountability (UNRF, 2010a).

The Uganda road system comprises of the following (a) national roads, (b) district roads, (c) urban roads, and (d) community access roads. The management of roads is by leaders of the ministry of works and transport, ministry of local government, urban councils, and lower tier local government responsibility (UNRF, 2010b). The success of

road management is dependent upon sound and coordinated shouldering of activities and operations of the four identified entities managing the roads in the arterial system (Hensher, & Chung, 2011; Misra et al., 2003).

Benmaamar et al. (2002) conducted research on transport operators, transport services, and their impact on vehicle utilization in Uganda. Other conducted studies were on the rapid motorization, use of overhead pedestrian bridges, and injury and fatal patterns including road accidents (Kobusingye et al., 2001; Mutto et al., 2002; UBOS, 2010). Benmaamar et al. made recommendations for improvement of vehicle operations, long-term policy, and institutional reforms in vehicle importation, formation of a transport regulator, and creation of private-public partnerships, as well as, short initiatives on vehicle financing, driver training, and road safety.

The design of the traditional RMS is to ensure the asset management of roads and bridges monitors the quality, functional integrity, and maintenance of the structural design (Misra et al., 2003). With the fast-paced world and sustainability information available, the road asset stance is not sustainable. The leaders of the RMS due to occurrences of (a) road rage, (b) street demonstrations, (c) persons with mental disorders living in the streets, (d) street football playing grounds, (e) open-air street markets, (f) foot hawkers, (g) roadside bomb,s and (h) terrorist activity should prepare to minimize or deter these adverse road safety occurrences. The leaders should embrace technological advancements in Google Earth and global positioning system (GPS) to adapt the changing environment landscape. The RMS highway design and maintenance model III (HDM-III) and earlier versions do not include costs related to traffic delays, congestion,

accidents, and environmental pollution, as well as provide universal application (Barrero et al., 2010; Hensher & Chung, 2011; Queiroz & Kerali, 2010).

Road safety. Pitt (2008) and Hammer et al. (2014) alluded that leaders of corporations have a responsibility to enforce road safety through health and safety policies for drivers and fleets. Leaders of many businesses opt for work-related driving as an aspect of job performance. The argument is that organizational leaders instill a proactive safety culture and climate in the employees, as well as fleet management (Hauer, 2010; Larsson, Dekker, & Tingvall, 2010; Novoa et al., 2011). In Uganda, with the advent of cellular phone, leaders of corporations using fossil fuel generators to power tower masts pose a road safety hazard while speeding to re-fuel the generators.

Kinzenbaw (2008) suggested that slow moving farm vehicles, such as horse-drawn carts and mopeds, are a cause to road crashes. Older, dilapidated trucks carrying mainly charcoal at night are often the cause of night accidents on Ugandan roads. Junctions of roads were also a cause of road injuries since motorists do not take care in approaching and leaving these points (Kondro, 2010; Qin, Noyce, Cutler, & Khan, 2013). Black spots on particular roads within the study area identified for improving sighting distances and reducing accidents, especially at intersections and horizontal and vertical curves.

The demographic trends regarding the health, age, gender, and race of road users affect road safety. The human error element attributed to vision impairment, hearing, hazard perception, and dementia in older drivers contributes to road fatalities (Munala & Maina, 2010; Nagata, Takamori, Berg, & Hasselberg, 2012). Madeley (2004) asserted,

"poor roads, bald tires, overloaded and poorly maintained vehicles are responsible" (p. 32) for the road deaths in developing countries.

The behavioral attitude demonstrated by these identified actions further proves a lack of basic and general knowledge on how to reduce road fatalities in developing countries. Overloaded and poorly maintained vehicles on bald tires are prone to tire bursting, which results in road accidents, traffic injuries, and fatalities. Insufficient parking facilities and poor traffic management undermine road safety (Osoba, 2012).

Strategy. The research literature sources for strategy, like leadership, are associated with redistribution of wealth, social networks, social capital, empowerment of leaders, and sustainable development. The following summaries include King (2008), Meznar, Chrisman, and Carroll (1990), Kopits (2004), Herman, Ameratunga, and Jackson (2012), Manna, Marco, Khalil, and Meier (2011), Marshall, and Garrick (2011), Mohammadi (2013), Molina-Morales, and Martínez-Fernández (2010), and Nauman, Mansur Khan, and Ehsan (2010). The articles are essential in guiding organizational leaders strategically to develop progressively in using enterprise strategy, social networks, social capital, redistribution of wealth with benefits of road safety, and control of economic loss through fatalities for future success.

King (2008) stated that an index of sustainable economic welfare should be "consideration of income distribution, natural resource depletion, environmental damage, and unpaid work in the household" (p. 30). The goal of sustainable economic welfare index is to encourage leaders of corporate firms and countries across the globe to measure up as positive publicity enhances profitability and sustainability (Manna et al., 2011). Road accidents that result in traffic injuries and fatalities deny households and

communities of financial supporters and aggravate the worst economic situation of developing countries like Uganda. The challenge to stakeholders is to develop a new spirited and disciplined effort toward comprehensive economics of sustainability.

Officials of rich and poor countries should work together by using the informative human development index (HDI), human wellbeing index (HWI) and child poverty rates. Such efforts will evaluate the impact of policies and practices designed to increase human development (HD) and human wellbeing (HW) while reducing and reversing unsupportable environmental consequences of the current economic activities. Human development and wellbeing have roots in social networks and lifestyle trends (Marshall & Garrick, 2011; Molina-Morales & Martínez-Fernández, 2010). The actions are imperative because children between the ages of five to 14 are grossly affected by road safety related injuries and fatalities. Furthermore, the wreckage from road accidents goes to landfill and causes further damage through land degradation (Hermanet al., 2012; Mohammadi, 2013).

Meznar et al. (1990) developed an enterprise strategy classification upon which organizational leaders can set themselves depending on their performances on the parameters of differentiation, generalization, and identification. One area on which organizational leaders distinguish and identify is leadership empowerment pattern (Nauman et al., 2010). The factors link into the firm's long-term survival and economic performance. Corporate social responsibility scholarly urge that corporate risks list be growing (Inoue, & Lee, 2011; Kang, Lee, & Huh, 2010; Orlitzky, Siegel, & Waldman, 2011; Wong, Ormiston, & Tetlock, 2011; Yang, Hong, & Modi, 2011). Kopits (2004) analyzed the damage to property, human capital, and hospital density in order to save

lives from injuries of road crashes and the subsequent loss to the gross domestic products (GDPs) of countries. The purpose of Kopits' study analysis was to provide a model of traffic fatalities on vehicle occupants and vulnerable road users. Kopits investigated and examined how road safety related to economic development within the environmental Kuznets curve (EKC) framework.

As discussed under modes of transport, leaders of UNRF and Uganda National Roads Authority (UNRA) as SMEs, and TOTS need to adapt performances that differentiate and identify them from others for long-term survival. Officials of TOTS especially should develop an enterprise strategy. Appropriate mission statements and vision statements should entail upholding multi-occupancy vehicles and the safety of venerable road users (Baldwin, Cave, & Lodge, 2011).

Sustainability. Sustainability literature sources include scholarly articles and books with a focus on the built environment, workable partnerships and awakening of globalization and international security for corporate social responsibility (CSR), and sustainability development. The following summaries include Smith and Sharicz (2011), Stephens and Graham (2010), Westley et al. (2011), Jain, An, and Tambe (2012), Smith (2012), Pourdehnad and Smith (2012), Espinosa and Porter (2011), Mezher (2011), and Wheeler, Colbert, and Freeman (2003).

Improving the built environment in a sustainable manner improves the human well-being. Learning of sustainability by businesses has benefits for safety and security in sailing through complex situations (Espinosa & Porter, 2011; Jain et al., 2012; Pourdehnad & Smith, 2012; Smith, 2012). The benefits of sustainable built environment with a focus on the personal, local, regional, and global incremental order produced

network effects in (a) social, (b) economic, (c) environmental, (d) technical, and (e) political realms (Mezher, 2011; Smith & Sharicz, 2011, Stephens & Graham, 2010; Westley et al., 2011). The undesirable cycle of road fatalities can transform into a positive cycle in socio-economic sustainable development.

Wheeler et al. (2003) discussed the creating of business value in the awakening of globalization and international security, interwoven in the business ideas of corporate social responsibility, sustainability development, and stakeholder approach to strategic management. Wheeler et al. described the value network as aligned to three levels, including (a) level 1 is compliance culture with minimum harm standards, (b) level 2 is organization relationship culture, and (c) level 3 is the sustainable organizational culture or do the maximum good. Road safety is a call for the involvement of all stakeholders at the international, national, regional, and community levels. The involvement will include among others, members from the media, nongovernmental interest organizations, policymakers, and political leaders (Carroll & Shabana, 2010; Fassin, Van Rossem, & Buelens, 2011; Hargreaves & Fink, 2012; Lizarzaburu, 2014; Pedersen & Gwozdz, 2014; Prno, & Scott Slocombe, 2012).

The leaders of UBOA for buses, UTODA for mini buses and special taxis for hire are to embrace corporate social responsibility (CSR) ideology to thrive. Kopits (2004) asserted that multiple-occupancy vehicles account for fewer traffic injuries and fatalities compared to vehicles with single occupancy. Additionally, the business models of business-to-customer care and business-to-business interconnectedness and mutual respect in a competitive world are instrumental in reducing road fatalities.

The driver-to-passenger and driver-to-driver performance is key to improving road safety. Furthermore, leaders of national organizations should reach out to international authorities in the value based networks (VBN) spirit to improve their experience in curbing road injuries and fatalities. Similarly, driver training should properly align drivers' understanding with traffic laws, to use road signs and markings correctly at all times on all roads to reduce road fatalities.

Traffic composition. Traffic composition is essential in RMS because of its use in estimating and projecting the number of vehicles over the designed life of the road. The axle load of different vehicles expressed as the equivalent standard axles (ESA) is an indicator on the required road load bearing capacity. Such a parameter is necessary for the design of the road pavement structure. The road pavement designs should allow for portions of the road for different loading capacities ranging from light, light heavy, heavy, and very heavy loads. The allocation of particular sections of the road to different traffic functionalities enhances safety (Dablanc, Giuliano, Holliday, & O'Brien, 2013; Madeley, 2004; Pollack et al., 2012; Ramessuret al., 2010; Russo, Kay, Savolainen, & Gates, 2014; Savolainen, Gates, & Datta, 2011; Stanojević, Jovanović, & Lajunen, 2013).

Kinzenbaw (2008) identified a group of vehicles comprised slow-moving farm vehicles, horse drawn carts, and mopeds. The list could entail pedestrians, bicycles, motorcycles, cars, mini buses, buses, trucks, articulated trucks, or trailers. Road safety consideration for trains and trams is necessary because of railway level crossings with roads. Traffic classification using speed consists of slow, fast, and very fast. The purpose of the classification is to determine which portion of the road or road to use according to mobility speeds of each class of traffic.

Traffic enforcement. Traffic enforcement, which is similar to the driver training discussed above, is necessary for safe, efficient, and effective traffic management. The continuum of traffic enforcement activities involves conducting pedestrians through safe crossing zones, motorists around accident scenes, routine checks on the road networks, and stopping and/or apprehending motorists. In addition, these activities can include recommendations for prosecution and sentence of traffic offenders. Officials from several countries use police constables attached to the traffic department for traffic enforcement and traffic management. In the United Kingdom, in addition to police traffic constables, members of the Highways Agency (HA) train and deploy traffic officers on the road networks to enhance road safety. The new officers from the HA create safe zones at incident scenes and assist traffic crash victims (Pollitt, 2009).

Traffic enforcement makes use of social and technology development efforts to achieve road safety objectives (Barrero et al., 2010; Dablanc et al., 2013; Pollack et al., 2012; Russo et al., 2014; Savolainen et al., 2011; Stanojević et al., 2013). The technology aspect compliments the human aspect in providing data on traffic offenders. Empirical studies conducted (Akdogan, 2012; Bochner, Brian, & Walden, 2010; Phillips & Sobol, 2012; Retting, 2010) on the discretion and decision making of traffic police constables to stop drivers. The results showed that police constables occasionally used racial and political sectarian aspects in executing their duties.

The preferential discretion on race of the police to stop motorists creates stigma or stereotypes among them. The police utilize technology-aided enforcement to manage the stigmatized and stereotypical attitude and behavior of offending motorists. The technology-aided enforcement provides substantial evidence to traffic offenses

committed by motorists. In Uganda, the traffic police's discretion in stopping drivers is upon information from Uganda Revenue Authority (URA) about the expiration date of the vehicle road license, routine route plied by the vehicle, and the age of the vehicle.

Traffic laws and regulations are for deterrence upon offenders and road safety (Ying, Wu, & Chang, 2013). The traffic laws among other matters address the (a) seat belt law, (b) speed limits, (c) driving while intoxicated, (d) penalty for traffic offenses, and (e) acquiring of driving license. The general observation is that traffic fatalities seem to be at a plateau despite the enforcement of traffic laws and regulations. Differing results exist about road safety and traffic enforcement efforts in several locations attributed to a couple of reasons. The reasons relate to the level of development and other parallel activities taking place along the road that affect safety (Witte et al., 2014; Ying et al., 2013).

Themes Informing the Research Project

The themes of (a) change management, (b) sustainability, (c) law and compliance, (d) complex and learning organizations, (e) strategy management, (f) qualitative decision making, (g) management of information technology, and (h) organizational development inform the research project. The RMS is evolving, and existing systems are ready for development. Change management is necessary to address the changing RMS. Road safety involves individuals abiding and complying with traffic laws and regulations. The TOTS need leaders aware of managing strategy, able leadership, and organizational development.

Transition and Summary

The existing urban transport business management related to the road management system has not been able to prevent the phenomena of increasing road injuries and fatalities influencing the GDP of Uganda. The identification of proper business management analyzes is a necessity to address the problem in the TOTS to stem the GDP loss. Various factors contribute to the loss of GDP such as road safety, poor road infrastructure, volumes of import and export trade, and volatile markets, among others.

The literature review included differing views about the problem. Traffic enforcement as a measure to improve road safety is counterproductive when some sections of the populace see it as revenue generating venture for the state. Moreover, driver behavioral habits and attitudes are difficult to change.

Overall, the road safety measures embedded in driver training, enforcement, and proper road infrastructure maintenance reduce traffic collisions and GDP loss. The purpose of the following Section 2 is to restate the research study in detail, explaining the role of researcher, and describe the geographical area of the study. In Section 2, I outline the reliability and validity of the study, threats to validity, and data coding, organization, and analysis of the study findings. The emphasis in Section 2 is on the research method and design. Additionally, the analysis of research instruments is under Section 2.

Section 2: The Project

RMS is the science of highway construction using business management considerations, such as (a) efficiency and effectiveness, (b) internal rate of return (IRR), (c) net present value (NPV), and (e) life cost cycle (LCC) to estimate the time and cost for maintaining rehabilitating, and reconstructing roads. To choose and implement the appropriate planning, programming, operations, and funding, RMS needs commitment from political leaders and decision makers who are within and outside the business management arena. Due to a lack of efficient and effective RMS operations in Uganda, many traffic injuries and fatalities affect the GDP. The intent of this qualitative, case study was to learn about participant perceptions regarding increasing road accidents and traffic jams in Uganda. The accidents and traffic problems are instrumental in GDP losses within the Kampala business district, the capital city of Uganda.

Purpose Statement

The purpose of this nonexperimental, qualitative, descriptive case study was to enable TOTS managers to identify changes in transport regulations that can contribute to decreasing (a) road accidents, (b) traffic jams, and (c) loss in GDP to improve road safety for business storeowners and customers. Such incidents result in a loss of taxable revenue base in companies in Kampala, Uganda; capital investments may go to other locations in the greater lakes region of East Africa. I used mixed strategies to collect the data: observations, interviews, archival documents, and questionnaires among individuals from eight nongovernmental, governmental, and corporate organizations. The eight organizations involved are

1. UBOA

2. UTODA
3. Multiplex Uganda Limited.
4. MOH
5. MIA
6. MFP&ED
7. MOE&S
8. MOWT

The explanations on the functions of these organizations are in the literature review. The results of this research study leads to positive social change by providing information to Ugandan companies on how to prevent the loss of GDP by reducing road accidents, thus saving lives and property and ensuring the delivery of safe, quality transport service to the people. The people involved in road accidents and traffic fatalities are usually between the ages of 15 and 54, which is considered the productive age segment. The business fraternity will have an additional investment portfolio of road safety related features such as traffic lights at junctions, CCTV cameras, car seat belts, and children car seats.

Role of the Researcher

My role was to create and plan a research study, obtain institutional review and approval, obtain permissions from the site or sites in which to conduct the research, gain entry into the field settings selected, ensure cooperation of the respondents, interrelate without affecting relationships with respondents, and protect the privacy of respondents (Walden, 2011). Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), and Silverman (2013) observed that, for a qualitative

research design, the role of the researcher as the prime data collection instrument should be clear; the researcher must disclose is his or her personal values, assumptions, and biases brought to the study.

Road safety procedures cannot be standardized or precisely specified in advance of data collection in a qualitative study process. The purpose of the research study was to examine and explore how drivers prepare for theory and practical driving lessons, obtain driving licenses, and communicate to passengers aboard and other road users. Furthermore, an investigation was conducted on how the business model analysis of supply chain management, value chain management, and Porter's (2008) five forces within UBOA, UTODA, and Multiplex Uganda Limited can be implemented.

Participants

The purpose of the study was to understand the everyday experiences and events of participants using a case study research design. Furthermore, the goal was to understand and describe the perceptions and meaning attached to the experiences as expressed by the participants (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). The individuals from nongovernmental, governmental, and corporate organizations involved in urban transport business, road safety, and RMS were appropriate points of contact for acquiring volunteer participants. Officially known contacts within urban transport business and management were vital in acquiring volunteer participants for this research study who were familiar with road management and road safety.

Intimate friends and family relations did not participate in the study. All participants signed a consent form (Appendix A) prior to participating in the study. The

venue for the interviews was at the discretion of the volunteer participant, and a representative of the participating organization in the study signed an Informed Consent: Permission to Use Premises (Appendix B).

Research Method and Design

The research method and design section includes a discussion of the process, study design, population, and sampling of the study. Under method and research design, the qualitative research method and case study design analysis follows. The population size and sampling method discussion is included under the population and sampling.

Research Method

Qualitative studies are suitable for research on themes associated with leadership practice, decision making, and multidimensional nature (Blake & Gutierrez, 2011; Burgess, 2011; Bøgh Andersen, & Holm Pedersen, 2012; Denzin & Lincoln, 2011; Lesser et al., 2010; Onwuegbuzie, & Leech, 2010; Van De Camp et al., 2004). The phenomenon of increasing road accidents in RMS with a focus on road safety is multidimensional in nature with themes on leadership practice and decision making. Researchers using qualitative studies do not test hypotheses or offer new theories (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). I did not test hypotheses. The purpose of qualitative research is to explain the rationale of the specific phenomenon in its natural setting. Furthermore, the goal is to interpret, gain insights, derive ideas, identify, verify concerns, test findings in real life settings, and evaluate and validate the effectiveness of practices and beliefs (Allwood, 2012; Marshall & Rossman, 2010; Neuman, 2006). In this descriptive, qualitative research, I described

the phenomenon of increasing road accidents in Kampala affecting the Uganda national GDP.

Research Design

The case study research design is appropriate when working or studying an individual, group, community, or organization that illustrate the existence of a problem and indicate how to solve it (American Psychological Association [APA], 2009; Burgess, 2011; Marshall, & Rossman, 2010; Maxwell, 2012). Case study designs are typical for answering how or why research questions when researchers have little or no control over the behavioral events for phenomena in real life (Yin 2011). The design of the case study is to focus on (a) a single case or multiple cases exemplifying a trend of an existing problem as well as (b) how to solve the problem. In this context, the critics of the case study design affirmed that the study upon this research design does apply to other areas of society and locations on the globe (Yin, 2011). A case study on the phenomenon of increasing road accidents finds applications to other areas of society and locations across the globe. Road accidents do not discriminate upon race, creed, and nationality.

Population and Sampling

A population is a group of individuals, items or objects taken for measurement. Sampling is the technique of selecting a representative part from the group for determining the characteristics of the whole population (Bryman, 2012). The discussion of population and sampling in research follows below.

Population

The population for this study consisted of governmental, nongovernmental, and corporate organizational leaders involved in the TOTS, living and working in KCBD

with information in road management, urban transport, traffic management, business management, and road safety. The participants came from six nongovernmental, five governmental, and one corporate business of the following 12 organizations:

1. Uganda bus operators association (UBOA).
2. Uganda taxi operators and drivers association (UTODA).
3. Multiplex limited.
4. Ministry of health (MOH).
5. Ministry of internal affairs (MIA).
6. Ministry of finance, planning and economic development (MFP&ED).
7. Ministry of education and sports (MOE&S).
8. Ministry of works and transport (MOWT).
9. Arrive Alive.
10. Automobile Assurance Uganda.
11. Chartis Uganda Insurance Company.
12. Uganda Driver Standards Agency (UDSA).

The access to the volunteer participants was by *snowball* sampling. The population provided the sample of 30 voluntary participants. The participants were suitable to provide the needed data because of their involvement at an organizational and individual basis in the road management and road safety activities. Walden's DBA Program recommended 20 voluntary participants as a sufficient number for the study. Out of the 30 volunteers, 20 individuals participated in the data collection tools of open-ended interview and the open-ended questionnaire while 10 exclusively participated in the practical driving observation checklist.

Sampling

Invitations to volunteers to participate in the study were by using snowball sampling strategy from a group of individuals living and working in KCBD. A pilot study was vital in testing the study data collections tools. The participants in the pilot suggested names of potential respondents. Snowball sampling is chain sampling (Goodman, 2011; Martinez & Kim, 2012; Paquette, Bryant, & de Wit, 2012; Vanhove, Surmont, Van Damme, & De Ruyver, 2012). This sampling method involved confirming one participant with abundant information about the case for study. The participant would then tell where other qualified individuals could be located (Bryman, 2012). Road management and traffic management are dynamic topics, adopting and adapting the prevailing situation in the road transportation sector. In the study area, purposeful and random samplings are not appropriate due to the sensitivity and the punitive measures traffic offenses attract. Potential volunteer participants accessed by using snowball sampling are more responsive when they know that a recommendation was by an individual known and trusted by them.

The demographic questionnaire (Appendix E) was vital in excluding ineligible voluntary participants who were under age, expecting mothers, and could not read and write to participate in the study. The data collection tools were in English. Ineligible individuals never participated in the study.

The volunteer sample eligible to participate in the study were knowledgeable on (a) road management, (b) urban transport management, (c) traffic management, (d) road safety, and (e) business management. To achieve this, departments concerned with (a) transport licensing, (b) management of public structures, (c) funding of road construction

and maintenance, (d) traffic enforcement, (e) driver licensing, (f) driving schools, (g) health institutions, (h) insurance companies, and (i) road safety campaigns companies participated in the study. My concern was for the confidentiality and anonymity of the participants and organizations participating in the study. The following steps to protect the participants' rights were suggestions by Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), and Silverman (2013).

- Describe verbally and in writing a research plan and how data will be useful, so the participant clearly understands it.
- Obtain written permission from the participant to continue with the research.
- File a research exemption form with the Institutional Review Board.
- Inform the participant of all data collection devices and activities.
- Provide to the participant the verbatim transcriptions and written interpretations and reports.
- Consider the participants' rights, interests and wishes in making choices on reporting the data.
- Allow the participant to decide on anonymity.

The identified suggestions about participant sampling and the corresponding explanations on how to address concerns are under the section of the role of the researcher.

The purpose of the participant consent form (Appendix A) was to outline the rights of the working relationship between the researcher and participants in the study. The sampling of the volunteer participants occurred at the business premises of the participating organization. The researcher obtained permission to use the business

premises for the study from the organization through the Informed Consent: Permission to Use Premises (Appendix B).

Ethical Research

This section has a discourse about the following five themes (a) the methods for transferring the consent forms to and from the participants, (b) participant withdraw from the study, (c) incentives available to participants, (d) protection of participants, and (e) Informed Consent: Permission to Use Premises agreements. The participants received the consent form by email and physical delivery. The participant and the participating organization received the consent form and the Informed Consent: Permission to Use Premises respectively by physical delivery. The purpose of the participant consent form was to (a) present the researcher and the research study subject, (b) define the participants' rights including withdrawal from the study, (c) confidentiality, (d) participants' compensation, and (e) contact details of the researcher and the Walden University representative (see Appendix A).

There was no incentive offered to participants as stated in the consent form (see Appendix A). There was minimal professional risk to the participant by participating in the study. There is protection of the identity of the participants until the end of five years.

During data collection, I would introduce the research topic and purpose, the data collection tools to the volunteer participant. Once the volunteer participant consented to participate in the research study, I would proceed to present the data collection tools pack comprising the (a) consent form, (b) open-ended interview, (c) open-ended questionnaire,

(d) observation checklist, and (e) demographic questionnaire. The data collection would proceed after the volunteer participant duly filled, completed, and signed a consent form.

Data Collection

Six types of data collection tools may be used in qualitative research method and case study design (a) archived documents, (b) open-ended interviews, (c) observations, and (d) questionnaires (Gearity, 2011; Street & Ward, 2012; Yin, 2009). In this research study, documents, archival records, participant observation, open-ended questionnaire, and open-ended interviews were the data collection instruments used. Case studies, when used in research for theory building, are a frequent overlap of data collection with data analysis (Welch, Piekkari, Plakoyiannaki, & Paavilainen-mäntymäki, 2011). The discussion of instruments, data collection technique, and data organization technique follows.

Instruments

Interviews, observations, questionnaires, and archival documents were considered instruments for data collection (Welch et al., 2011). The instruments for data collection were (a) clear and short notes for later use, (b) collected and created tabular materials, (c) case study documents, and (d) initial open-ended answers narratives to the study questions proposed by participants (Yin, 2009). Data collection was by five procedures: (a) opened-ended interviews, (b) questionnaires, (c) observation checklists, (d) archival records, and (e) demographic questionnaires.

Open-ended interview. The use of open-ended interview instrument was in a face-to-face interview with the volunteer participant. The data collected by the open-

ended interview instrument was from 20 participants who volunteered from each organization identified for the study. The 12 participating organizations were:

1. Uganda bus operators association (UBOA).
2. Uganda taxi operators and drivers association (UTODA).
3. Multiplex limited.
4. Ministry of health (MOH).
5. Ministry of internal affairs (MIA).
6. Ministry of finance, planning and economic development (MFP&ED).
7. Ministry of education and sports (MOE&S).
8. Ministry of works and transport (MOWT).
9. Arrive Alive.
10. Automobile Assurance Uganda.
11. Chartis Uganda Insurance Company.
12. Uganda Driver Standards Agency (UDSA).

The open-ended interview instrument allowed for issues, claims, and concerns on the relevant themes of the research study that each organization represents. Guba and Lincoln (1994) proposed that interview questions on issues, claims, and concerns be relevant and appropriate for top-level organization management participants who have limited time. The issues considered include (a) participants not knowing what to do, (b) claims to be what they regard as right, and (c) concerns being what they acknowledge is wrong. The study used one-interview question (Appendix C).

The open-ended interview was in English. The official language in Uganda, for official government communication, legal transactions, and commercial business is

English. Official publication, print and digital media, and educational instruction in Uganda were available in English. The readability grade level of this open-ended interview was 12.

The concepts measured by this tool under the conceptual framework of the study were (a) management, (b) strategy, and (c) criminology. The interview question required the participants to give reasons for the increasing traffic jams and traffic crashes in KCBD, and how these influences business management. Under management, it is the follow of traffic and road safety information, managing of car fleets in public and private, drivers, and passengers at boarding and alighting points. On the strategy, it is on driving discipline, motivation of enforcement teams, and the goal driven efforts or campaigns to reduce identified vices and crimes in RMS and road safety. Under criminology, it is the theft of cars, motorcycles, traffic crimes, and corruption compromising the enforcement of traffic laws.

Questionnaire. The volunteer participant completed this data collection instrument in the presence of the researcher. The open-ended questionnaire was in English since this is the official language of education in Uganda. The coding and dating of participants' responses for purposes of identification and data analysis was a daily activity during data collection, to ensure protection of the participants against any organizational and institutional reprisals. The completing of the questionnaire opened with a short explanation script for the participant prior to answering the questionnaire (Appendix D).

The intent of 20 question open-ended questionnaire (Appendix D), with randomly arranged items, was to understand research study themes of road accidents, sustainability,

leadership and decision-making, as well as barriers to achieving safe transportation. Questions focused on availability and dissemination of road safety information; causes of road accidents, three-bottom-line of corporate social responsibility, corrective measures upon convicted traffic offenders, and possible recommendations to improve road safety, and RMS were in the tool. This instrument was the thrust of the study conceptual frameworks. The design of this data collection tool was to capture relevant themes under the management theories of classical and scientific as well as the human relations suitable for RMS. To achieve road safety features, applying the concepts advanced by the strategy theory should be a deliberate attempt by the officials of road management system and urban transportation management. The themes of road accidents and corrective measures for traffic offenses are under the theories of the culture conflict and biochemical theories of criminology theory.

Observation checklist. Data collection under observation could be covert or overt with researchers acting as (a) full participant, (b) participant observer, and (c) full observer (Bernard & Bernard, 2012). Bernard & Bernard believed that the participant observation, as a data collection instrument, is an excellent associate for archival research. Collection of data was possible by utilizing a 41-point observation checklist (Appendix E).

This instrument measured the study concepts addressed by the strategy and culture conflict theories. The goal of the observation checklist was to explore the driver training, relationship of the driver with car occupants and other road users on the road, car park on public service vehicles (PSVs), special cabs for hire, and private cars of 10-volunteer participants. The purpose of the observation checklist was to focus on the use

of car controls, adoption of the correct speed, car positioning on the road, an appropriate reaction to road signs and markings, connection with occupants and other road users, and tire tread condition. The readability grade level of this observation checklist is 9.5.

Observations occurred for both private and public transport and daily activities at clock tower roundabout on Entebbe road and the Wandegeya cross-junction on Bombo road. Furthermore, analysis of the archival documents of Uganda government policy papers such as (a) road safety, (b) Traffic & Road Safety Act of 1998, (c) Traffic & Road safety (Driving Schools and Driving Instructors), and (d) the Highway Code. The study proposed to produce an analysis matrix of the archival records based on (a) date of publication, (b) records content, (c) availability of the document in the public domain, and (d) proposed revision if necessary.

This instrument measured the ideas under the strategy and culture conflict theories. Under strategy theory, the strategy would be intentional and purposeful driver training to produce drivers that shall uphold road safety of other road users. Do road users demonstrate and display emotional intelligence and maturity to counteract the propositions of the culture conflict within the criminology theory?

Documents. Data collection from documents followed the criteria of (a) date of data publication, (b) application of the document information, (c) achieved data, (d) missing data, and (e) desired development data. The documents included the Traffic and Road Safety Act of 1971, revised in 1998, the Uganda Highway Code, the Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010. Christie et al. (2012) advanced road safety education among a dissident community at a City Council in

U. K. by the community in road safety agenda. The research study proposed to examine the access and availability of road safety documents in the public domain.

This instrument measured the ideas of the strategy theory under the conceptual framework of the study. Government policy papers list the identified concerns, intervention plan, monitoring and evaluation procedures during implementation, and the expected outcomes. The earmarked documents for the study are for the development of road infrastructure, road safety, driver training, and vehicle licensing.

Archival documents. This instrument measured the ideas under the management theory, culture conflict and biochemical theories of criminology. Archival records data collection was from the vehicle licensing board, Uganda revenue authority, driver-licensing agency, and record of traffic casualties at health centers and institutions. The goal of this effort was to understand if there is (a) consistency among different agencies on records keeping on the same subject, (b) appreciating of the numbers and trends on motorization, (c) isolating and recognizing traffic crash casualties by type and individuals involved, and (d) other modes of transport. The 12 archival records encountered in the study are:

1. An evaluation study report on Road Safety Management – Capacity Review in Uganda conducted by Consia Consultants of Denmark.
2. Record of vehicles licensed by the Transport Licensing Board.
3. Annual report of 2009 and 2010 by the National Road Safety Council.
4. Police annual road accidents records for Kampala City from 2007 to 2010.

5. The performance statement one-year road plan & expenditure programme 2010/11 and 2011/12 of the Uganda National Road Fund – Financing Road Maintenance (Uganda National Road Fund [UNRF], 2011).
6. Record of vehicles registered by Uganda Revenue Authority.
7. National Development Plan (2010/11 – 2014/15) of the Ministry of Finance, Planning, & Economic Development.
8. Unpublished Ph.D. Thesis – Reducing the Carbon Footprint from Transportation in Growing Cities: Application of City Planning Approaches in Kampala City, Uganda by Paul Isolo Mukwaya.
9. Road Safety Policy – Reducing Accidents by Design Draft by Ministry of Works and Transport (MOWT).
10. Highway Code for Uganda.
11. Traffic & Road Safety Act (CAP.361).
12. Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010.

The purpose of collecting data from the 12 archival records was to examine, the access and availability of these archival records to the public domain. Collecting data on aforementioned archival records was vital because the RMS is integral to three commons. The three commons include roads, bridges, and health facilities, which draw several meanings, interpretations, and intentions by users.

Demographic questionnaire. The demographic data collection collected the following (a) age, (b) gender, (c) level of education achieved, (d) ethnicity, (e) religion, and (f) vehicle ownership about the participant. Some of the causes of traffic accidents

are due to bad mechanical condition of the vehicle, condition of the road, and human error. Human error further subdivisions are (a) behavioral attitudes, (b) religious beliefs, (c) speeding, (d) emotional intelligence, and (e) general maturity. The purpose of demographics questionnaire was to inform the research study on type and personal characteristics of road users in different sections of the public. The demographic questionnaire tool measured the ideas in the conceptual framework of understanding the propositions of human relational theory and the culture conflict and biochemical theories of criminology.

The coding and the scores the concepts measured by particular instrument were pursuant to meanings drawn from themes discussed in the literature review as well as perceptions and understanding of the road users. The research method is a qualitative and as such, there are no calculated scores to attach meanings of the concepts measured. A descriptive case study that interprets gained insights derives concepts identify and verify concerns, test findings, validates and evaluates the practical ideas of practices and beliefs of participants identified by the study.

I designed the study with data collection instruments of records and archival as a means to triangulate and validate data collected by open-ended interview and open-ended questionnaire. Using a pilot study was vital in testing the data collection instrument for accuracy, data collected, and relevancy by practicing experts on the research study topic, academia, and road safety in the study area. The study ensured that participants were from both governmental and nongovernmental agencies.

I explained to the volunteer participants how to the complete the data collection instruments. The researcher completed the face-to-face interview tool by making notes in

the field notebook and audio recording on a smart pen. The other two instruments, namely, the open-ended questionnaire and the demographic questionnaire had spaces within the instrument to fill and complete by the volunteer participant. There was a script at the top of the instrument and an account in the consent form describing how to fill and complete the data collection instrument.

The raw data will be available by request from the researcher. The data in the appendices and tables formatted to the requirements of the final paper, as such, it is not raw *per se*. The raw data is under lock with access to it only by the researcher.

RMS and road safety have several variables classified into transit and road infrastructure. The transit is the vehicles along with goods and services provided by individuals and organizations. The transit operates on the road infrastructure governed by laws, regulations, specifications, and bylaws during construction, rehabilitation, maintenance, and operation. A case study design with a descriptive approach and qualitative method in nature is without predetermined variables. The themes encountered in the literature review as well as perceptions, meanings, and interpretations participants attach to aspects of road safety as the transit ply the road infrastructure is the descriptive report of the study findings, recommendations, and conclusions.

A research study with the snowball sampling, the foreknowledge of the caliber of volunteer participants, and working experience in the construction industry by the researcher, and the recommendations coming from the pilot study made it possible to select credible volunteer participants to participate in the study. The data collected by the records and archival data instruments was for triangulation and validation of the data collected by the open-ended interview and the open-ended questionnaire. The overlap of

data collection and data analysis provided an opportunity to check and re-check the data obtained for consistency, accuracy, and correctness. The archival data collection was from different departments of the organizations identified for the study, which was in itself a check on the data kept by different organizations on the same variables.

The research study used self-designed data collection instruments after Institutional Review Board, and the Walden College of Management and Technology checked them and approved the researcher to use these data collection instruments for the study. I did not use standardized research instruments in the study. Question 18 in the open-ended questionnaire and the observation checklist of the self-designed research instruments had some modifications following the recommendations of the participants of the pilot study (Appendix D & Appendix E).

The research study used self-designed research instruments. There was no need to obtain instrument or copy permission. In that respect, there is no permission or purchase receipt included in the Appendices.

Data Collection Technique

The data collection technique involved five types of data collection instruments, which are (a) observations, (b) interviews, (c) archival documents, (d) questionnaires, and (e) demographic questionnaires. The data collection procedures of observations and documents were for triangulation and validation of the open-ended interview and open-ended questionnaire data collection procedures of the study. Data collected using an interview instrument was for 20 voluntary participants. The research study followed the overlap of data collection with data analysis (Welch et al., 2011). The data collection, coding of data, chronological arrangement of data, and rechecking participants' responses

to open-ended interviews, questionnaires, participant observations, archival records, and documents were simultaneous and continuous during the data collection process.

In order to collect the data, I went to the venues and premises ready with data collections tools I had agreed upon with the volunteer participant. I used a field notebook and an audio recording device to collect data. The participants filled and completed their responses in the spaces provided on open-ended questionnaire and demographic questionnaire. The filling and completing of the open-ended questionnaire and the demographic questionnaire was in the presence of the researcher.

The conducting of the pilot study prior to data collection for the study tested the data collection instruments for accuracy, the type of data collected, and relevancy of the study by practicing professionals, academia, and road safety experts in the study area. I worked in the road construction industry in the study area, and I know practicing professionals, universities offering related courses related to the research study topic and road safety experts. The contacting of the pilot study participants was by email, telephone, and physically. I introduced the research study topic, design, and the data collection tools to the pilot study participants. After the pilot study, I made changes to the wording of question 18 of the open-ended questionnaire to avoid the identified ambiguity by the pilot study participants. Furthermore, I made revisions and modifications to the practical driving observation checklist with a holistic approach compatible to the details of the practical driving test.

Data Organization Techniques

The data organization used a matrix in Excel Spreadsheets detailing (a) research question or interview question, (b) data collection tool, (c) data yield features, (d) data

source, and (e) data analysis at the end of each day during data collection. Each data collection tool had a separate Excel Spreadsheet for easy identification and referencing of the source of data. I downloaded the recorded audio data to a computer with the help of appropriate smart pen software. Coding of the downloaded content enabled isolating the source of data. Along with downloading of audio recorded data, a verbatim transcribed was made the same day.

Casey, and Houghton (2010), Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), and Silverman (2013) juxtaposed data collection and data analysis as a simultaneous process in qualitative research. Such a consideration involves categorizing things, persons, events, and properties by features that distinguish them. During the data analysis procedure, coding of the data used different classifications to identify and describe patterns and themes from the perspective of the participants. The attempt to understand and explain these patterns and themes was desirable.

Data Analysis Technique

During data analysis, the data was organized and methodologically reviewed and coded. A record of significant thoughts of the participants was chronological. On a daily basis at the end of data collection each day, the transcribing of recorded interviews and the researcher's recorded observations verbatim continuously occurred. Review of the open-ended interviews, participants' questionnaire responses, researcher's observations, and archival data entries occurred each day. Table 4 is a list of each research interview question, data collection instrument, and the data point yields. The matrix was useful in the organization and initial analysis of the data collected.

Table 4

List of Research Questions, Data Collection Tools, and Data Point Yields

Research interview question	Data collection tool	Data point yields
RQ 1: Why are road accidents and traffic jams increasing within the Kampala business district?	Interview and open-ended questionnaire	Interview, open-ended questionnaire – questions 4 to 16
RQ 2: To what extent do driver training and issuance of driver licenses affect road safety?	Interview, open-ended questionnaire, archival records, documents, and observation	Interview, observation, archival records, documents, and open-ended questionnaire – questions 14 to 15
RQ 3: To what extent does the age of the vehicles and the issuance of vehicle operating license affect urban transport business and management?	Interview, open-ended questionnaire, archival records, documents, and observation	Interview, observation, archival records, documents, and open-ended questionnaire – question 19
RQ 4: What are the necessary urban transport business and management needs to improve the increasing road accidents and traffic jams?	Interview, open-ended questionnaire, archival records, documents, and observation	Interview, open-ended questionnaire – question 18, archival records, documents, and observation
RQ 5: To what extent do the traffic offense punitive measures improve driver training programs and attitudes?	Open-ended questionnaire, archival records, and observation	Interview, open-ended questionnaire – questions 8, 9,10, 15 & 20, archival records, and observation
RQ 6: How do the traffic enforcement efforts improve road safety?	Open-ended questionnaire, archival records, and observation	Open-ended questionnaire – questions 20, archival records, and
RQ 7: How can the road safety features and road signs be improved and protected to serve the designed objective?	Archival records, documents, and observation	Open-ended questionnaire – questions 1 to 3 & 13, archival records, documents, and observation
RQ 8: What help do the existing business organizations involved in transport operations and transport services require improving institutional capacity?	Interview, open-ended questionnaire, archival records, documents, and observation	Interview, open-ended questionnaire – questions 18 & 19, archival records, and observation
RQ 9: How can the road safety information be availed to all road users?	Interview, open-ended questionnaire, archival records, documents, and observation	Interview, open-ended questionnaire – questions 1, 3 & 20, public records, and observation

The computer program QSR NVivo 9 and Excel Spreadsheets were vital in qualitative data analysis Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), Silverman (2013). Additionally, the smart

pen as an audio recording device with in-built features of verbatim transcribing of recorded data was handy. The Excel Spreadsheets were the initial stop for transferring and analyzing the data from the data collection tools. These Excel Spreadsheets come with in-built data sorting mechanism helping to sort data according to the codes such as sort the data with words traffic crashes or traffic jams.

The QSR NVivo 9 qualitative analysis software was a vital tool in analyzing the data collected by the data collection instruments. The software allows the importation of data sources of audio and video, pictures, word processing documents, Excel Spreadsheets, databases, and portal document formats. The program allows the coding of the materials create data collection sources into nodes and allows the creation of nodes folders. It allows forward and backward check of coded data and classification of the nodes. It was possible with QSR NVivo 9 to input the researcher's insights and ideas.

In QSR NVivo 9, there is querying of the coding system. The program allows the display of the analysis results in charts. Furthermore, with QSR NVivo 9 data, review reports building and monitoring the progress of the project is possible.

The coding system pursuant to the themes of the literature review of (a) driver training, (b) leadership, (c) modes of transport, (d) road infrastructure, (e) road management systems, (f) road safety, (g) strategy, (h) traffic composition, and (i) traffic enforcement. Furthermore, the coding system included the following themes that were pertinent to the study

- Traffic crashes
- Traffic jams
- Road accidents

- Driver's license
- Vehicle licensing
- Traffic offenders
- Transport operators
- Transport service regulator
- Organization institutional capacity
- Corporate business enterprise
- Road safety information
- Consumption of transport services

The QSR NVivo 9 program the coding querying together with classification made it possible to analyze the data collected under the identified text codes.

The research study was in a natural setting in Kampala, the capital of Uganda. Therefore, the presentation of results is in a descriptive, narrative form report. Robust descriptions are the vehicle for communicating a holistic picture of the RMS with a focus on road safety experiences of road users in Kampala. The final research study is the researchers' presentations of the participants' experiences and the meanings attached to the study subject of road management, traffic management, business management, and road safety. Such actions allow the intended audience to experience the difficulties encountered and provide a lens through which they can consider road users' challenges in Uganda.

The conceptual framework of the study was upon the Classical and Scientific management theory, the Human Relations management theory, the Psychological modeling, the Culture Conflict and biochemical theories of criminology. The measure of

the concept of the Classical and Scientific management theory is the theme text codes of (a) driver training, (b) road infrastructure, (c) road management systems, and (d) traffic composition as these are about planning, organizing, and controlling. The theme text codes of (a) leadership, (b) transport operators, and (c) consumption of the transport service relate to the Human Relations management theory as these are about (a) attitude, (b) behavior, and (c) interpersonal skills. The strategy management theory relates to the topic text codes of (a) organizational, institutional capacity, (b) corporate business enterprise, (c) road safety information, (d) traffic jams, and (e) strategy. The topic text codes of (a) traffic enforcement, (b) transport service regulator, (c) driver's license, (d) vehicle licensing relate to the Culture Conflict of the criminology theory. The theme text codes of (a) traffic offenders, (b) road accidents, and (c) traffic crashes relate and measure concepts of the Psychological modeling theory and the Biochemical theory of criminology.

Reliability and Validity

Reliability is the repeatability of the instrument measurement, measured by (a) test and retest, and (b) internal consistency. Validity is the power of proportions, inferences, and conclusions reached by the study. These are the general validity types (a) conclusion validity, (b) internal validity, (c) construct validity, and (d) external validity as identified by Cook and Campbell (1979).

Reliability

These are the six approaches to attain internal validity suggested by Flick (2014), Lindlof and Taylor (2011), Rubin and Rubin (2011), Seidman (2012), Silverman (2011), Silverman (2013):

1. Triangulation of data: Data collection was through four methods (a) interviews, (b) participant observation, (c) archival records and (d) documents.
2. Codification checking: The continuous checking of the coding of emerging themes served as a check throughout the analysis process. Close interaction with participants given understanding of the context to grasp the participant's reality and meanings for interpretations. Such insight ensured the truth-value of the data.
3. Repeated observations at the study area: Continuous observations of similar cases occurred in the study area throughout the data collection period.
4. Research audit: The road safety-practicing professional and doctoral graduate served as study auditors.
5. Participatory research: The researcher got involved in all phases of the study, from the design of the project, checking interpretations and conclusions.
6. Clarification of research bias: Clarification of researcher bias is a meticulous analysis in this study project under the subheading *Role of the Researcher.*

Validity

The details for validity and generalizability for anyone interested in the study is available with the consent of the researcher and Walden University (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). A concern of the

study is the repeatability elsewhere in Uganda and the world, having the same development level as Uganda. The measurement instrument, using an interview and an open-ended questionnaire, developed for this study is available upon request for individuals interested in conducting a similar study. The study objective was to employ three techniques to ensure reliability. First, the researcher provided the overall focus of the study, researcher's role, participants' positions, basis for selection of participants, and the context for data collection. Second, the explanations on the utilization of triangulation or various methods in validating the data collection clarified. Such confirmation will strengthen the reliability and internal validity (Lindlof & Taylor, 2011; Rubin & Rubin, 2011; Seidman, 2012; Silverman, 2011, 2013). Finally, the researcher addressed the details on data collection and analysis strategies of the research methods and research design employed in this study. All phases of this study were subject to scrutiny by Walden University research reviewer experienced in qualitative research methods.

Transition and Summary

The study location area was in a natural setting of Kampala, the capital of Uganda. The purpose of this study was to provide TOTS managers with information for identifying changes in transport regulations that could contribute to (a) decreasing road accidents, (b) traffic jams, (c) contributing to the loss in GDP, (d) to improve road safety for business storeowners and customers, employer and employees' mobility; and (e) to improve, social, economic, and environmental influences. The research topic was road management system and road safety in Uganda for improving business-operating environments. Included in this section was a discussion regarding (a) the role of the

researcher as prime data collection tool, (b) designing and planning of the study, (c) obtaining the institutional review board approval, and (d) exhibiting acceptable professional and interpersonal relationships with the study participants.

The research method and design was a descriptive qualitative and case study respectively. The population consisted of administrative leaders from 12 governmental, non-governmental, and corporate organizations. The snowball sample size of 30 participants was of individuals intimately involved in road management and road safety.

The data collection techniques for the research included (a) interviews, (b) documents, (c) observations, and (d) archival records. The corresponding data collection instruments consisted of (a) open-ended interview, (b) an open-ended questionnaire, (c) an observation checklist, (d) a demographic questionnaire, and (e) reviews of archival documents and audio-visual records. Categorizing persons, events, and properties were instrumental in coding the data collected.

The data analysis occurred simultaneously and continuously with data collection using the computer software QRS NVivo 9 and Excel Spreadsheet program. Reliability and validity, or the repeatability and power of the proportions, inferences, and conclusions of the research study should ensure generalizability and external validity for the study. Section 3 contains a presentation of results using a robust descriptive, narrative form report. Rich descriptions of the participants' responses and understanding were the vehicle for communicating a holistic picture of the experiences of business storeowners and customers, employees' mobility concerning TOTS, traffic accidents, traffic jams, and congestion in KCBD.

Section 3: Application to Professional Practice and Implications for Change

In this section, I present the study purpose statement, the research question, and the conceptual framework. The descriptive presentation of the study findings includes the investigation, understanding, and the interpretation of the study research of the phenomenon of increasing road accident and traffic congestion affects. RMS and road safety are dynamic research topics that are evolving, adopting and adapting to the current business environment.

Overview of Study

The purpose of this qualitative case study was to enable TOTS managers to understand the phenomenon of increasing road accidents and traffic jams and its impact business storeowners and customers, employers and employee's safe mobility, and on GDP within the Kampala business district area in Uganda. In the research questions, I sought to answer *what, why, and how* the phenomenon features identified by the problem statement and purpose statement of the study hinder national development and have adverse social, economic, and environmental influences. Traffic jams and congestion affect the day-to-day operations of informal and formal businesses in different geographical locations. Employers lose person-hours for commuting employees.

The status of Kampala as a crossroads of the trans-Africa highways running in the North-South and East-West directions across the African continent is under threat due to traffic jams. Business enterprises of capital investments prefer other locations in the great lakes region of East Africa to Kampala because of traffic congestion. Previous empirical studies in the study location area of Kampala are on the theoretical frameworks of injury patterns, use of pedestrian overhead bridges, and carbon footprint of

automobiles upon the air quality. I sought to explore the involvement of effective business practice to reduce traffic congestion, invest in public-private partnerships of road construction, and provide information to the business owners about the impact of traffic accidents on businesses. Addressing the purpose for the study was not possible without the willing support of the identified organizations' leaders.

A sample of volunteer organizations, $N = 12$, from governmental, nongovernmental, and corporate organizations participated in the study. Out of $N = 12$, $n = 5$ were governmental organizations, $n = 6$ were nongovernmental organizations, and $n = 1$ was a corporate organization. The 12 participating organizations were

1. UBOA
2. UTODA
3. Multiplex Uganda limited.
4. MOH
5. MIA
6. MFP&ED
7. MOE&S
8. MOWT
9. Arrive Alive.
10. Automobile Assurance Uganda.
11. Chartis Uganda Insurance Company.
12. UDSA

The data collection instruments were an (a) open-ended interview, (b) open-ended questionnaire, (c) demographical questionnaire, (d) observation checklist, and (e) archival

records. I gave the data collection instrument to volunteer participants selected by snowball sampling who were willing to participate in the study. The participants filled out the participation consent form prior to participating in the research study. There were two sets of participants. The first set of volunteer participants, $N = 20$, participated in the (a) open-ended interview, (b) open-ended questionnaire, and (c) demographical questionnaire. Out of the sample $N = 20$, $n = 16$ were male, and $n = 4$ were female. The subsample $n = 7$ of participants were from nongovernment organizations, $n = 12$ were from governmental organizations, and $n = 1$ was from the corporate organization. The ages of the participants were between 29 years and 68 years. The participants' highest level of education was (a) $n = 1$ with Uganda certificate of education, (b) $n = 1$ with Uganda Advanced Certificate of Education, (c) $n = 2$ with a college diploma, (d) $n = 7$ with a university graduate degree; (e) $n = 2$ with postgraduate degree, and (f) $n = 7$ with a master's degree. This first set of participants involved in these data collection instruments declined involvement in the observation checklist instrument due to the allocation of cars for transport with authorized drivers. Table 5 shows the number of volunteer participants from the participating organizations that participated in the interview and questionnaire data collection tool.

Table 5

Open-Ended Interview and Open-Ended Questionnaire Participants

Participating organization	Number of volunteers
Uganda Bus Operators Association (UBOA)	1
Uganda Taxi Operators and Drivers Association (UTODA)	1
Multiplex Uganda Limited	1
Ministry of Health (MOH)	2
Ministry of Internal Affairs (MIA)	4
Ministry of Finance, Planning, and Economic Development (MFP&ED)	1
Ministry of Education and Sports (MOE&S)	1
Ministry of Works and Transport (MOWT)	5
Automobile Association of Uganda (AAU) Kampala	1
Arrive Alive Uganda	1
Chartis Uganda Insurance Company	1
Uganda Driving Standards Agency (UDSA)	1
Total	20

The second set of volunteer participants with a sample of $N = 10$ participated in the observation checklist instrument. Readily available drivers of the participating organizations participated in the observation checklist instrument. Two of the participants were learner drivers under a driving school instructor. There was a 2-day location observation of traffic during peak hours, in the morning from 8:00 am to 9:00 am and evening from 5:00 pm to 6:00 pm, at the Clock Tower roundabout on Entebbe road, the cross junction at Wandegeya on Bombo road. Table 6 shows the number of volunteer participants from the participating organizations who participated in the observation checklist data collection tool.

Table 6

Observation Checklist of Participants

Participating organization	Number of volunteers
Uganda Bus Operators Association (UBOA)	0
Uganda Taxi Operators and Drivers Association (UTODA)	1
Multiplex Uganda Limited	1
Ministry of Health (MOH)	2
Ministry of Internal Affairs (MIA)	1
Ministry of Finance, Planning, and Economic Development (MFP&ED)	1
Ministry of Education and Sports (MOE&S)	0
Ministry of Works and Transport (MOWT)	2
Automobile Association of Uganda (AAU) Kampala	1
Arrive Alive Uganda	0
Chartis Uganda Insurance Company	0
Uganda Driving Standards Agency (UDSA)	1
Total	10

The review of archival records was on the following:

1. Books with road safety information obtained from commercial bookshops.
2. An evaluation study report on Road Safety Management – Capacity Review in Uganda conducted by Consia Consultants of Denmark.
3. Record of vehicles licensed by the Transport Licensing Board.
4. Annual report of 2009 and 2010 by the National Road Safety Council.
5. Police annual road accidents records for Kampala from 2007 to 2010.
6. The performance statement one-year road plan & expenditure programme 2010/11 and 2011/12 of the Uganda National Road Fund – Financing Road Maintenance (UNRF, 2010c).
7. Record of vehicles registered by Uganda Revenue Authority.

8. National Development Plan (2010/11 – 2014/15) of the Ministry of Finance, Planning, & Economic Development.
9. Unpublished Ph.D. Thesis – Reducing the Carbon Footprint from Transportation in Growing Cities: Application of City Planning Approaches in Kampala, Uganda by Paul Isolo Mukwaya.
10. Road Safety Policy – Reducing Accidents by Design Draft by MOWT.

The books with road safety information included the following: (a) Highway Code, (b) Traffic & Road Safety Act (CAP.361), and (c) Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010. This data collection instrument of archival documents provided the triangulation of the data collected by the other three instruments of (a) open-ended interview, (b) open-ended questionnaire, and (c) observation checklist.

The reviewed documents depicted the fact that Uganda has existing road safety statutes and regulations acceptable to international standards. This aspect erases the study assumption that there is a disparity of Uganda road safety regulations with international standards. These reviewed documents provide (a) on one part an inventory of the existing governmental documents concerned with activities of vehicles and road accidents and (b) on the other part a thick descriptive, narrative, and analytical report form on the technical and managerial gaps in the road safety features, transport regulator, traffic management, road infrastructure structural deficiencies, and meager funding budgets. The element of business management is lacking, and it is what this study highlights.

Purpose Statement

The purpose of the qualitative descriptive case study design was to enable TOTS managers to understand the (a) phenomenon of increasing (b) road accidents, (c) traffic jams, and (e) the phenomenon's impact upon business storeowners and customers, employer and employee's safe mobility; and (f) on GDP within the Kampala business district area in Uganda. The targeted population consisted of governmental, nongovernmental, and corporate organizations involved in TOTS within the Kampala business district area in Uganda. The population was appropriate because Kampala business district had the majority of the state-owned enterprises, governmental and nongovernmental head offices, and with over 50% of the vehicle population in Uganda. Furthermore, the sample in the target population was top managers for nongovernmental and corporate organizations of SMEs and government officials of governmental ministries and departmental heads. Top managers of small, medium enterprises (SMEs) and officials of governmental ministries and departmental heads were appropriate because these formulate, and plan the overall enterprise strategy, and oversee daily activities of the departments respectively.

The implication for positive social change includes decrease in the loss of GDP by reducing the increasing road accidents to save lives, protect property, and ensure safe transport service delivery to the people. Traffic fatalities deprive families, society, and community of members in the productive age segment from 15 to 54 years (Ackaah & Adonteng, 2011; Dandona, Anil Kumar, Ameratunga, & Dandona, 2011; Desapriya et al., 2011; Eze, Kipsaina, & Ozanne-Smith, 2013; Hyder et al., 2012; Nordfjærn, Jørgensen,

& Rundmo, 2011; Peden et al., 2004; Sukhai et al., 2011; Yannis et al., 2011; Yannis, Papadimitriou, Dupont, & Martensen, 2010; Ziraba, Kyobutungi, & Zulu, 2011).

Research Question

The study sought to answer the research question of what strategies should managers of RMS use to design transportation regulations to improve road safety for business, storeowners, customers, employers, and employees' mobility in Kampala's business district. The research question was further developed into interview questions distributed into the data collection instruments of (a) interview (Appendix C), (b) open-ended questionnaire (Appendix D), and (c) observation checklist (Appendix E). The following were the research interview questions:

1. Why are road accidents and traffic jams increasing within the Kampala business district?
2. To what extent do driver training and issuance of driver licenses affect road safety?
3. To what extent does the age of the vehicles and the issuance of vehicle operating license affect urban transport business and management?
4. What are the necessary urban transport business and management needs to improve the increasing road accidents and traffic jams?
5. To what extent do the traffic offense punitive measures improve driver training programs and attitudes?
6. How do the traffic enforcement efforts improve road safety?
7. How can the road safety features and road signs be improved and protected to serve the designed objective?

8. What help do the existing business organizations involved in transport operations and transport services require improving institutional capacity?
9. How can the road safety information be availed to all road users?

A Brief Summary of the Findings

I present a brief summary of the study findings collected by the five data collection tools of (a) open-ended interview, (b) open-ended questionnaire, (c) archival records, (d) observation, and (e) documents. I present the study findings under the corresponding research interview questions. I present similar findings collected by different data collection tools together. The study findings revealed the following:

Open-ended interview, open-ended questionnaire, and archival records. The following are the brief findings of the foregoing three data collections tools:

1. Poorly maintained transit vehicles and road infrastructure.
2. Lack of standardized syllabi for driving schools.
3. Lack of proper urban transport management system.
4. Disparity exists in road infrastructure, the human population, and automobile growing numbers.
5. Weak enforcement of traffic laws.
6. Lack of political support in the road safety implementation.

Open-ended interview and observation. Under traffic laws and regulations, as well as Highway Code, the enforcement is lagging due to capacity building without supportive leadership and political will. Kampala business district signage is insufficient on vertical road signs and horizontal road markings hampering the Highway Code

application and interpretation. The two documents, the Highway Code and the Traffic & Road Safety Act (CAP. 361) are in short supply within the public domain.

Observation. The road infrastructure characterized with potholes, the traveled way being at the same level with roadside curbs and traffic islands. The surface and subsoil drainage system is old susceptible to damage and/or blockage. The transit in public urban transport, to a substantial degree comprises individual owners, having vehicles more than eight years old with poor maintenance regime. The side street parking bays reduces the available traveled road surface area. The city does not have sufficient walkways for pedestrians, dedicated riding lanes for pedal cyclists.

Each driving school operates and runs driver training syllabus, without equipment and facilities for the driver training who are to operate, light heavy goods vehicles (LHGV), buses, and heavy goods vehicles (HGV). The practical training facilities and equipment are not purpose-made for driver training. The motorcycle rider training schools are non-existent. The motorcycle riders locally known in Uganda as *boda bodas* do not get any rider training. The existing UTODA and UBOA are transit associations without proper organizational management structure to oversee the acquisition and management of vehicle fleets and spare parts, as well as, employees.

Open-ended interview and open-ended questionnaire. The operations and services of Uganda's urban transportation system for public transport are by the private sector on preferred routes determined by the location of transportation service providers' residences within Kampala area. There are no allotted route numbers as well as vehicle numbers to run on particular routes. The transport operators and transport services provision is on a haphazard management system that is only profit driven.

Documents. I obtained the following findings using the documents data collection tool (a) the Uganda traffic laws and regulations and Highway Code, (b) records of driving and riding licenses (c) records of motor vehicles and motorcycles registered in Uganda, (d) records of road traffic crashes, and (e) record of vehicles licensed for public transport service. There is a significant disparity in numbers between the record of vehicles and motorcycles registered and the record of driving and riding licenses. Over 60% of the study participants acknowledged seeing the Uganda Highway Code and the traffic laws and regulations documents for the first time.

Presentation of the Findings

The presentation of findings of the research study is in accordance with the nine-interview questions as collected by the five data collection instruments of (a) open-ended interview, (b) open-ended questionnaire, (c) observation checklist, (d) archival records, and (e) the demographical questionnaire below. The findings are from the data collected and analyzed by Excel spreadsheets and QRS NVivo 9 data analysis software. The findings presentation and discussion is pursuant to the literature review, research design, and method and conceptual framework of effective business practice proposed for the study.

Research Interview Question 1

1. *Why are road accidents and traffic jams increasing within the Kampala business district?*

The presentation of findings under this research interview question is under the themes of road accidents and traffic jams. The casual-effect of road accidents and traffic jams is partially bi-directional. Road accidents cause traffic jams, though, it is not

necessarily true that traffic jams cause road accidents. The insufficiently trained, impatient, and emotionally immature drivers could cause road accidents in traffic jams.

Road accidents. The findings on road accidents are from the data collection instruments of (a) archival records, (b) open-ended interview, (c) open-ended questionnaire, and (d) observations.

Archival records. Table 7 is a presentation of the frequencies of accidents and vehicle types involved within Kampala. There are a high number of minor and serious road accidents in comparison to fatal accidents. The accidents occur at peak hours during the day, over the weekend, and at festive seasons of religious celebrations as well as during national public holidays. The pedestrians are the principal victims of road accidents, followed by passengers, motorcyclists, and drivers. Among the pedestrians, the schoolchildren are a substantial number.

Table 7

Nature of Accidents and Vehicles Involved for Kampala between 2007 and 2010

	Nature of accidents			Vehicle type involved		
Year	Fatal	Serious	Minor	Motor vehicle	Motorcycle	Pedal cycle
2007	322	3,862	6,423	11,948	2,928	597
2008	555	4,350	7,116	15,618	3,430	632
2009	531	4,585	6,983	15,306	3,827	553
2010	697	4,975	6,480	15,793	3,898	488

Note: Source: Uganda Police – Ministry of Internal Affairs

Open-ended interview, open-ended questionnaire, and archival records. The causes of accidents within Kampala central business district are (a) untrained motor vehicle drivers and motorcycle riders, (b) old poorly maintained transit vehicles, (c) misunderstanding and misinterpretation of the road signs that are inadequate, (d) poor personal morals of road users, and (e) poor lagging traffic enforcement and implementation regime. A substantial number of automobile drivers and motorcycle

riders have forged driving and riding licenses. Table 8 is a record of motorcycles registered in Uganda and the number of valid riding permits in 2010. Out of the total of the number of motorcycles registered, about 30% of this total number was equivalent to valid riding licenses in 2010.

Table 8

Summary of Motorcycles and Valid Riding Permits 2010

Year	Total of motorcycles	Total of valid permits
2010	104,075	33,239

Note: Source: Uganda Revenue Authority – Ministry of Finance Planning and Economic Development and Face Technologies – Ministry of Works and Transport

The motorcycle riders do not have full safety riding gear such as (a) helmets, (b) gloves, (c) water and wind proof jackets, (d) sheen guards, and (e) safety shoes. The transit vehicles on the roads are hoary without proper functioning breaking system and malfunctioning car breaking lights (taillights) and signal lights. The loading of transit vehicles and motorcycles is in excess and dangerous to vehicle occupants and other road users. Consequently, the dangerous loading often renders the driver and rider to a non-comfortable sitting position to reach vehicle controls and operation.

Observation. The existing road signs are (a) few, (b) in different colors, (c) different lettering fonts, (d) in a state of disrepair, and (e) vandalized. The sighting of some road signs is poorly due to the location. Some road sign locations have obstructions of (a) other signs, (b) overgrown vegetation, and (c) obstructed by electric pole, telephone pole, streetlamp, building, or fence. The digital and electrical road signs and signal lights at roundabouts and junctions are occasionally off and/or malfunctioning due to unstable power supply. These deficiencies about road signs substantially contribute to the misunderstanding and misinterpretation of traffic signs to road users.

A good number of the motorcycle riders, *matatu* drivers, and pedestrians exhibit poor human morals in the course of using the road. It is a common sight to see car drivers, motorcycle riders, and pedestrians busy on hand-held cellular phones while crossing the road at junctions during peak hours. Motorcycle riders ride in the opposite direction (a) against oncoming traffic on one-way roads, (b) pass over traffic islands, (c) ride on while traffic signal lights are red, and (e) cross over the central median on dual carriageway roads into approaching traffic.

Open-ended interview. The enforcement of traffic laws and regulations is lagging. The reasons are various that include (a) understaffing of the workforce, (b) poor remunerations packages of workforce, (c) corruption, (d) lack of political will and support, and (e) lenient legal sentences against traffic offenders. Lack of stopping and reprimanding motorcycle riders who have excess and dangerous loading, riding on while the traffic signal lights are red in front of traffic constables demonstrates the lapse in the enforcement of traffic laws undermining road safety.

Traffic jams. The presentation of findings of traffic jams is from the data collection instrument of (a) open-ended interview, (b) open-ended questionnaire, and (c) archival records.

Open-ended interview and the open-ended questionnaire. The human population growth, the increased number of vehicles, in addition to the narrow roads, without the appropriate and properly planned road maintenance, construction, and reconstruction schedules are the factors contributing to traffic jams within the central business district of Kampala. As it is true for road accidents, the improper use of the road by careless road users such as untrained car drivers and motorcycle riders contribute to

traffic jam. It is common to see in Kampala central business district more traffic lanes of live vehicles in practice than the designated lanes marked out on the road. The explanation for this phenomena is because road users are impatient displaying lack of emotional intelligence and do not understand road markings while using the road with other road users (Crundall et al., 2010; De Winter & Dodou, 2010; Lenne et al., 2011, Tronsmoen, 2010; Wang et al., 2010; Underwood et al., 2011).

Archival records. Table 9 is a record of vehicles involved in road accidents at the national level and Kampala. Summing up the national values and Kampala values in Table 9, Kampala accounts for 58% of the national total over the period between 2009 and 2010. The value account for Kampala is more than half of traffic crashes out of the national numbers.

Table 9

Vehicles Involved in Accidents for National and Kampala between 2009 and 2010

	National			Kampala		
Year	Motor vehicle	Motorcycle	Pedal cycle	Motor vehicle	Motorcycle	Pedal cycle
2009	24,391	7,575	1,965	15,306	3,827	553
2010	24,528	8,078	1,806	15,793	3,898	488
Total	48,919	15,653	3,771	31,099	7,725	1,041

Note: Source: National Road Safety Council – Ministry of Works & Transport and Uganda Police – Ministry of Internal Affairs

Conclusion. Road accidents and traffic significantly affect business and business management within Kampala central business district. The annual record on loss of human life and the destruction of cars represent the magnitude of the problem. The preference for other locations within the region by regional and global investors sighting the loss of person-hours, high-vehicle operational costs, and increased travel time attributed to traffic jam allude to this effect upon business. In the same vein, skilled labor

and entrepreneurship are lost due to serious and fatal road accidents. Furthermore, minor and serious road accidents increase medical expenses, with social impact of traumatized victims affecting normal business management of employing organizations. These occurrences result into high-insurance premiums attributed to high frequency of return of travel insurable risks and diminished state revenues due to loss of a taxable base of individuals and business organizations. The business organizations' owners and managers in the health services and funeral services in the private sector are registering high turnover with increased road accidents. Complete eradication of road accidents is not possible; however, the Uganda case has room for improvement to acceptable limits in relation to the current number road accidents occurrence. Administrators of major international cities have applied means of introducing a levy of city congestion fee to motorists to limit the transit jams in combination with subway railway system and efficient government subsidized city rapid bus transit service.

Research Interview Question 2

2. *To what extent do driver training and issuance of driver licenses affect road safety?*

Driver training and issuance of driver licenses are vital road safety aspects in keeping Kampala roads safe. The following issues stipulate the essential elements requirements in driver training and issuance of driving licenses (a) the training materials, (b) driving instructors, (c) facilities, and equipment of the training schools, (d) the theory and practical testing centers, and (e) the driving license-issuing agency. The essential elements needed for the driver training only available in short supply for the public domain, are (a) Traffic & Road Safety (Driving Schools and Driving Instructors)

Regulations 2010, (b) Traffic & Road Safety Act 1998 (CAP. 361), and (c) the Highway Code. The presentation of findings is under the themes of driving training and issuing of driver's license.

Driver training. The findings presented under the theme of driver training under this research interview question are from the data collection tool of (a) open-ended interview, (b) open-ended questionnaire, and (c) observation checklist.

Open-ended interview and open-ended questionnaire. The existing driving schools are operating as business entities without adequate enforcement by regulatory agencies' managers. The driving schools do not have a standard driver-training curriculum. The driving training schools use different training materials and non-complaint vehicles for the purpose of driver training. The driver training is inadequate without proper training facilities for both theory and practical lessons. The emphasis is on practical lessons in non-purpose made driver-training cars with little effort allowed to train drivers for (a) buses, (b) light heavy goods vehicles, and (c) heavy goods vehicles. The driver training instills and imparts theory and practical driving knowledge and skills to the learner driver. When the learner does not acquire sufficient driving skills during the driver training, it affects road safety on the Kampala roads. The driver training schools operate under the auspice of the Ministry of Works and Transport without regular inspection and supervision to assure compliance with the stipulated standards of vocational education institutions under the Ministry of Education and Sports.

Observation checklist. Among participants in the practical driving checklist, 90% demonstrated non-compliance with the Highway Code by not keeping in the right lane while approaching junctions including roundabouts. The same percentage of the

participants did not demonstrate the correct use and sequence of the mirror-signal-maneuver, and rule of thumb to keep three seconds following distance to another car or the motorist in the back car able to see tires on the road of the car ahead. Eighty percent of the observation checklist participants saw the Highway Code for the first time in their driving career. All the observation checklist participants showed weak anticipation of hazards while approaching stationary cars, passing obstructions, and while overtaking. The participants did not show readiness to come to a complete stop behind the hazard point on the approach.

Issuance of driver's license. The findings to the issuance of driver's license under this research sub-question are from the data collection instrument of (a) archival records, (b) open-ended interview, (c) open-ended questionnaire, and (d) observations.

Archival records and open-ended questionnaire. There was a conversion from paper permits to sealed paper permits with enhanced security features. This change of issuing driver's and riders' licenses reduced the forging of driver's license. Table 10 is a record of learners' permits, converting paper permits to sealed paper driving permits and extension of driving permits. Issuance of a driving license or riding license is to a driver or rider who has successfully completed the theory and practical driving tests at the Uganda Police testing centers. As it is with the curriculum for the driver training, the practical driving test is not standardized as stipulated in Article 41 of the Traffic and Road Safety Act 1998 (CAP. 361). The conducting of the test is variable dependent on attitudes and requirements of the examiner towards the learner driver's ability to comply with non-documented demands. Respondents estimated over 50% of learner drivers' bribe the examiners and did not take both the theory and practical driving tests. The

learner drivers have the option to pay up the driving license fee through the driver training school.

Table 10

Record of Converting Paper Permits and Learners Permits between 2005 and 2010

Year	Driving permit applications						
	Conversions of paper permit		Learners permit	New permit			Extension of permit
	1 Year	3 Year		1 Year	3 Year	Extension	
2005	402	2,464	3,597	454	882	0	0
2006	1,058	12,375	21,078	3,446	7,695	0	30
2007	1,234	26,360	36,298	6,413	18,202	221	698
2008	987	41,384	56,889	5,051	32,856	620	2,680
2009	269	46,012	70,105	671	53,352	1,313	7,380
2010	79	17,220	75,235	294	59,485	1,788	9,985

Note: Source: Face Technologies – Ministry of Works and Transport

Table 11 is a further record of driving permits in the exchange of foreign permits for Uganda driving permits, renewal of permits, conversion of new permits, and duplicates of permits, learners' driver permit, and temporary driver permit. Foreign nationals who would like to drive while living for a period of more than one year the stipulations require exchanging foreign driving permits with Uganda driving permits.

Table 11

Record of Exchanging Foreign Permits, Renewals, Conversion, and Duplicate Permits between 2005 and 2010

Year	Driving permit applications								
	Foreign exchange of permit		Renewal of permit		Conversion – new driving permit		Duplicate		
	1 Year	3 Year	1 Year	3 Year	1 Year	3 Year	Permit	LDP	TDP
2005	3	244	0	0	209	233	2	20	29
2006	6	1,038	15	214	503	1,020	132	301	274
2007	9	1,427	83	1,528	184	276	434	487	850
2008	12	2,279	152	5,305	53	380	1,313	970	1,918
2009	7	2,750	61	18,111	1	10	2,823	1,358	2,492
2010	8	2,537	47	32,095	1	0	4,048	1,454	2,820

Note: Source: Face Technologies – Ministry of Works and Transport

Note: LDP = learners driving permit; TDP = temporary driving permit

Table 12 is a summary of driving permits on the database of the ministry of works and transport (MOWT) issued between 2005 and 2010. There is a disparity comparing the number of currently valid driving permits of 33,239 in Table 12 against registered motorcycles each financial year between 2004/5 and 2008/9 in Table 13. The explanation is that not all motorcycle riders have riding permits.

Table 12

Summary of Driving Permits between 2005 and 2010

Class of permit	Total of permits	
	On system	Valid currently
A	41,471	33,239
B	415,533	353,885
CH	14,577	13,320
CM	91,454	80,102
DH	5,522	4,968
DL	34,087	30,873
DM	9,642	8,736
E	121	106
F	23	21
G	332	308
H	6,461	5,679
I	4	2

Note: Source: Face Technologies – Ministry of Works and Transport

Note: A = motorcycles; B = motorcars and dual-purpose motor vehicles; CH = heavy goods vehicles; CM = medium goods motor vehicles and heavy tractors; DH = heavy omnibuses; DL = light omnibuses; DM = medium omnibuses; E = combination of vehicles; F = pedestrian controlled vehicles; G = engineering plant; H = tractors; I = hover vehicles.

Table 13 is a record of vehicles registered in Uganda in the financial year from 2004/2005 to 2008/9. The record includes farm, construction, public and private transport vehicles. The general trend is that the vehicles registered in Uganda increased from 65,269 vehicles in the financial year 2004/5 to 148,907 vehicles in the financial year 2008/9.

Table 13

Record of Number of Vehicles Registered in Uganda between Financial Year2004/5 and 2008/9

Vehicle type	Financial year				
	2004/5	2005/6	2006/7	2007/8	2008/9
Cars	12,967	13,575	10,029	17,214	14,649
Minibus	147	214	169	373	383
Pickup	5,689	5,425	3,329	5,805	3,898
Van	3,546	3,116	1,811	3,948	3,716
Buses	86	86	95	300	372
Lorry	1,604	2,098	1,828	3,232	5,134
Tractor	680	257	185	355	589
Trailer	308	609	283	353	342
Tanker	35	57	45	86	123
Station wagon	4,396	5,601	4,546	9,111	12,554
Small trailer	18	54	14	65	35
Forklift	17	48	50	56	33
Earth equipment	319	190	175	352	590
Ambulance	78	15	34	33	36
Omnibus	168	18	7	25	23
Tipper	983	192	952	1,826	2,355
Loader trucks	0	0	0	0	0
Motorcycle	34,228	40,317	43,743	77,915	104,075
Total	65,269	71,872	67,295	121,049	148,907

Note: Source: Uganda Revenue Authority – Ministry of Finance Planning and Economic Development

Open-ended interview, open-ended questionnaire, and observation. The process of driver license issuance from enrolling a learner driver in a driving school to training, driving test, medical examination for fittest to driver, and receiving the driver license in Uganda is lagging, porous to counterfeit duplication, and abuse. The process is

substantially prone to unethical practices by participating parties. The traffic enforcement lacks relevant equipment for an on-spot verification of driving licenses. This lapse and loophole in acquiring driver's license puts a significant number of untrained, incompetent, and disqualified drivers on the Kampala roads rendering them unsafe.

Conclusion. The driving training and driver license issuance are lagging and prone to counterfeit duplication of driving permits and abuse of the driving license acquisition process. The participating entities defy the stipulated standing orders, laws, and regulations in non-professional and unethical practices leading to incompetent and unqualified drivers to be on roads in Kampala. Non-complaint driving training and driver license issuance pursuant to (a) Traffic & Road Safety (driving schools and driving instructors) regulations 2010, (b) Traffic & Road Safety Act 1998 (CAP. 361), and (c) the Highway Code substantially compromise road safety affecting business management.

Research Interview Question 3

3. *To what extent does the age of the vehicles and the issuance of vehicle operating license affect urban transport business and management?*

The findings to this research sub-question are from the data collection instrument of (a) documents, (b) open-ended interview, and (c) open-ended questionnaire.

Documents, open-ended interview, and open-ended questionnaire. The stipulated requirements for registering a vehicle and issuance of the vehicle-operating license were in the Uganda Traffic & Road Safety Act 1998 (CAP. 361). The Traffic & Road Safety Act 1998 (CAP. 361) does not define the age limit for car registration as

well as for issuing it with the vehicle operating license. The vehicles are registered and licensed into two categories (a) private and (b) public use.

Vehicle licensing. The findings to this theme of vehicle licensing under the research interview question are from the data collection instrument of (a) documents, (b) open-ended interview, and (c) open-ended questionnaire.

Open-ended questionnaire, documents, and archival records. The automobiles registered for private use are (a) cars, (b) station wagons, and (c) motorcycles. The vehicles registered and licensed for public use such as (a) buses, (b) omnibuses, (c) taxis, (d) light heavy goods vehicles, and (e) heavy goods vehicles require additional license by the Transport Licensing Board under the Ministry of Works and Transport. Table 14 shows the record of the class of vehicles involved in traffic crashes across Uganda in year 2009 and 2010. The vehicles at the top of the list involved in traffic crashes are (a) motor cars at 34.3% and (b) motorcycles at 22.9%. The percentages highlight the lapses in the vehicle inspection, registration, licensing, and regulations on age of the vehicles on the roads of Uganda.

Table 14

Class of Vehicles Involved in Accidents in 2009 and 2010

Class of vehicle	2009		2010	
	Number	Percent	Number	Percent
Motor cars	11,634	34.3	11,818	34.3
Dual-purpose cars	1,929	5.7	1,720	5
Light omnibus	4,708	13.9	4,970	14.4
Medium omnibus	385	1.1	255	0.7
Heavy omnibus	456	1.3	505	1.5
Light goods vehicles	2,477	7.3	2,551	7.4
Medium goods vehicles	1,278	3.8	1,395	4.0
Heavy goods vehicles	438	1.3	443	1.3
Trailers & semi-trailers	646	1.9	575	1.7
Fuel truck	139	0.4	141	0.4
Engineering plant	50	0.1	46	0.1
Tractors	91	0.3	57	0.2
Motorcycles	7,575	22.3	8,078	23.5
Pedal cycles	1,965	5.8	1,806	5.3
Pedestrian controlled vehicles	160	0.5	52	0.2
Total	33,931	100	34,412	100

Note: Source: National Road Safety Council – Ministry of Works & Transport

All TOTS should comply with Part V Licenses for public service, private omnibus and goods vehicles of the Uganda Traffic & Road Safety Act 1998 (CAP. 361). The study participants estimated about 20% of the vehicles on the roads not made for the function for the required transport service. The research participants cited transport service providers preferring to obtain operating licenses by compromising licensing officers to ignore the requirements for road worthy operating conditions of the vehicle on the standards checklist form. In standard practice, some factory purpose made trucks for heavy goods are converted and modified to run as buses.

Thirty percent of the study participants stated that annual vehicle inspection and testing regime suspended by a legislative act of parliament through a general political move was in return for political support. The legislative act enacted by parliament

abolished annual issuing of road licenses for vehicles. Furthermore, the study participants noted that sections of the populace that had old vehicles grounded during the reign of Idi Amin between 1971 and 1979 had them back on the road because of the legislative action. The main impediment to the sections of the populace to run their vehicles on the road was accrued vehicle inspection and road license fees stipulated previous vehicle regulations. The checking and inspection of vehicles are only once during the initial registration of the vehicle after importation into the country. The inspection and testing of vehicles after initial registration are the responsibility of the traffic police force that is inadequately equipped, with limited information on the required inspection test method, and understaffed. The inspection and testing of vehicles are manual by inspectors with inadequate information.

Table 15 is a record of public service vehicles licensed by the Transport Licensing Board of the Ministry of Works and Transport. The data reflect the whole country for the financial years from 2006/2007 to 2010/2011.

Table 15

Annual Summary of Public Service Vehicle Licensed Between Financial Year 2006/2007 and 2010/2011

Financial year	Tourist	Private service vehicle	Rental	Town taxi	Private motor omni bus	Country taxi	Boda boda	Owner's transport vehicle	Inland water vehicle
2006/2007	43	6,698	465	96	662	1	2,414	0	130
2007/2008	173	12,645	312	435	1,066	27	2,952	641	167
2008/2009	81	16,332	310	248	2,133	1	7,633	1,503	248
2009/2010	43	18,917	521	332	1,763	64	13,773	1,587	152
2010/2011	59	16,585	133	53	3,786	8	2,386	1,894	196

Note: Source: Transport Licensing Board – Ministry of Works & Transport

Conclusion. A sizeable number of vehicles operating on Kampala central business district roads do not undergo proper inspection and checking for safety and

mechanical condition for road worthy operation. A substantial number of the vehicles are more than 8 years old. This situation on the quality of the transit mix undermines road safety, quality of the air, and the general environmental ecosystem in Kampala coming from exhaust fumes with high carbon content and oil spillages. Furthermore, in business terms, intellectual property and patent rights infringement occurs by unauthorized conversion of factory design made vehicles. Substantial business opportunities exist for motor companies to supply to the Ugandan market with factory design made vehicles in the TOTS. The required factory design made vehicle supplies to the state-owned enterprises (SOEs), and SMEs are (a) buses, (b) sports cars, (c) taxis, (d) ambulances for emergency response unit, (e) motorcycles, and (f) goods delivery vans.

Research Interview Question 4

4. *What are the necessary urban transport business and management needs to improve the increasing road accidents and traffic jams?*

The findings to this research sub-question are from the data collection instrument of (a) open-ended interview, and (b) open-ended questionnaire.

Open-ended interview and the open-ended questionnaire. Urban transport business and management interconnects with other business enterprises involved in services and goods. Kampala central business district has businesses with small-scale economies. The central business district business enterprises are SMEs. The SMEs duplicate the services and products within the same area leading to congestion and crowding by customers and consumers. The urban transport business and management need the following to ease traffic jams and reduce road crashes and accidents within Kampala central business district:

1. Government subsidies.
2. Proper corporate business enterprise.
3. Good roads with proper road furniture.
4. Pedestrian walkways and proper crossing points.
5. Properly trained drivers and motorcycle riders.
6. Improve and regulate driving schools.
7. Properly trained and sufficiently equipped enforcement teams.
8. Improve parking areas.
9. Political will in enforcing the traffic and road safety laws.
10. Robust and closely associated organizations involved in the issuing of driver's licenses and vehicle operating licenses.
11. Introduction of railway and water transport.
12. Rigorous punitive measures for traffic offenders.
13. Continuous sensitization on road safety.

Government subsidies. The urban transport business and management is in the hands of individuals or the private sector without established organizational management structures and proper regulatory agency to oversee the operations. The government since the privatization of the transport state-owned enterprise in 1998 is not a pragmatic partner in the sector (Kibikyo, 2008). The partnership offered by government is through collection of taxes from the transport sector. The collecting of tax is by intermediaries such as UTODA, UBOA, and oil companies at fuel filling stations' managers. Collecting taxes by intermediaries such as UTODA and UBOA is by vehicle drivers and vehicles owners. The drivers hire the vehicles at a daily fee agreed upon verbally by car owner.

The real beneficiaries of these loose ends business arrangements are the intermediaries; that is, UTODA and UBOA, and the car drivers who under-declare actual revenues to state and vehicle owners respectively. This current arrangement in association with weak vehicle registration and inspection regulations promotes under declaration of the actual numbers of vehicles in the transport sector as well as revenue collected. This unethical business practice in the broadest terms reduces the taxable income base for the national treasury. The requisition by transport operators and transport service entities for state subsidy is to reduce taxes on fuel, lubricants, and waive duty on new vehicles imported into the country. The study participants noted that the import tax and duty exemption exists for (a) cultural and tradition leaders, (b) religious organizations, and (c) charitable nongovernmental organizations in the country; and recommended that the tax and duty exemption be extended to TOTS.

Create proper transport corporate business enterprise. UTODA and UBOA are associations formed partially to collect taxes for the state and poorly manage passenger boarding points, drivers, and vehicle owners. There is substantial opposition by the two associations, UTODA and UBOA, to the prospect of coming together to create a proper corporate business enterprise. The two associations comprise drivers, taxi owners, and bus owners. The vehicle owners should have one or more vehicles to be a member in the association. The membership is in the form of an entrance fee between 40,000 and 50,000 Uganda shillings to the association and a daily payment of a fee equivalent to journey transport fee of a passenger per loading at officially designated boarding and alighting points. Formidable barriers of entry do not exist to deter new entrants to the association.

Good roads and proper road infrastructure. Privately owned land dispersed around Kampala hinders proper physical planning and road schema of the city area. Kampala (a) roads, (b) road signs, (c) road markings, and (d) crash barriers are in a state of disrepair and insufficient. The deep and wide roadside drains and drainage are often open, with manhole covers missing. Substantial roads do not have designated pedestrian walkways, cyclist lanes, and bus lanes. The situation is dire for night driving due to poor lighting, malfunctioning electrical and digital road signs, non-retro-reflective road signs, and poorly constructed junctions. During the wet season, major junctions including roundabouts flood hampering normal traffic flow on the city roads.

Pedestrian walkways and proper crossing points. Kampala streets, avenues, and roads limit proper crossing points, pedestrian walkways, and subways. Pedestrians as road users are in substantial numbers during peak hours at major crossing points. Pedestrians as venerable road users have challenges to cross the roads, streets, and avenues at junctions including roundabouts due to lack of proper pedestrian crossing points. Motorists seldom stop at the few existing unprotected zebra crossings. These crossing points are often the scenes of road accidents.

Properly trained drivers and motorcycle riders. A substantial number of drivers and motorcycle riders do not have proper and enough driving and riding training skills. The number of vehicles and motorcycles is growing every day on the city roads. The car drivers and motorcycle riders display low emotional intelligence to other road users, as well as, disrespect existing traffic signals, road signs, and road markings. The vehicles are closely stacked together in traffic jams making it impossible to see tires on the road for the vehicle in the front. Motorists prefer to swivel around stationary obstacles or

vehicles brought to a sudden halt, occasionally into approaching traffic as the roads are single carriageways. In Table 16, I present a record of the causes of road accidents. Careless driving and dangerous driving are at the top of the causes of road accidents.

Table 16

Causes of Accidents in 2009 and 2010

Cause of accident	2009		2010	
	Number	Percent	Number	Percent
Careless driving	9,112	40.1	9,316	41.4
Reckless / dangerous driving	6,948	30.6	6,579	29.3
Over speeding	973	4.3	839	3.7
Overloading / dangerous loading	202	0.9	240	1.1
Under influence of drinks / drugs	249	1.1	194	0.9
Careless pedestrian	889	3.9	881	3.9
Passenger falls from vehicle	228	1.0	238	1.1
Vehicle mechanical defects	738	3.3	720	3.2
Dazzled by lights of another car	85	0.4	114	0.5
Obstacle on carriageway	96	0.4	76	0.3
Unknown cause (hit & run)	2,057	9.1	2,129	9.5
Other causes	1,122	4.9	1,135	5.1
Total	22,699	100	22,461	100

Note: Source: National Road Safety Council – Ministry of Works & Transport

Improve and regulate driving school. All the driving schools are operating as business profit-driven entities, not in accordance with Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010. The study participants mentioned that the proprietors and managers of driving schools as well as driving instructors do not have the necessary professional training and technical knowledge to operator driving schools. The quality of the premises, equipment, teaching materials, and the vehicles used for training do not meet the required statutory instruments 2010 No. 29 of the Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010.

Properly trained and sufficiently equipped enforcement teams. Forty-five percent of the participants believed that traffic enforcement teams are corrupt, poorly

trained and equipped to execute their duties. Associated with the corruption idea, the traffic department within the Uganda police force is attractive and preferred by new police constables and officers. Consequently, traffic enforcement deployment constitutes officers with inadequate equipment, information, training, and qualification for the tasks of traffic enforcement. The traffic enforcement tools and equipment for on spot verification and validation of the vehicle registration license and driver's license is either lacking or lagging. Occasionally, a possible source of misunderstanding and misinterpretation of traffic signals and signs by new motorists or visitors familiar with electrical or digital road signs, at some locations, is the manual signals by traffic police at junctions and roundabouts contradict the electrical digital signals in Kampala leading to traffic crashes and accidents.

Improve parking areas. The existing parking areas for taxis, buses, official designated car parks; and car parking bays along the streets, roads, and avenues are inadequate with increasing numbers of vehicles. The official car parks, and bus parks for public transport do not have enough space to accommodate all the vehicles currently operating within and without Kampala. There is competition for parking space by motorists and building developers. The building developers use the available road surface area marked for parking as stockpile area for building materials. Some of the cars parking bays along avenues and streets with foreign diplomatic missions and government buildings are not available to the public owing to car bomb threats by terrorists' organizations. The road maintenance, construction, and re-construction projects on the damaged road surface at car parking slots are made with laxity without due consideration for time, cost, and resources constraints leading to a reduction in available car parking

areas. Small-scale investors operate car parks with limited parking area charging high parking fees.

Political will in enforcing the traffic and road safety laws. There is a lack of leadership responsiveness and political will to enforce traffic and road safety laws against traffic crime offenders. The opposing sides in the political divide aligned along corresponding political base support undermine the enforcement of traffic laws amongst motorists. The officials of the Kampala City Council Authority with the incumbent ruling government on one hand and the opposition, on the other hand, do not agree on to handle the traffic challenge from motorcycle riders locally known as *boda bodas*. There is political rhetoric to handle motorcycle traffic offenders with precaution. Several political camps within the City of Kampala consider rigorous use of traffic law implementation and action against motorists as political persecution and intimidation. The study participants suggested that the implementation and enforcement of traffic laws not be consistent across the board in Kampala. Politicians, high-ranking government officials, and military officials break traffic laws at will without fear of punishment.

Robust and closely associated organizations involved in the issuing of driver's licenses and vehicle operating licenses. The process of acquiring a driver's license and vehicle operating license is porous and open to abuse by eligible applicants. There are four organizations involved in the process. For example, in the process of applying for driver's license there are (a) driving schools, (b) Uganda police traffic testing centers, (c) Uganda Revenue Authority, and (d) Uganda Driver's License Agency. These are autonomous or semi-autonomous entities without an established supervisory role over the

driver training process. The successful link among these agencies is the processing of the relevant paperwork from officials of one institution to another.

In some instances, the learner driver entrusts the entire process of acquiring the driving license with a driving school. During the process of acquiring the driving license, there is the physical attendance of the learner driver for (a) examination of the eyes by the doctor, (b) theory driving test, and (c) practical driving test. The non-physical attendance by the learner driver at eyesight testing center by a doctor and taking the practical driving test at the testing center renders the process porous and not robust.

Introduction of robust railway and water transport. Kampala is along the Uganda railway from Mombasa on the Indian Ocean West coast in Kenya to Kilembe in South West Uganda. Kampala railway station is at the city center along Jinja road and other two railway stations on the outskirts at Namanve and Nalukolongo. The physical location of Kampala is to the northwest shore of Lake Victoria with Nakivubo channel dividing the city into general along the west-east direction.

In Table 13, I present the record of inland water vehicles licensed by the Transport Licensing Board. Passenger train service and water transport are viable alternatives to ease traffic congestion and road accidents. Residents at Ggaba beach in Makidye division can travel to Luzira in Nakawa division by water on Lake Victoria. Similarly, Entebbe residents who do not have any business in Kampala central district can travel by water to the destinations.

Rigorous punitive measures for traffic offenders. Research participants urged that traffic offenses not be criminal cases; as such, traffic offenses do not require strong punitive measures. Articles from105 to 111 of Part IV – Driving Permits of the Uganda

Traffic & Road Safety Act 1998 (CAP. 361) with deterrent measures against traffic offenders were dormant until 2009. In accordance with the above deterrent measures, a driver or rider who causes death or bodily injury is liable to upon conviction a fine, imprisonment, and cancelation of the driving permit. There is no cancelation record of driving permits in Table 8 and Table 9. Very few traffic offenders appear to receive just prosecution in court. Furthermore, still very few traffic offenders get prison service sentences for the traffic offenses. As a result, Uganda prisons service does not have corrective program relating to traffic laws, regulations and enforcement for traffic offenders.

Continuous sensitization on road safety. The residents of Kampala get information about road safety through (a) print and digital media, (b) road signs, (c) road safety campaigns and rallies, (d) workshops, conferences, and seminars, and (e) road safety outreaches to places of worship and employee workplace. The road safety information reaches few people by (a) print media, (b) workshops, (c) seminars, (c) television, (c) campaigns, (d) rallies, and (d) outreaches to place of worship and employee workplace. Uganda has several broadcasting and telecommunication services with good television and radio signal reception around Kampala as well as 45 telephone lines per 100 persons (MFP&ED, 2011). There are 260 radio stations licensed with 192 operational as well as 50 television stations licensed with 39 operational. More people are reachable by SMS and FM radios, readily available on cellular hand phones. The above-mentioned means of communication are available to use in regular sensitization of the populace on road safety programs and campaigns.

Conclusion. There are tangible and valid numerous development needs for the transport business and management within Kampala. The required transport management needs are (a) institutional capacity building, (b) improved road management system, (c) good and supportive political will for traffic law implementation and enforcement across the board, and (d) continuous general public road safety sensitization putting to maximum use of the available means of communication. The necessary urban transport business and management changes are needed to improve the increasing numbers of road accidents and traffic jams that reduce the profits of businesses and storeowners.

Research Interview Question 5

5. *To what extent do the traffic offense punitive measures improve driver training programs and attitudes?*

The findings to this research sub-question are from the data collection instrument of (a) open-ended interview, (b) documents, and (c) open-ended questionnaire.

Open-ended interview, documents, and open-ended questionnaire. Articles 105 to 111 of Part IV – Driving Permits of the Uganda Traffic & Road Safety Act 1998 (CAP. 361) stipulating traffic offenses, were inactive until 2009. The drivers and driver training schools did not understand the gravity and magnitude of punitive action against traffic offenses. The partial ignorance about the stern punitive measures stipulated in the Uganda Traffic & Road Safety Act 1998 (CAP 361) created laxity and deterioration in the driver training programs as well as poor attitudes towards road safety by road users. The motorized road users are inconsiderate towards the non-motorized road users. The existing road maintenance, construction, re-construction, and rehabilitation programs do not have enough funding leading to inadequate consideration for road safety features for

non-motorized road users. The ignorance about punitive measures applicable to traffic offenses and driver training regulations is evident in driver training schools to the extent that car drivers and motorcycle riders are not aware of the possible harsh punitive measures for committed traffic offenses.

Traffic offenders. Very few traffic offenders appear in court. If the offenders appear in court, they do not receive the right and just prosecution. In practice, the court sentences delivered against traffic offenders do not have sufficient corrective measures. Moreover, if the traffic offenders receive prison sentences, the Uganda prisons service does not have a corrective and rehabilitation program on driving and vehicle regulations.

Conclusion. The punitive measures against traffic offenders are weak and ineffective. This situation leads to lack of emphases in driver training programs. The driving schools and corresponding driving instructors have a task to prove their worthy to society for poorly trained drivers they produce onto the roads. The full use of the traffic law against traffic offenders is required in the development of driving programs and attitudes.

Research Interview Question 6

6. *How do the traffic enforcement efforts improve road safety?*

The findings to this research sub-question are from the data collection instrument of (a) open-ended interview and (b) open-ended questionnaire.

Open-ended interview and the open-ended questionnaire. Road safety effort is a constitutional call to every citizen of Uganda. All citizens are to act dutifully while using the road. Individuals and organizations' leaders have misconceptions that the

enforcement of traffic and road safety is the sole responsibility of the police. Sensitization of the populace about this fact is necessary.

Traffic enforcement. There is more to do with the traffic enforcement efforts to relieve the prevailing situation of road safety. Participants cited the use of CCTV cameras when Uganda hosted the Commonwealth Heads of Government Meeting (CHOGM) in 2007 as a partial remedy to the traffic enforcement shortfalls. Participants observed there were smooth traffic flow and travel time greatly reduced for commuters.

The public outcry is that the traffic police constables corrupt tendencies overshadow the road safety element they are to enforce. The study participants pointed out that, traffic police constables receive money from motorists with (a) bald tires, (b) careless and reckless drivers, (c) dangerous loaded vehicles, (d) incompetent and disqualified drivers, and (e) vehicles with expired road operating licenses. Traffic crime culprits in these circumstances do not face the full force of the law that would have been a deterrent.

Few of the traffic offenders brought to the traffic court for a fair hearing receive just and punitive judgment. Very few or none receive a prison sentence. There are few driver license cancelations due to traffic offenses. Since the traffic enforcement sentences are not punitive. As a result, these are not deterrent. These scenarios on traffic enforcement undermine road safety.

The lack of political goodwill and support towards traffic enforcement are to blame for the increasing rate of punishable and avoidable traffic crimes. Participants attribute the inefficiency of traffic enforcement and intimidation of police traffic constables to political hounding. Owing to political support bases within transport

operations and transport services, the opposing political forces in Kampala accuse the traffic police of insubordination to political powers as well as suppressing supporters at different levels in Kampala Capital City Authority.

Conclusion. Individuals, organizations, politicians, and technocrats on road safety are instrumental in the enforcement of traffic laws. The lack of traffic enforcement with punitive measures has non-deterrent impact on offending vehicle drivers and motorcycle riders. The lack of robust traffic law enforcement undermines the standards of road safety. Alignment, consolidation, impartiality, and general ground on traffic enforcement as documented in road safety literature by all stakeholders are essential to improving road safety within Kampala.

Research Interview Question 7

7. *How can the road safety features and road signs be improved and protected to serve the designed objective?*

The findings to this research sub question are from the data collection instrument of (a) open-ended interview, (b) observation, (c) archival data, and (d) open-ended questionnaire.

Open-ended interview, observation, archival data, and open-ended questionnaire. A sufficient number of roads and streets in Kampala that were two-way are now one-way that are without road signs to signify that these are now one-way. Road markings for (a) separating lanes, (b) zebra crossing, (c) stopping area, (d) directional arrows, (e) edge line, and (f) centerline are shading and fading off in a state of disrepair. Safety barriers and guardrails are either vandalized or in a state of disrepair. The roadside curbs, roundabout curbs, and separation island curbs are at the same level with

riding a surface. Destination information signs, tourist information signs, and speed limit signs are nonexistent.

Road safety features and road signs. The plates of road signs, safety barriers, and guardrails disappear to local makeshift welding and fabrication workshops. The workshops produce steel charcoal stoves and steel boxes for schools. The off-cuts and scrap from these fabrications go to the steel mills that use scrap as their basic raw material. The national demand for steel products is between 60,000 to 80,000 metric tons per annum compared to the current production of 7,000 metric tons per annum without a reliable source of raw material continue to be a threat to road safety furniture (MFP&ED, 2011).

The road sign poles disappear to the building industry in the slums emerging around the city. These poles find use in erecting (a) makeshift garages, (b) metal workshops, (c) fuel filling stations, and (d) permanent buildings for structural strength and drainage purposes. These four types of building structures erected in slums emerging around Kampala do not have necessary building approvals from the planning department of Kampala Capital City Authority (KCCA).

Lack of proper routines and periodic maintenance of road safety features contribute to deteriorating levels of road safety. The study participants believed that rigorous enforcement of road safety and traffic laws is self-financing as demonstrated in current express penalty scheme used by the Uganda police force. Participants estimated that the state loses between 500 and 800 billion Uganda shillings in revenue collection due to traffic accidents. There is a public call to reinvest revenues from traffic crimes to improving road safety features.

Conclusion. The damage and vandalizing of road safety features stem from (a) road users, (b) inclement weather conditions, and (c) local innovators in the metal welding and fabrication industry. Proper anti-theft, prevention against vandalizing, and sensitization program to protect road signposts and road markings are important to improving and protecting road safety features. Routine and periodic general maintenance of road safety features are essential to improving and protecting road signs.

Research Interview Question 8

8. *What help do the existing business organizations involved in transport operations and transport services improving institutional capacity?*

The help the existing business organizations' leaders involved in transport operations and transport services need to develop institutional capacity is the basis of the feedback of different stakeholders about the transport services in Kampala central business district. The stakeholders are individuals within and without the transport industry. The findings are from the data collection instruments of (a) open-ended interview and (b) the open-ended questionnaire.

Improvement in business organization institutional capacity. The feedback from the following stakeholders help to understand the required improvement in institutional capacity of existing business organizations involved in transport operations and transport services (a) transport operators, (b) customers and consumers of the services, (c) policy formulators, implementers, and (d) regulators of the transport service. The transport sector evolved from state owned public transport enterprise to the privatized transport without government subsidies to unregulated highly competitive omnibus transport business (Mukwaya, 2011). The existing transport operators and

transport services business managers are without proper supply chain management, fleet management, customer care, and add value management. The TOTS business is a *child* of informal entrepreneurship prevalent in Uganda (Amu et al., 2012; Da Felice & Martucci, 2012; Szerb, et al., 2007). Formal entrepreneurship and organizational management are required for institutional capacity building and managerial equipping to increase the existing companies in TOTS. The informal entrepreneurs are the business managers themselves. The information of management as regards (a) people (organizational behavior), (b) resources (understanding of investment choices and financial statements), (b) environment (market place trends and preferences of the consumers), and (d) change (environment, legislative, business, and customer base) is lacking with the prevalent informal entrepreneurship.

Transport operators. Transport operators are entrepreneurs with a driver of high profits as the motivating factor. They are reluctant to merge with other entrepreneurs to create proper vibrant transport corporate enterprises. The information and advantages of corporate mergers and acquisitions lack the informal entrepreneurs in the transport sector. There is high competition among transport operators depicted as aggressive driving and over speeding, leading to car crashes and road accidents. Mergers in addition, acquisitions, reduce competition as well as increase the vehicle fleets.

Customers and consumers of the transport services. Customers and consumers cite overcharging and poor quality service of transport operators in the TOTS. The alignment of customer care and consumption patterns is not in the TOTS business mission and vision statements. The informal entrepreneurs do not have mission and vision statements. The major driver is high profits on the capital invested. The vehicles

used in the transportation of people are not design made, for example, omnibuses locally known as *matatus* receive modifications to have additional seating capacity different from the factory made seating capacity. The *matatus* are not fitted with functional seatbelts due to modifications in seating capacity. A vehicle with a seating capacity of 10 modified to have 14 seats. These locally made modifications reduce the normal sitting space substantially resulting in the discomfort of passengers. The untidiness of the car interior and the behavior of drivers contribute to discomfort of passengers.

The goods delivery vans and trucks are without pallets for easy loading and off-loading, secure tying straps and covering tarpaulins. Customers sustain substantial in-transit damages without appropriate mode of transport for goods. Transportation businesses have scanty information on supply chain management, fleet management, and customer care undermining the comfort and satisfaction of the customers and consumers.

Policy developers, formulators, and implementers. Since the enacting of transport sector's privatization or liberalization policy in 1998, without proper regulatory regime, the transport sector is operating on market place self-regulation policy. Participant's urge, the formulation and implementation of the liberalization policy was in haste. In Uganda, the defunct (a) Peoples Transport, (b) Uganda Transport Company, and (c) Uganda Cooperative Transport Union were non-profit making state owned enterprises (SOEs) at the time of liberalization. The lack of making profits by SOEs was due to dilapidated vehicle fleets and non-motivated managerial teams following reign of terror of Idi Amin and the civil war in the country. Furthermore, the default in paying back standing orders of the national debt to global financial institutions such as World Bank (WB) and the International Monetary Fund (IMF) worsened the survival of existing

SOEs in the transport sector. The officials of international financial institutions considered the defunct SOEs in the transport sector a liability and reason for defaulting by loan recipient countries like Uganda. Consequently, the officials of international financial institutions recommended to incumbent loan recipient governments at the time to formulate and implement policies on privatization and liberalization of non-profit-making SOEs including those in the transport sector for the case of Uganda.

Following privatization and liberalization of the transport sector, indeed, the primary private operators had huge margins, and the business was profitable. The privatization of the transport sector opened up the TOTS thereby bringing high competition that reduced profits and returns on investment significantly. Policy formulation, processing, and implementation strategies support the development in the institution capacity of TOTS.

Transport services regulators. The existing TOTS business does not have a significant regulator. The key components of the TOTS, such as

- Driver training
- Driver licensing
- Driver remunerations
- Driver discipline and dismissal
- Inspection and testing of vehicle mechanical condition
- Vehicle operating license
- Standard driving school curriculum,
- Transport services regulations

The lack of standardized regulations and standard regulators affect the institutional capacity of TOTS. The regulator is necessary for providing technical guidelines on TOTS investment for mergers and acquisitions, un-necessary competition on fair trading good practice.

Conclusion. The existing business organizations involved in TOTS are thriving on informal business management models without a regulator. The TOTS associations such as UTODA and UBOA bringing together *matatu* owners and bus owners respectively as well as drivers that do not have corporate enterprise management structures. Policy makers need making policies that will stimulate and increase capital investment, profit, quality service and business growth. A need for improvement in institutional capacity building for proper business management, traffic management, vehicle fleet management, human resource management, and strategy management.

Research Interview Question 9

9. *How can the road safety information be availed to all road users?*

The study participants indicated that road safety information is available from (a) books, (b) through digital and print media, (c) driving schools, and (d) word of mouth. The content of the road safety materials and the interest of the road users to have the information are in need of proper alignment.

Road safety information available to road users. I present the findings on road safety information available to road users were from the data collection instrument of open-ended questionnaire.

Open-ended questionnaire. Having knowledge and information is power. Kampala road users could be recipients of proper, timely data and information on road

safety from 10 sources. The first four sources are similar to international standards. Road users in Kampala get information about road safety through the following:

1. The Highway Code
2. Traffic & Road Safety Act (CAP. 361)
3. Driver training schools
4. Theory and practical driving test centers
5. Print and digital media
6. Vertical and horizontal road signs
7. Road safety campaigns and marathon rallies
8. Workshops, conferences, and seminars
9. Road safety outreaches to places of worship and workplace
10. Police traffic officers

The research participants were quick to add that road users lack road discipline and are not familiar with the availability of road safety programs through the existing information outlets. To improve the dissemination of the road safety information and knowledge, the government officials through the line Ministry of Works and Transport should give special priority to road safety campaigns as the Ministry of Health has made on the following health campaigns:

1. Eradication of polio among children under 5 years
2. Human immune virus / acquired immune deficiency syndrome (HIV/AIDS) awareness
3. Outbreak of Marburg
4. Outbreak of Ebola

5. Outbreak of chlorella

Fatal road accidents account for more deaths in Uganda annually in comparison to five diseases. A rigorous well-coordinated information dissemination effort is a pre-requisite in availing road safety information to all road users.

Conclusion. The existing road safety information and knowledge outlets are adequate but not put to optimum use to help road users. The emphasis for dissemination of road safety information is towards automobile drivers and motorcycle riders. The pedestrians and passengers are at the bottom of the priority list of road users with the current road safety information dissemination methods. The general populace does not receive the desired attention as the existing information outlets benefit only those who can afford them. Study participants believed that road safety information was not a priority for information outlets such as newspapers, radio, and television. Indeed, more energy is required to increase the availability of road safety information to all road users. Residents in the Kampala central business district are regular road users as (a) pedestrians, (b) passengers, (c) vehicle drivers, (d) horse riders, (e) driving herds of cattle, and (f) motorcycle riders as such it is crucial that they receive necessary road safety information. Well thought out road safety slogans that are eye catching and captivating, for example, *road accidents kill more than Ebola, Marburg, and human immune virus / acquired immune deficiency syndrome (HIV/AIDS) combined*, could raise awareness of all road users.

Applications to Professional Practice

Application of the study's findings to professional practice is based on the intent of the study problem statement, purpose statement, a conceptual framework, the research

question, and the study findings. This study depicts the fact that there is much to apply to business professional practice. The specific business problem is that the administrators within Uganda's TOTS and the National Road Safety Council need information to design transportation regulations for improving (a) road safety for business, (b) storeowners, (c) customers, (d) employers, and (e) employees' mobility, and (f) to obtain business managers' feedback on transportation regulations for their road management system in Kampala's business district. The purpose of the study was to identify changes in transport regulations that could contribute to decreasing road accidents, traffic jams, contributing to the loss in GDP, to improve customers, storeowners, and employees' mobility and safety, to improve business, social, economic, and environmental influences. Furthermore, from the study findings, I make recommendations for action to reduce road accidents thereby improving profitability for businesses. Application of the recommendations for action will save life and property consequently improving revenue collection.

The research findings present data and information useful in

- Strategic management
- Organizational behavior
- Analysis on stakeholder's identification and their values
- General forces
- Porters forces
- Detailed value chain
- Detailed strengths, weaknesses, opportunities, and threats (SWOT)
- Strengths, capabilities, opportunities, and threats (SCOT)

- Life cycle assessment
- The fitness landscape
- Sustainable value structure of RMS and road safety in Kampala applicable to business professional practice

Kampala has a population of 2.7 million people and 225,000 vehicles. The phenomenon of increasing road accidents in RMS and road safety brings together various professionals including (a) engineers, (b) surveyors, (c) business owners, (d) lawyers, (e) police constables, (f) prison wardens, (g) accountants, (h) doctors and medical staff, (i) insurers, and (j) all road users. The RMS and road safety as a convergence of people, technology, and processes bring together the three common infrastructure elements of roads, bridges, and hospitals.

Stakeholder Identification and Value Analysis

On stakeholder identification and their values, the phenomenon of increasing road accidents in RMS and road safety is a convergence of (a) bankers, (b) vehicle owners, (c) drivers, (d) insurers, (e) politicians, (d) engineers, (f) police constables, (g) doctors and medical staff, (h) lawyers, and (i) prison wardens. The RMS and road safety stakeholders are people in the (a) construction, (b) engineering, (c) supply chain, (d) spare parts stockholders, (e) passengers, and (f) all road users. Stakeholders' identification and the value categorization are under enterprise strategy classification and organizational culture structure in accordance to Meznar et al. (1990) and Wheeler et al. (2003) respectively.

Meznar et al.'s (1990) enterprise strategy classification depends on performance parameters of differentiation, generalization, and identification. Wheeler et al. (2003) organizational culture framework is in the business ideas of corporate social

responsibility, sustainability development, and stakeholder approach to strategic management. The data on stakeholder identification and value stemmed from the voluntary participants and organizations in the study. The stakeholders' identification and value in the RMS and road safety are at the level 1 of categorization, which aligns to a culture of compliance with minimum harm standards of performance parameters and business value concepts.

General Forces Analysis

Kampala is the capital of Uganda located in Central Uganda, East Africa, and great lakes region in sub-Saharan Africa. The General forces are on the general area of Kampala under the categories of economics, demographic (social and culture), government (legal and military), physical environment, and technology. Uganda is a land locked country that depends on the neighboring countries of Tanzania and Kenya for international trade transactions. The Ugandan economy is a rural economy and to a substantial extent reflects agricultural products of coffee, tea, and tobacco. The officials of the ministry of energy and natural resources in Uganda discovered deposits of natural gas and petroleum oil that is now at the exploitation stage. The global economic meltdown affected Uganda's economy reducing the amount of foreign exchange, high inflation, and weakening Ugandan shillings against various foreign currencies. With increasing road accidents and traffic jams, and poor road safety standards on Kampala roads, Uganda was not an attractive destination for capital investments.

Demographically, Uganda is a developing country with many cultures and ethnic groups that are friendly, approachable, and receptive with a younger population. The unskilled labor is available while the economy requires skilled labor. The labor force

comprises 48% of youths who are between 18 years and 30 years of age, and 81% are residing in the rural areas (MFP&ED, 2011). Socially, Uganda society values both the nuclear family and extended family relations. From the study findings, socially, road accidents and road crashes fatalities affect family relationships.

Uganda is a turbulent country on governance, legal, and military matters. The country had the reign of terror under Idi Amin between 1971 and 1979. From 1980 to 1986, the rule of law was non-existent with a civil war in Buganda region where Kampala is located. The country is at war in Democrat Republic of Congo, Central African Republic, and Somalia under the auspices of African Union. Pockets of resistance by armed gangs remain along the periphery boarders with the Democrat Republic of Congo and Southern Sudan.

The three branches of government, the executive, legislature, and judiciary, are existent. The legislature and judiciary do not exercise independence in carrying out duties. Uganda is a signatory to United Nations and some international standards and codes. The ratifying and domesticating of the international standards and codes is pending (MFP&ED, 2010). The research findings depict lagging in the enforcement of traffic laws and regulations, weak or non-existent transportation regulator due to lack of leadership support and political will.

The incumbent government of the National Resistance Movement (NRM) is in power since January 26, 1986. There are regular polls and elections for president, members of parliament, district leaders, and district women representatives after 5 years. There are pockets of violence and tensions during election campaigns and declaration of polling results. The antagonistic rhetoric on motorcycle riders locally known as *boda*

bodas by the two political opponents holding political offices within Kampala undermines road safety.

On the physical environment, Uganda is within the tropics, with a good climate throughout the year. Uganda has hot and wet seasons twice a year. The terrain is rolling with mountain rangers of Mt. Elgon in the East, Mt. Mufumbira in the South, and Mt. Rwenzori in the South West. The country has water bodies that include River Nile flowing in the northward direction, Lake Victoria in the South, Lake George, Lake Edward, and Lake Albert in the West, and Lake Kyoga in the center. Because of the excellent climatic conditions and vegetation that is evergreen throughout the year, the former prime minister of Britain Winston Churchill called Uganda the Pearl of Africa.

Uganda on the technology aspect is a developing country consuming technological innovations of the developed and industrious countries. There are 39 operating television stations; 192 frequency modulation radios are operating, and there are 45 telephone lines per 100 people (MFP&ED, 2011). The consumption of electric power is low, further affected by power blackouts. The research findings reveal no use of radar and CCTV in traffic enforcement along physical presence of police constables on the road. The general forces threats are more than the opportunities affecting Uganda as an attractive destination for capital investments. The matters at stake are reversible as the national development plan vision is to transform the Uganda society from a peasant to a modern and prosperous country within 30 years (MFP&ED, 2010).

Porters Five Forces Industry Analysis

The five forces of industry are (a) barriers to entry, (b) competitive rivalry, (c) available substitutes, (d) bargaining power of suppliers, and (e) bargaining powers of

buyers (Dasgupta, Gupta, & Sahay, 2011; Mahsud, Yukl, & Prussia, 2011). Porter's five forces of industry are on the TOTS. The TOTS constitutes (a) UTODA, (b) UBOA, (c) *boda bodas*, (d) train, (e) pedal cyclists, and (f) pedestrians. The threat of new entrants into the TOTS is high as it is cheap to acquire a *matatu* or *boda bodas* for commuting from one point to another in Kampala. There are no economies of scale as the ownership of transit vehicles is by specific individuals, reducing the profit margins of the business. The competitive rivalry is intense, depicted as aggressive driving and riding by drivers and riders respectively. There are available substitutes leading to saturation of the market. With many transit vehicles in the transportation matrix and available substitutes, the power of suppliers is weak, cutting into the quality of spare parts, fuel, and lubricants. The spare parts with stockholders are used parts locally known as *second hand parts.* Fuel and lubricants supply is from unreliable sources. The power of buyers for the transport service is strong who are sensitive to price and able to substitute.

The high threat of new entrants and high competitive rivalry reduces the profits of TOTS, thereby creating volatility. The weak bargaining power of suppliers undermines the high bargaining power of buyers. There is a high threat of substitution in TOTS. During a gridlock due to traffic jams, a pedestrian is faster than a transit vehicle in Kampala. Motorcycle riders are a preference to *matatus* in traffic jams to attend business appointments.

Detailed Value Chain Analysis

Road management system (RMS) and road safety add value to the goods and services through the operations of TOTS. TOTS have strengths, weaknesses, opportunities, and threats (SWOT), as well as, skills, capabilities, opportunities, and

threats (SCOT) enabling its entrenchment in the transportation sector in Uganda. There are different stakeholders involved in RMS and road safety with stakeholder value. Porter (2008) in addressing competitive strategic management lists *primary strategic values* and *secondary strategic values*. The strategic management values are (a) inbound logistics, (b) operations, (c) outbound logistics, (d) marketing and sales, and (e) service, which receive support by (a) firm infrastructure, (b) human resource management, (c) technology development, and (d) procurement. Transportation is the bedrock of inbound logistics and outbound logistics. The SWOT and SCOT analyzes details on TOTS emanating from this study's findings are:

Strengths

- Available vehicle fleets
- Available drivers
- Great experience in transportation

Weaknesses

- Weak vehicles more than 8 years old
- Lack of able leadership
- Informal management
- Insufficient driver training
- Lack of deterrent punishment of traffic offenses
- Lack of transport regulator

Opportunities

- Increasing urban population
- Discovery of natural gas and oil

- Formation of the Common market for Eastern and Southern Africa

Threats

- Available substitution
- Increasing accidents and traffic jams
- Poor road infrastructure
- Transfer of capital investments
- Deeply entrenched corruption
- Legal suits of intellectual rights and patent rights

The weaknesses are more than the strengths while the opportunities are less than threats. From the SWOT / SCOT analysis, the leaders of the TOTS should adopt the business management, strategy management, and change management theory concepts to change the current trajectory. The identified opportunities provide a solid foundation for TOTS to survive and thrive upon applying good business professional practices.

Life Cycle Assessment

The life cycle of road infrastructure and transit vehicles, has materials that are exhaustible, can be re-cycled, and with impact to the environment. The road infrastructure materials are (a) lateritic gravel, (b) lime, (c) cement, (d) water, (e) granite stone, (f) steel, (g) copper, (h) rubber, and (i) hydrocarbons (fuel and bituminous products). The transit vehicle materials are (a) steel, (b) rubber, (c) paint, (d) form, (e) leather, and (f) iron. The transit consumes fuel, oils, and lubricants to ply the roads. The damage to the road infrastructure, buildings, and vehicles in traffic crashes directly and indirectly affects the sources of the raw materials for the making of road and vehicles.

Fitness Landscape Analysis

A RMS with focus on road safety regulations is a complex system operating in a changing environment. The TOTS has evolved over time in Uganda. TOTS evolution is from state owned enterprise (SOE) to a privately run system with self-regulation. TOTS comprises (a) private cars, (b) taxis, (c) *matatus*, (d) *boda bodas*, (e) peddle cycles, (f) motorcycles, (g) animal pulled carts, (h) buses, and (i) pedestrians. Each of these TOTS division leaders seeks to gain preference by consumers with common deterrent to operations or extinction by road accidents and road crashes. The road accidents and road crashes to TOTS represent the valleys in the fitness landscape analysis In this valley on the landscape analysis, the motorist, cyclist, pedestrian, and the transit vehicle perish.

Sustainable Value Framework Analysis

The phenomenon of increasing accidents and traffic jams within the RMS and road safety has internal and external, present and future-sustainable values that are of concern to organizations' leaders at the national and international level. The activities of RMS and road safety are disruptive, using technology and leaving a carbon footprint. In addition, the activities pollute the environment, consume raw materials, and produce waste. Moreover, the activities draw the attention of civil society; need transparency, and connection with stakeholders. Finally, the activities affect climate change, deplete resources, and define poverty lines (Pearce, 2012; Senge et al. 2008). Leaders and stakeholders are concerned with the RMS and road safety need to innovate and reposition efforts in a legitimate, reputable manner by reducing cost and risks to having a sustainable growth trajectory.

The foregoing business management analyses on the study findings are applicable to the professional practice of business as outlined in the conceptual framework of the study based on (a) management theory, (b) human relations management theory, (c) strategy management theory, (d) culture conflict theory, and (e) biochemical theory (criminology theory). The analyzes bring to surface the business practice themes of (a) organizational behavior, (b) change management, (c) strategy management, (d) sustainability, and (e) leadership.

Organizational Behavior

Organizational behavior has roots in a person's personality type, aspirations and values of founding individuals and legacy and reputation of the business (Griffin 2013; Griffin & Moorhead 2012). In accordance with the concepts of the human relations management theory, organizations managers involved in RMS and road safety are to review the employees' reward and incentives policy for catalyzing efficacious changes stemming from implementing strategies.

Change

The findings and applicability to business professional practice analyzes isolate what should change in road management system, road safety concerning driver training schools, license of vehicles, and enforcement of traffic laws and regulations. The sluggish, long gestation period of pre-contract and post-contract in RMS must change. Adherence to road maintenance and project deliverables schedules is preferable to the status quos. Standardization of driving schools instructing curriculum and real implementation of the traffic laws and vehicle licensing regulations are desired changes.

Strategy

The formulated strategy policy should support corporate social responsibility, sustainable organizations, and attract all stakeholders including board of directors, the management team, employees, suppliers, and consumers. It is impossible with the advent of the information technology and global virtual networks for country leaders or company officials to act in absolute secrecy. It is crucial in this information technology age to act in transparency taking on broad stakeholder view in the business process.

Sustainability

The elements of triple-bottom-line of sustainability, social, economic, and environmental are under the heading of *Implications for Social Change*. The RMS and road safety stakeholders *take away* from the study is that the activities affect climate change, deplete resources, and draw poverty lines whenever a road accident or traffic crash occurs. The use of existing resources by the current generation should take into consideration for future generations, which is responsive performance and use of resources.

Leadership

To be successful, organizations require leaders who are visionary, inspirational, and success driven to address competition, mediocrity, to a reputable, successful state. Required able leadership must deal with the following issues coming from the study:

1. Transforming the existing informal management of TOTS business to a formal one.

2. Averting the possible legal lawsuits against infringement of intellectual and patent rights by converting the purpose of vehicles from the factory made design.
3. Understanding the existing business opportunities to supply vehicles for properly factory made purposes as (a) ambulances, (b) passenger and goods vehicles, (c) road construction plant and equipment, and (d) road side breakdown recovery vehicles to the Uganda motor business.
4. Requiring expertise in the monitoring and evaluation of roads within the city for timely intervention on maintenance, rehabilitation, and construction by country leaders or company officials in a properly established road management system.
5. Addressing the role of public. private partnerships in the tram or train and water transport on Lake Victoria within larger Kampala extra metropolitan and the surrounding towns.
6. Overseeing the reforms and improvements in traffic laws enforcement and implementation by SOEs.
7. Reducing and controlling corruption and vice across the organizations and stakeholders.

Implications for Social Change

Road accidents and road crashes affect (a) human life, (b) movable and in-movable assets, and (c) business management. Vehicles and motorcycles in TOTS in Uganda acquired by business loans from financial institutions require collateral security. The frequently used and acceptable collateral security is a land title. Occasionally,

financial institutions include photographs of developments made on the land as additional collateral security items. Frequently used method of paying back the loan for transit vehicles, and motorcycles are on monthly installments mainly coming from revenues from using the vehicle or motorcycle in the transportation service. The occurrence of a road accident or road crash has a ripple effect in the social, economic, and environmental aspects of society.

Social Change

The children of drivers have little time with the fathers as the nature of the driving work takes them away from home as early as 5:30 am in the morning to 9:00 pm in the evening. Children grow up without proper parental love, care, and relationship with their fathers. The father is away from home for long hours during the course of the day doing the driving work to make enough money to cover (a) the payback in monthly installments of the business loan, (b) fuel to run the car, (c) routine maintenance costs, and (d) upkeep of the family. There are anxiety and stress of other family members during the course of the day for the safe return of the in-transit family members, especially drivers and riders.

In the event that a traffic accident or traffic crash occurs, it could mean

- Failure in honoring payback of business loan or hire purchase of the monthly payment installments
- Loss of employment if the vehicle or motorcycle is beyond repair
- Loss of land title and developments on the land offered as collaterals to the lending financial institution
- Loss of life

The officials of financial institutions accept land titles and developments on the land as few motorists take out insurance policies as a buffer for the unforeseen occurrences and anticipated risks. The loss of life creates orphans, loss of productive citizens, employable base of drivers, and reductions in transport service to the populace. On the traffic accident or traffic crash scene, occasionally public practice mob justice by beating the driver or rider and burning the transit vehicle or motorcycle. Consequently, families of motorist involved in traffic crashes and traffic accidents survive without shelter and land upon which they depend for food production. The family members of the hospitalized victims of traffic accidents or traffic crashes must often stay beside the hospital bed nursing and attending to a family member for a prolonged time. Therefore, the family members of the traffic offenders undergo stress of legal and prosecution procedures in the courts of law and rehabilitation centers. The settling of traffic offenses involves money-changing hands with economic implications.

Economically

There is a monetary value attached to human life, movable and in-movable assets, and business assets involved in traffic accidents and traffic crashes. In accordance with the Traffic & Road Safety Act (CAP. 361), traffic offenses carry a fine between 5 currency points and 90 currency points. A currency point is equivalent to Uganda shillings (UGX) 20,000. Considering a fine of 5 currency points similar to Uganda shillings (UGX) 100,000, this is a substantial amount in comparison to average driver's earnings per month in Uganda.

The society with family members committing traffic offenses incurs financial expenses to support either the offender or the victim. Purchasing insurance policies for

life, travel, medical, and the vehicle is unfamiliar to Ugandans. The economic ripple implication to social change exacerbates as there are school dropouts of children, and selling of more land, probably including that of extended family members to settle traffic related offenses. The expenses include (a) compensation of victims, (b) hospital bills, (c) legal fees, (d) police bonds and sureties, (e) car breakdown services, and (f) repair and garage costs of the vehicle.

If the traffic crash or accident involved a goods vehicle supplying a particular area, society would not receive the service for a time. Incurring extra costs is foreseeable by supplies and consumers, in time and financial terms, to receive the same service away from the original service point close to both. If it is a fuel truck or an explosive truck, the economic implication to social change in society is of variety effects. Whatever vehicle is involved in a traffic crash or traffic accidents, the members of society will be affected through reductions in the availability of, and/or increases in the cost of, goods and services. These goods and services include but not limited to (a) postal services, (b) water and sewerage services, (c) ambulance services, (d) collection of garbage, (e) fuel in its various forms, (f) foods and beverages, and (g) passenger transportation services. Among the effects, there is damage to (a) farmland, (b) road infrastructure, (c) buildings, (d) human life, and (e) the environment.

Environmentally

There is damage to the environment whenever a traffic crash or traffic accident occurs. The environmental damage is in the form of (a) sound, (b) dust, (c) exhaust fumes, (d) petroleum products spillage, (e) destruction of flora and fauna, and (f) loss of exhaustible minerals involved in the production of the transit and infrastructure products.

Excessive noise from traffic collision involving vehicles and stationary obstacles, beyond standard decibels (dB) specified by the World Health Organization (WHO), could lead to (a) partial or total deafness in humans and (b) more accidents in homesteads living along streets, avenues, and highways. The source of dust from colliding objects in the traffic collision and exhaust fumes coming from fires of incomplete combustion of hydrocarbons can affect personal health. Incomplete combustion of hydrocarbons produces carbon mono-oxide, which is poisonous and has a greenhouse effect on the environment.

The traffic crash wreckage abandoned at the scene for a prolonged period could be a breeding place for pests and mosquitoes that affect human life in different ways. The pests such as rats and mice destroy foodstuffs as well as attract other dangerous creatures to human life like lizards and snakes. The anopheles mosquitoes spread malaria accountable for high infant mortality in sub-Saharan Africa including Uganda.

Road accidents and traffic crashes are unsustainable because of (a) human life loss, (b) destruction of business assets, and (c) exhaustible natural resources used in the production of vehicles. The current traffic fatality rate shown in Table 7 of more than one person and more than 40 cars on average per day involved in road accidents between 2007 and 2010 in Kampala is high.

Recommendations for Action

The recommendations for action are under actions for (a) business enterprises and individuals, (b) KCCA officials, (c) MOWT and MOE&S officials, (d) print and digital media, (e) the politicians, and (f) the public. Road safety is the responsibility of every citizen of Uganda as embedded in the constitution. The stakeholders in RMS and road

safety should embrace change management to attract capital investments. The recommendations for action are for short term and long term, and dependent on the availability of funds.

Business Enterprises

A substantial number of business enterprises and residential areas do not have a physical address displayed outside the business premises. The recommendation is that business enterprises should adopt a standardized plot number in the font, size, and color of business enterprise or residential premise display to the front of the premises seen from 25 meters. The implementation of this recommendation for action will ease location and identification of business enterprises by especially potential international customers. The foreign customers could be tourists upon returning to home countries would recommend the same to other future tourists.

Kampala Capital City Authority Officials

The recommendations for action by KCCA officials are:

- Repair, re-install horizontal and vertical road signs at approaches to junctions and roundabouts
- Sensitize the residents and visitors through road safety seminars on radio and television talk shows to protect road signs
- Repair and re-install streetlights at approaches to junctions, roundabouts, and public car parks
- Erect and install tourists' information boards
- Develop a strategic policy of limiting mobility of residents in search of services and products in a particular area of the city

- Establish a feedback and customer care center on urban transport management
- Establish an urban transport management regulator

The officials of KCCA are currently easing traffic congestion within Kampala by changing two-way streets to one-way streets and providing a provision of overhead pedestrian crossing points. KCCA efforts to keep the city clean and remove illegally erected building structures are ongoing.

As road markings at (a) zebra crossings, (b) junctions including roundabouts, traffic lanes, and (c) bus stops are fading and peeling. The recommendation for action is that KCCA re-instates the road markings. The informative, prohibitive, and regulative vertical road signs either are in a state of disrepair or completely lost. The recommendation for action is that KCCA repair and re-installs the lost vertical road signs. Install the one-way road signs on roads that are now made into one-way; speed limit signs to approaches of junctions, roundabouts, schools, railway level crossing, pedestrian crossing, and hospitals; and the road name signs. Place and locate the signs designated for road names at the beginning, equal intervals along the street and in the end for easy sighting and visibility by motorists.

KCCA is registering success on the keep Kampala clean campaign by using a mega phone announcer driving around the city streets, avenues and roads. The recommendation for action is that officials of KCCA sensitize the residents and visitors to Kampala to respect, protect, and follow the installed vertical road signs and road furniture. Properly installed and correctly followed road signs save lives. Traffic controls around cities like London and Edinburgh in England and Scotland respectively,

with narrow horse cart streets kept for heritage, have properly installed vertical road signs. The physical planning constraints of (a) funding, (b) private land, and (c) haphazard erection of building structures; proper traffic control is possible with informative, regulative, and prohibitive horizontal and vertical road signs.

Work is in progress to impede the crossing over at the (a) central median along dual carriageway roads, (b) pedestrian walkways by motorists, (c) and to develop a proper road drainage system. In addition, the recommendation for action is that KCCA repair and re-installs the streetlights to increase visibility for night driving. Uganda's location within the tropics, where there is sunshine throughout the year, and Kampala's geographic position at the equator, makes the lighting of the avenues, streets, and byways by solar power feasible.

Kampala has several tourists' attractions such as Kasubi tombs for the fallen Buganda Kingdom Kings (*Ssekabakas*), fort Jesus in Nakasero erected by Capitan Lugard for the British colonial government, and the beaches of the largest fresh water body in Africa, Lake Victoria. Erecting of tourists' information boards at appropriate locations, junctions, and along roads leading to the tourists' sites can enhance business in the hospitality industry for local and international customers. Self-finding and accessing of the tourist attraction site is self-rewarding as we live in the digital and cyber age of GPS. The self-finding of tourist site shall encourage privacy and security of tourists and their belongings in self-driven cars between the hotel and tourist attractive site.

Cities around the world are a brand name by the activities the city conducts. For example, Oxford city in England, its brand name is in the education offered by Oxford University. The efforts of the leaders of Oxford University to improve on the excellent

quality of education offered continue attracting international students, producing the political elite in the British government, and retaining world fame. Kampala is home to Makerere University that was the best tertiary institution in the great lakes region, hosting regional students who were the political elite in the regional governments in East and Central Africa. The recommendation for action by KCCA is to have a strategy policy of public and private partnerships towards developing particular interest groups to particular locations within the city. For example, improve the beaches along the shore of Lake Victoria for attracting, accommodating and retaining tourists, by providing shallow and deep-water sports, beach games, and fishing there.

Ministry of Works and Transport and Ministry of Education and Sports Officials

The MOWT is responsible for planning, development, and maintenance of road infrastructure and transport service while the MOE&S responsibility ensures accessibility to equitable education to all children in Uganda. The recommendation for action by the MOWT and MOE&S officials is to harmonize the planning, development, and control of the driver training school teaching curriculum. Let the MOWT pass over overseeing and regulating of driver instructors to driver training schools to the Uganda National Examinations Board for testing, examining, and certifying driver instructors. In liaison, both ministry officials should conduct road safety activities as part of extra curriculum activities in schools at all levels. The MOE&S should include road safety in schools' education curriculum, and the MOWT should include road safety as an integral part in the design, development, and implementation in the road infrastructure projects. The MOWT officials should consider providing the Highway Code and the Traffic & Road Safety Act (CAP. 361) to schools in MOE&S.

Furthermore, the recommendation for action to the MOWT is implementation of the rapid bus transport (RBT) for extra metropolitan Kampala and to conduct feasibility studies on railway, tram service, and water transport on Lake Victoria and Nakivubo channel in collaboration with KCCA. MOWT and KCCA should conduct a feasibility study for the construction of tunnels through the hills to connect the more than seven hills constituting Kampala.

An additional recommendation for action is for both MOWT & MOE&S to develop a public, private partnership (PPP) arrangement to establish a model driving schools in different regions across the country. The model driving schools are to be in accordance with the statutory instruments 2010 No. 29 of the Traffic & Road Safety (Driving Schools and Driving Instructors) Regulations 2010. Establishing of model-driving schools shall ensure and preserve the uniformity of the driving skills drivers and riders receive across the country. Establish a feedback and customer care center on urban transport management.

Print and Digital Media Fraternity

The recommendation for action to the media fraternity is taking up corporate social responsibility (CSR) in giving back to community space and airtime for road safety programs. Road accidents and road crashes do not discriminate by (a) race, (b) profession, (c) faith, (d) business, and (e) nationality. Anyone, any business goods or services, and family members at any time could be a victim of a road accident including the media. As part of corporate social responsibility (CSR), the media should allow in their budgetary allocations an item for road safety programs. In addition, to providing real time traffic alerts during peak hours on roads and streets within Kampala, start road

safety talk shows and telecasts programs. The recommendation for action is to harmonize the time of broadcast and telecast across the radio and television networks respectively in the initial days of the program.

The recommendation for action to the telephony business is to explore how to provide road safety alerts on the SMS and through data provision service to the system subscribers as CSR. The traffic alerts could include weather conditions, road surface conditions, and safety. On weather conditions, the road surface is flooding, washed away, and blocked by a fallen tree or landslide debris. The road surface conditions are rough and irregular, potholes, wet, disturbed road signs, and slippery surface. The security aspect is on road bombs, highway robbers, and blocking a section of road for security reasons.

Politicians

The recommendation to politicians is to cease interfering with implementation of traffic laws and regulations. Traffic crashes do not know political party affiliations. The traffic enforcements need the support and political-will of political leaders to function and secure safe traffic control within the city. Political rhetoric in support of traffic offenders undermines road safety standards. Loss of human life in a traffic crash or traffic accident drains political support and aspirations for political leaders. Political leadership should use the positions of leadership to influence followers and supporters to flow traffic regulations while using the road for the safety for all. The current trajectory of negative implications to social change on the three-bottom-line of sustainability should change in the upward positive direction.

Public

The recommendation for action to the public is to get all necessary information on road safety, know the rights and privileges of a passenger on a vehicle, travel insurance, and compensation packages in case of involvement in a traffic accident, and right of way at crossing points. Get a copy of the Highway Code, Traffic & Road Safety Act (CAP. 361) for yourself as a regular road user in Kampala. Always act in a safe way with other road users and make road safety your personal priority whenever you are on the road. As a rule of thumb, assume that not all drivers know how to drive.

In the case of traveling to the same destination, join up with others to reduce the numbers of the vehicles on the roads and fuel costs. Plan tour itineraries, start the tour early and travel during low peak time of the day. Utilize the available public transport while within the urban center, park the car and walk on short journeys to reduce motorized traffic on the roads, those with private cars.

Recommendations for Further Study

Kampala is at the cross roads of the two major African highways – the alternative routes of the great north road and the Trans-Africa Highway. The alternative great north road running in a South-North direction starts from Cape Town in South Africa to Cairo in Egypt through Kampala. The option of the Trans-Africa Highway running in an East-West direction starts from Mombasa on the western coast of the Indian Ocean to Lagos in Nigeria on the eastern coast of the Atlantic Ocean. This planned great African road system coupled with the discovery and exploitation of crude oil in Uganda would make Kampala a vital city in the great lakes region of the African continent. Based on these facts, I recommend the following topics for further study:

1. The feasibility of a railway tram transport service within the greater Kampala area to ease road traffic congestion
2. The development of water transport system through Nakivubo channel, Nakivubo River, and Lake Victoria to the destinations of Jinja, Mukono, Masaka, and Entebbe
3. Examining and addressing the role for a Private Public Partnership in the systematic physical planning and development of the private landowners and Kampala City Council Authority
4. Determining economies of scale on specialization of services and products by business enterprises to particular locations within Kampala to ease traffic congestion
5. Establishing a well-managed transport service corporate enterprise with government subsidy to reduce traffic congestion in Kampala

Reflections

The research process offered opportunities to deal with reputable organizations and individuals in the TOTS, business management, traffic management, and scholars within Uganda. As a researcher, I expected the (a) Highway Code, (b) road safety rules, (c) transportation regulations, and (d) traffic rules to be of a lower standard in comparison to the international standards. Overall, the participants were familiar and knowledgeable about the research topic and participating in a doctoral research was a great privilege and value to them.

By instinct, I used my Walden University doctoral residence nametag that allowed ease of identification and recognition to authorizing officers of participating

organizations. Furthermore, concerning the Internet advertisement about Walden University, a substantial number of participants seemed familiar with the University, and it was the starting point of engagement with the participants. As a researcher, from the onset of data collection, I made it clear to the participants that most of the talking would come from them. Therefore, researcher bias and preconceived ideas and values did not affect the responses of the participants.

Participants from the medical organizations were skeptical and required me to provide the full research proposal to the institution research ethics, and the institutional review board protesting that Walden University that approved my research proposal is a foreign-based institution. I declined to give my approved research proposal and explained that the research was not clinical or surgical, and I would not be in contact with the patients. I further explained that the goal for data collection was to interview a volunteer participant within the medical facility, who would report from the database, the number of patients admitted to the casualty ward of the facility resulting from road accidents within the last 5 years.

Recently auto corporations like Toyota in Japan and General Motors (GM) in the United States recalled new cars due to potential safety issues. The study highlighted the use of old age vehicles as one of the causes of traffic crashes due to bad and poor mechanical condition, but new cars with factory defects are a source of road crashes and accidents. As much as there is a lapse in enforcement of traffic regulations on Ugandan roads, there is a parallel situation within the auto industry across the globe. Unfortunately, of both the two scenarios, lapse in traffic regulations enforcement and auto factory defects, have led to traffic crashes with fatal results.

Uganda is a developing country evolving from effects of civil war and bad governance. One major result of the civil war and governance was a lost professional generation expertise while seeking security refuge during the reign of terror of Idi Amin and the civil war. Over that time, Uganda was not an attractive destination for capital market investments. The result of these combined occurrences affected all sectors of business and livelihood in the country including the transport sector. As a result, there was no information transfer in Uganda business based organizations to provide an international class of good industrial practice to the upcoming generation of professionals. This situation generated the prevalent informal management style in TOTS, and the sluggish approach of government departments' leaders in overseeing the monitoring, implementation, and regulation of the transport sector.

There is a disparity between Uganda government wages and salaries scales with international standards. The wages and salaries scales in Uganda are meager. From this backdrop, governmental officials supervising the enforcing of traffic rules, laws, and regulations resort to professionally unethical behaviors of corruption during execution of work tasks. The giving and receiving of a bribe affects the giver and receiver. To the giver, a bribe is an expense reducing profits, whereas to the receiver it is an extra income to spend. The disparity between the salaries and wages of government officials and returning Ugandans from abroad, who have better incomes that allow them a better lifestyle, has caused an economic gap that breeds corruption and non-compliance to existing laws and regulations.

With the advent of peace in the early 1990s along with the investment and growth of the banking, hospitality, telephony, and property development industries, there has

been a surge in the professional working class. The private sector wages, salaries, and incentives structure in the service businesses have created quality employees, who are results-oriented and motivated. One of the job incentives is a car or a motorcycle. To cope with this working environment and lifestyle, Kampala residents consider possession of a car as a necessity and not a luxury. The motorcar job incentive accounts for raising the number of motorcycles and motor cars to enhance mobility for Kampala residents. Partially, on the political platform, as the current Uganda government leaders are giving back to the electorate in return for general political support, the high demand for mobility is responsible for the laxity in (a) the enforcement of traffic laws, (b) the importation of cars more than 8 years old, and (c) road safety regulations. The three factors challenge the road safety resulting in the phenomenon of increasing road accidents and traffic crashes. With the discovery of oil, the exploration process, and exploitation now in progress, Kampala has the potential to grow to a business hub attracting more capital market investments. To continue to be attractive to international investment, the development of road safety and modernization of the road system to ease traffic flow within greater Kampala area is paramount.

Because of the results of this research study, the knowledge gap between formulation, implementation, monitoring and enforcing of laws, rules, and regulations in the road management system has diminished. Limited follow-up on the implementation, monitoring, and evaluation processes of well-formulated policies will fail to foster the desired result and reforms. The road management system and road safety need cooperation and a multidisciplinary approach to succeed.

Summary and Study Conclusions

Summary

The human population and vehicle population in Uganda and the Kampala business district are growing. On the same trend, the traffic crashes and traffic fatalities are increasing. The existing traffic regulations are competitive and auger well with the international standards. However, the implementation and enforcement are lagging. The transportation subsector does not have a functional and responsible transport regulator. The corruption tendencies between transport operators and traffic enforcement teams, the lack of political will, and support for enforcement teams undermine the enforcement of the traffic regulations.

Traffic jams in Kampala are exacerbated by the lack of reliable public transport vendor and the growing number of people moving into the middle class known in Uganda as the working class. A sizeable number of managers from international corporations have opened up offices in Kampala providing competitive salaries and wages, as well as transport benefits to prospect employees. Despite the lack of reliable public transport, the customer care of the existing transport service providers, as exhibited by the conductors and drivers, is below average expectations. The transport charges on public vehicles are high, rendering road transport unaffordable and accounting for the large number of pedestrians on the roads in Kampala during peak hours of traffic (Consia Report, 2010).

There are existing gaps in the public transport and the poor road safety standards in Kampala, but there is a ray of hope for change and development. The existing road signs and road markings are inadequate, lost, in a state for repair, and vandalized. The

institutional capacities of the road management system and road safety require a major reform, and a strategy to change the existing status quo.

Study Conclusions

The discovery of fossil oil and natural gas in Uganda within the Albertan rift valley, and the economic policy of opening up to foreign investors by the government are the partial attractions to international corporate business leaders opening offices in Uganda. With closer integration of the East African Community, Kampala could expand and develop further as a desired vital destination. Kampala has the potential to be a destination for capital investments in the near future, as it is the intersection point of the Great North Road from Cape Town in South Africa to Alexandria in Egypt and the Trans African road from Lagos in Nigeria to Mombasa in Kenya.

Road accident and road crash victims are political affiliation, race, color, nationality, age, and gender neutral. The world we live in today is a global village, where road accidents and road crashes affect other nationalities in a host country. Traffic collisions lead to (a) loss of human life, (b) destruction of buildings, (c) destruction of vehicles, (d) loss of business revenues, and (e) loss of taxable revenue base for governments due to road accidents and road crashes. A collective global support for Uganda to reduce traffic crashes, injuries, and fatalities could cause the required road safety improvement.

The prevailing trend of traffic crashes and road accidents in Uganda is unacceptable but reversible. In spite of improved techniques to reduce traffic accidents, such as well constructed road infrastructure, and good traffic management in the cities of developed countries around the world for improving business and capital investments, the

fact is that traffic crashes continue to occur. Therefore, the impact upon businesses, capital investments, and safe mobility of employers and employees by road accidents and traffic crashes shall continue to generate debate and be a major research topic for scholars for generations to come.

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Appendix A: Consent Form

Consent Form

You are invited to take part in a research study of Road Management System and Road Safety in Uganda. This is an exploratory case study on urban transport management in Kampala business district. You were chosen for the study because of your knowledge about road management, traffic management, business management, and location of daily life operations in Kampala business district. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Paul G. Zanule, who is a doctoral candidate at Walden University. Your name and contact details were presented to the researcher by [Mr., Ms, Mrs.….] because of the vast knowledge you have about the subject.

Background Information:

The purpose of this study is to describe features and elements connected to the phenomenon of increasing road accidents and traffic jams. The goal is to reduce the GDP loss resulting from road injuries and fatalities among drivers in Kampala, Uganda.

Procedures:

If you agree to be in this study, you will be asked to complete the participant consent form and choose the venue and time for the interview for confidentiality and privacy. The study involves an interview, questionnaire, observation checklist, and demographic questionnaire.

- The interview is a single question requesting you to explain to the researcher in your own words the trend of increasing road crashes and traffic jams in Kampala business district and how these affect business management. This explanation could take five minutes.
- The questionnaire is 20 open-ended general questions on the subject of road safety, traffic management, and business management that will require your written answers. This could take about 30 minutes.
- The observation checklist has 12 observations that will be completed by the researcher. You will choose the route to take for this observation checklist. The researcher will observe your driving skills and tick you off against a two-point scale of 0 and 1, where 0 = not at all consistent with Uganda Highway Code and 1 = consistent with the Uganda Highway Code. The time will vary depending on the route you will choose; however, 15 minutes are sufficient.
- The demographic questionnaire is to collect data on your personal information about (a) date of birth, (b) gender, (c) level of education achieved, (d) ethnicity, (e) religion, and (f) vehicle ownership you will be driving. This could take about five minutes.
- For the recorded interview, a re-play will be made available for your consent on what is recorded.

Voluntary Nature of the Study:

Your participation in this study is voluntary. This means that everyone will respect your decision of whether or not you want to be in the study. No one at (a) Uganda Bus Operators Association (UBOA), (b) Uganda Taxi Operators and Drivers Association

(UTODA), (c) Multiplex Uganda Limited, (d) Ministry of Health (MOH), (e) Ministry of Internal Affairs (MIA), (f) Ministry of Finance, Planning, & Economic Development (Ministry of finance, planning, and economic development (MFP&ED)), (g) Ministry of Education (MOE), and (h) Ministry Of Works and Transport (MOWT),will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. If you feel stressed during the study, you may stop at any time. You may skip any questions that you feel are too personal.

Risks and Benefits of Being in the Study:

The professional risks associated with this study are minimal because your identity will be protected. The data collected will be transferred to a personal computer into a folder protected by a password only known to the researcher. At the end of five years, the all documents will be destroyed by burning by the researcher.

The information gathered in this study may help improve road safety and urban transport management in Kampala business district.

Compensation:

There will be no compensation for your participation in this study

Confidentiality:

Any information you provide will be kept confidential. The researcher will not use your information for any purposes outside of this research project. In addition, the researcher will not include your name or anything else that could identify you in any reports of the study.

Contacts and Questions:

You may ask any questions you have now. Alternatively, if you have questions later, you may contact the researcher via +256-775-573-006 and paul.zanule@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number and email address are 001-612-312-1210 and irb@waldenu.edu.Walden University's approval number for this study is IRB will enter approval number here, and it expires on IRB will enter the expiration date.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information, and I feel I understand the study well enough to make a decision about my involvement. By signing below, I agree to the terms described above.

Printed Name of Participant

Date of consent

Participant's Written or Electronic* Signature

Researcher's Written or Electronic* Signature paul.zanule@waldenu.edu

Electronic signatures are regulated by the Uniform Electronic Transactions Act. Legally, "electronic signature" can be a person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

Appendix B: Informed Consent: Permission to Use Premises

Informed Consent: Permission to Use Premises
Ministry of Education and Sports: The Republic of Uganda

Name AGGREY DAVID KIBENGE

Ministry of Education and Sports: The Republic of Uganda

I hereby authorize *Paul G. Zanule*, student of Walden University to use the premises, name, and/or subjects requested to conduct a study titled *Road Management System and Road Safety in Uganda: A Case Study.*

Signature 16.03.2011
Date

UNDER SECRETARY, FINANCE & ADMINISTRATION
Title

MINISTRY OF EDUCATION & SPORTS, EMBASSY HSE BUILDING.
Name of Facility

Informed Consent: Permission to Use Premises

Ministry of Finance, Planning and Economic Development: The Republic of Uganda

Name BETTY KASIMBAZI

Ministry of Finance, Planning and Economic Development: The Republic of Uganda

I hereby authorize *Paul G. Zamule*, student of Walden University to use the premises, name, and/or subjects requested to conduct a study titled *Road Management System and Road Safety in Uganda: A Case Study.*

Signature 21-3-2011
Date

UNDER SECRETARY / ACCOUNTING OFFICER
Title

RESOURCE CENTRE
Name of Facility

Informed Consent: Permission to Use Premises
Uganda Taxi Operators and Drivers Association (UTODA)

Name NDYO MUGYENYI JOHN

Uganda Taxi Operators and Drivers Association (UTODA)

I hereby authorize *Paul G. Zamule*, student of Walden University to use the premises, name, and/or subjects requested to conduct a study titled *Road Management System and Road Safety in Uganda: A Case Study.*

Signature

20/9/11
Date

Title

National Chairman UTODA & NRCS Board Member
Name of Facility

Informed Consent: Permission to Use Premises
Uganda Bus Operators Association (UBOA)

Name SOLOMON NSIMIRE

Uganda Bus Operators Association (UBOA)

I hereby authorize *Paul G. Zanule*, student of Walden University to use the premises, name, and/or subjects requested to conduct a study titled *Road Management System and Road Safety in Uganda: A Case Study.*

Signature 20-9-2011
Date

AG. CHAIRMAN
Title

UGANDA BUS OPERATORS ASSOCIATION / ALLIED BUS OWNERS ASSOCIATION
Name of Facility

Informed Consent: Permission to Use Premises
Ministry of Works and Transport: The Republic of Uganda

Name C. MUGANZI

Ministry of Works and Transport: The Republic of Uganda

I hereby authorize *Paul G. Zamule*, student of Walden University to use the premises, name, and/or subjects requested to conduct a study titled *Road Management System and Road Safety in Uganda: A Case Study.*

PERMANENT SECRETARY
Ministry of Works & Transport

Signature

26th SEPTEMBER 2011
Date

PERMANENT SECRETARY
Title

MINISTRY OF WORKS AND TRANSPORT, UGANDA GOVERNMENT
Name of Facility

Appendix C: Interview Question

Can you explain to me why road accidents and traffic jams are on the increase and how these affect business in the Kampala business district?

Appendix D: Open-ended Questionnaire

Road Management System and Road Safety in Uganda - Questionnaire

Participant: …….. Date: …….……

Participating Organization: …… Title of Participant: ……..…….

Please fill in answers to the following 20 questions, as best as you can within 30 minutes.

I am available to answer any questions or explanations that you may have or need.

Thank you.

---

1. Which means of communication are used to inform the population in Uganda about road safety?

……

2. How many people are reached by each means of communication you identified above?

1. Means of communication 1: (a) none - …, (b) few - …, and (c) many - …
2. Means of communication 2: (a) none - …, (b) few - …, and (c) many - …
3. Means of communication 3: (a) none - …, (b) few - …, and (c) many - …

3. Does the content of the information people get, produce the expected results?

(a) Yes

(b) No

If your answer is No, please answer the following two questions

1. What do you think can be changed about the information in road safety awareness?.....
2. What should change in the means of communication to produce improved results on road safety?.....

4. What are the five most common causes of road accidents?

……

5. Mention some road users that are common victims of road accidents.

……

6. At what time of the day, day of the week, and month of the year do road accidents normally occur?

(a) Time of the day: ……

(b) Day of the week: ……..……..

(c) Month of year: ……...

7. In terms of the severity of the road accidents, how many road accidents fall under?

1. Not serious: (a) none, (b) few, and (c) many

2. Serious: (a) none, (b) few, and (c) many

3. Fatal: (a) none, (b) few, and (c) many

8. Using your organization as a reference point, estimate the number of the traffic crime offenders, which are presented in court?

(a) None, (b) very few, (c) few, (d) average, (e) many, (f) very many

9. Can you say that these traffic crime offenders receive the right and just prosecution?

(a) Yes

(b) No

10. Can you say that the sentences delivered against traffic crime offenders have corrective measures?

(a) Yes

(b) No

11. Rate the Uganda road safety standards against the international standards using the following?

(a) Very poor, (b) poor, (c) average, (d) good, (e) very good

12. In relation to other killers such as diseases like malaria, tuberculosis, and human immune virus / acquired immune deficiency syndrome (HIV/AIDS) where could you place road accidents in the order of 1, 2, 3, and 4?

1. …….

2. …….

3. …….

4. …….

13. Identify three ways you think could be used to minimize or avoid major causes of road accidents.

……

14. Among the causes of road accidents, you have identified above, which are due to loopholes in the following areas?

(a) Traffic laws: ……...

(b) Regulations enforcement: ……..

(c) Driver training: ……..

(d) Cyclist training: …….

15. What improvements are required in the following areas to improve road safety in Uganda?

(a) Traffic laws: ……..

(b) Regulations enforcement: ……..

(c) Driver training: ……..

(d) Cyclist training: …….

(e) Pedestrians crossings: ……...

16. What is the social, economic, environmental, and sustainability influence of road accidents upon individuals, society, institutions, and organizations in Uganda.

(a) Social influence of road accidents

……

……

……..……

(b) Economic influence of road accidents

……..……

……

……

(c) Environmental influence of road accidents

……

.....

.....

(d) Sustainability influence of road accidents

……

……

……

17. Prior to privatization of the transport sector, the Uganda Transport Company and Peoples Transport Limited Bus Companies were in operation, identify in respect of road safety lessons we could learn between now and then?

……

……

……

18. The road transport sector is a vital component of business administration and management, as it is a means of taking goods and services to the desired customers. What are the comments or feedback about the quality of service within the road transport sector by the following?

(a) Transport operators:

……

……

(b) Passengers:

……

……

(c) Business community:

……

……

(d) Government officials:

……

……

19. How does the road transport sector regulate the following areas about drivers, vehicles, and driving schools to achieve safe road and traffic management?

(a) Driver training: ……

(b) Driver licensing: ……

(c) Driver enumerations: ……

(d) Driver discipline and dismissal: ……

(e) Vehicle mechanical condition: …….

(f) Vehicle licensing: ……..

(g) Standard of driving school curriculum: …….

20. What ought to be done in relation to international road safety standards to make Uganda roads safer, reduce constraints on the overstretched medical facilities and the loss of Gross Domestic Product (GDP)?

……

……

……

……

……

Appendix E: Observation Checklist

Road Management System and Road safety in Uganda - Observation Checklist

Participant: …… Date: …….……

Participating Organization: …… Title of Participant: ……..…….

This observation checklist tailored in accordance with the practical on road driving assessment form as per Uganda Highway Code requirements. The researcher will conduct the observation.

The observer will use 0 and 1 to complete the checklist, where 0 = not at all consistent with the Uganda Highway Code and 1 = consistent with the Uganda Highway Code.

No.	Activity Observed	Score
Starting and Stopping		
1	Condition of tire treads, bulking, and cracking on the side	
2	Make sure that the driver is comfortably seated and car controls can be safely operated before starting the car.	
3	Gentle use of the car controls and checking the blind spots before setting	
4	Applies brakes early and smoothly	
5	Stops well clear behind other cars	
6	Completely stops at stop signs and red lights	
7	Anticipation to stop well in advance	
General Driving		
8	Maintain a safe following distance pursuit to 3 seconds rule of thumb	
9	Allow adequate space cushion around the car	
10	Awareness of other road users at all times. Planning ahead about the judgement on the action of other road user, predicting the effect of their action and react in good time.	
11	Control and maintain safe and appropriate speed bearing in mind the road, traffic, and weather conditions and the road signs and speed limits.	
12	Use of all mirrors fitted on the vehicle safely and effectively	
13	Use of the car horn appropriately and in good time	
14	Use of the mirror-signal-manoeuvre while changing lanes	
15	Maintain correct hands position on the steering wheel without crossing	
16	Position the car sensibly in the lane without straddling lane markings	
17	Use of appropriate gear without straining the engine of the car	

No.	Activity Observed	Score
Passing or Overtaking		
18	Allow plenty of room to pass stationary and moving cars, obstructions and ready to slow down or stop.	
19	Getting in the way of oncoming traffic	
20	Use of the mirror-signal-manoeuvre while overtaking	
21	Does not comeback too soon after overtaking	
Observation and Hazard anticipation		
22	Perform all round observation	
23	Anticipation of changing road, traffic, and weather conditions and appropriate response to the road signs and speed limits.	
24	Appropriate caution for pedestrians, children, and animals	
25	Anticipation of alighting passengers from stationery cars	
26	Appropriate caution and reaction for cars pulling out of parking.	
Approaching Roundabouts and Junctions		
27	Use the correct speed, correct lane in order to make safe entry and stop if necessary	
28	Give proper signals well in advance and cancel of the signal after the manoeuvre is complete	
29	Check on the cars behind while braking	
30	Get in the correct lane well ahead of turning or exit point	
31	Conduct all round observation including blind spots while moving the head over the shoulders	
32	Make the turn from the correct lane	
33	Slow safe turning and smooth steering to the exit point	
34	Check the mirrors while leaving the exit point	
Reversing		
35	Check obstruction and space area with all round observation	
36	Stop on sight of approaching traffic	
37	Appropriate distance covered by reversing	
General Road Behaviour		
38	Display of emotional intelligence	
39	Confidence, relaxation, and calmness	
40	Use of hand phone	
41	Use of seat belts	

Totals 0 _____

Totals 1 _____

Curriculum Vitae

Name : **Paul Gudoi ZANULE**

Profession : Quantity Surveyor, Business Administration

Date of Birth : 8 March 1969

Nationality : Ugandan

Contact details: Email: paul.zanule@waldenu.edu

paulzanule@yahoo.com

pgzanule@hotmail.com

paulzanule@gmail.com

Tel: +256 775 573 006; +232 78 147 358

Synopsis:

Mr. Zanule's career has been varied – principally roads, bridges, dams with incursions into building, flood prevention schemes and water engineering. He has an understanding and aptitude for handling variations in terms of setting up and operating change control systems, implementing settlement approach. He is also very much aware that the QS must have a complete grasp on cost as well as on income. It is important to have a comprehensive grasp on all the other functions involved in running a business, especially planning, ordering and accounts procedures.

Paul has in the past been involved in pre-contract business, preparing tender and contract documents; and participated in contract negotiation meetings. He has on-hands works experience at national and international levels on Motorways, Highways, and Bridges, Dams, Flood prevention schemes, feeder roads, city roads, and buildings.

In addition to the above, he has acquired skills in business administration of managing (a) people, (b) environment, (c) resources, and (d) change. He has been involved in projects that have been

(a) successfully completed; (b) with Contractors running into receivership, and (c) completely terminated. He has long experience in managing small sized quantity surveying and commercial teams and enjoys motivating them in order to get results.

Membership in Professional Societies: Associate Member of the Royal Institute of Civil Engineering Surveyors (RICES) UK.

Education:

- **Doctorate of Business Administration (Social Impact Management) online together with the e-learning partner Laureate Online Education,** Walden University, Baltimore Maryland, USA, 2009-2011.

Dissertation –Road Management System and Road Safety in Uganda: A Case Study.

- **Master in Business Administration (Finance and Accounting) online together with the e-learning partner Laureate Online Education, the** University of Liverpool, United Kingdom, 2006-2007.

Dissertation – Causes and Consequences of Terminating Civil Engineering Contracts in Uganda.

- **National Ordinary Technical Diploma in Civil Engineering and Building**, Uganda Technical College Elgon, Uganda, 1990-1992.

- **Advance Level of Education - Uganda Advanced Certificate of Education**, Masaba Senior Secondary School, Uganda, 1987-1990.

Trainings: In-house training on Contract Management and Implementation, Reconciliation, Termination and Litigation procedures at Carillion Plc U.K.

Diploma in Christian Leadership with Equip Ministries USA. Family and Marriage Counseling inclusive of Public Speaking Skills.

Employment Record:

May 2012 – July 2012 **MOZAMBIQUE**

Egis international (Formerly BCEOM)

Consultancy Services for Detailed Engineering Design Review, Pre-contract Services and Supervision of the civil works of N14 Road between Marrupa and Ruaça

Quantity Surveyor/Measurement Engineer

Main project features:

The project road starts from Marrupa (in Niassa province) to Ruaça (border between Niassa and Cabo Delgado provinces), Lot B 68 km in length. The project consists of upgrading to the bituminous standard, the section of the N14 between Marrupa and Ruaça. The scope of works consist of the construction of a layer of subgrade, selected subgrade layer, cement stabilized sub-base, cement stabilized base and double surface bituminous treatment wearing course, three concrete bridges (1 x 80 m long of 20-m x 4-span and 2 x 45 long of 15-m x 3 span, and the provision of the road furniture.

Activities performed:

- Measure and Certification of Quantities
- Preparation of Variation Orders
- Adjustment of quantities and updating of the budget
- Monitor the quality assurance plan
- Preparation of the monthly progress report

Works Contract Value: MZN 2.052 billion.

Client: National Roads Administration - ANE

Financing: Government of Mozambique (GOM) and Swedish International Development Cooperation Agency (SIDA)

Jul. 2009 – Dec. 2011 **SIERRA LEONE**

Egis Bceom international

Supervision of rehabilitation works of the Freetown – Conakry Highway – Phase II

Project Quantity Surveyor

Main project features:

The project concerns the construction of an all-weather road link, 85km of highway, between Rogbere Junction in Sierra Leone and Farmoreah in the Republic of Guinea, as well as a common border post facility at Pamelap. The project road begins at Rogbere, which is about 106km from Freetown, continues for 76km in Sierra Leone towards the border with Guinea and ends in the town of Farmoreah 9km inside Guinea. Due to a lack of EDF funds at the time when the project was identified in 2002, it was decided that the Freetown-Conakry Highway Project was to be undertaken in two phases. Phase I of this project (construction of the road up to the base course layer formation level) has already been processed.

Activities performed:

Measure and Certification of Quantities

Prepare quantity calculation spreadsheets that will consolidate in the summary form the following:-

- Preliminaries and service
- Site Clearance and top soil stripping
- Earthworks
- Culverts and drainage structures
- Crushed stone base
- Asphalt concrete layers
- Concrete works
- Road furniture
- Dayworks

Prepare Variation Orders

Prepare and provide detailed descriptions of changes and will include:-

Contractual implications of the change) given the on-going contract provisions.

Financial implications of the changes using unit rates of the contract or those negotiated with the Contractor.

Draft Variation Order (VO) to be issued to the Contractor in accordance with the condition and terms of the contract.

Adjust quantities and update budget

Prepare cumulative quantity calculation spreadsheets from specific measurement sheets signed both by the Resident Engineer for each relevant item initiated from the Inspectors of Works in the field. In addition, prepare the monthly certificate, which will clearly, indicate:

- The amount of work and progress ratio,
- The materials on site situation,
- The situation of advance and repayment of the same,
- The situation of claims either minor or major,
- The situation on late payment interests, and
- The taxes and duties.

Advise Supervisor on estimated total cost of completion

From time to time during the course and progress of works on a monthly basis, provide a forecast of the final cost of the project built on the bill of quantities to which will comprise:

- The works already completed by the Contractor and paid for, which are known accurately, and the works remaining to be completed, which are mere estimates.

Client: SLRA

Financing: EU/EDF

Apr. 2009 - Jul. 2009 **UNITED KINGDOM - SCOTLAND**

Carillion Regional Civil Engineering Ltd t/a Carillion Roads

Braid Barn Flood Protection Scheme

Senior Quantity Surveyor

Main project features:

The construction scope of works was stone masonry, box culverts, inspection chambers, tree planting and grassing along the barn at 13-work units. The 13 locations were the flash point for the floods. NEC

Engineering and Construction, Second Edition November 1995. Contract Price of £11m based on Target Cost Contract. Civil Engineering Method of Measurement.

Activities performed:

In-charge of Work Unit 7 and 13 for cost reconciliation, placing, negotiating, and engaging subcontracts. Working alongside the Commercial Manager, Project QS, Assistant QS's, Buyers, Site Agents and Engineers together sharing the post contract commercial responsibilities of the project.

Client: Edinburgh City Council

Financing: Edinburgh City Council

Apr. 2008 - Apr. 2009 **UNITED KINGDOM - ENGLAND**

Carillion Construction Ltd t/a Carillion Roads

M6 Extension Carlisle - Guardsmill

Senior Quantity Surveyor

Main project features:

The scope of works was upgrading the existing 6 km of dual-carriageway road between M6 junction 41 in Carlisle and the Scottish border at Guardsmill on M74, construction a new bridge at Esk River and Mossband over the major UK West line railway, and rehabilitation of the section on the Carlisle – Guardsmill all purpose route. NEC Engineering and Construction, Second Edition November 1995. Contract Price of £130m based on Target Cost Contract. Highway Works Method of Measurement.

Activities performed:

In-charge of the waterproofing of Esk bridge, Mossband bridge, Steelworks, and the asphalt works subcontractors. Working alongside the Commercial Manager, Project QS, Assistant QS's, Buyers, Site Agents and Engineers together sharing the post contract commercial responsibilities of the project.

Client: U.K. Highway Agency

Financing: European Development Fund

Jan. 2008 – Mar. 2008 **UGANDA**

PROME CONSULTANTS LIMITED

Periodic Maintenance of Dilapidated Tarmac roads and Sealing of Selected Roads in Kampala City (Package 3 & 4)

Quantity Surveyor

Main project features:

Package 3 and Package 4 Ugx 3,649,136,040 and Ugx 3,869,038,787 respectively based on rates schedule funded through the Uganda National Road Fund (UNRF). Government Procurement and Disposal Department Conditions of Contract were used with the Civil Engineering Method of Measurement (CEMM).

Activities Performed:

Supervision of the Contractor's construction operations, quality and financial control, checking and joint observation of strip mapping activities, arranging and conducting of progress meetings, preparation of progress reports, contract administration and preparing of Variation Orders.

Client: Kampala City Council (KCC)

Financing: Uganda National Road Fund

Jul. 2006 - Dec 2007 UGANDA

BCEOM FRENCH ENGINEERING CONSULTANTS IN ASSOCIATION WITH PROME CONSULTANTS LIMITED

Rehabilitation of Bugiri Jinja Road RAFU Contract No. EU/HW/C003 of 72.8Km

Quantity Surveyor

Main project features:

With BCEOM French Engineering Consultants in association with PROME Consultants Limited on the Rehabilitation of Bugiri Jinja Road RAFU Contract No. EU/HW/C003 of 72.8Km as Quantity Surveyor in Uganda.

Activities Performed:

Mr. Zanule learned to use the Conditions For Works Contract financed by the European Union through the European Development Fund (EDF) as published by the Official Journal L382, 31/12/1990.

Client: Road Agency Formation Unit (RAFU)

Financing: European Development Fund

Apr. 2004 - Jul. 2006 UGANDA

BCEOM FRENCH ENGINEERING CONSULTANTS IN ASSOCIATION WITH PROME CONSULTANTS LIMITED

Rehabilitation of Bugiri Jinja Road RAFU Contract No. EU/HW/C002 of 72.8Km

Quantity Surveyor

Main project features:

With BCEOM French Engineering Consultants in association with Prome Consultants Limited on the Rehabilitation of Bugiri Jinja Road RAFU Contract No. EU/HW/C002 of 72.8Km as Quantity Surveyor in Uganda. The project involved swamp crossings treated with geogrid and geotextile fabric and rock fill. The existing wearing course and base being treated to lime stabilised sub base that would be overlaid with 150mm to 175mm graded crushed stone base, 125 mm to 150 mm dense bitumen macadam and 35 mm asphalt wearing course. The European Union (EU) through the European Development Fund (EDF) funded the project.

Activities Performed:

Responsible for the inspection of the works, daily site management and quantity control. The day-to-day inspection of the quarry, crusher, and asphalt plant activities; compilation and computing of quantities to monthly statement in making the interim certificates of payment to the Contractor. The Contractor was BASIL READ - BOUYGUES TP JOINT VENTURE. Basil Read of South Africa and Bouygues Travaux Publics of France.

M. Zanule was at the centre of making the final certificate to Basil Read and Bouygues TP Joint Venture. He headed the field/site team to review the project status following termination of Basil Read – Bouygues TP Joint Venture in order to make a tender to Protect the New Road Works and Preservation of the Existing

base. This project was adopted and executed where Paul was the Quantity Surveyor from inception to completion. He made the snag list, provisional & final acceptance certificates and the final statement of account to this contract.

Client: Road Agency Formation Unit (RAFU)

Financing: European Development Fund

Aug. 2001 - Apr. 2004 UGANDA

RENARDET SA CONSULTING ENGINEERS

Road Development Sector Programme Phase 1 Project (RDPP1): Contract RDP/HW/C005: Busunju – Kiboga Road Uganda

Chief Inspector of Works

Main project features:

With RENARDET SA Consulting Engineers in association with Universal Engineering Services Limited (UNESEL) on the Road Development Sector Programme Phase 1 Project (RDPP1): Contract RDP/HW/C005: Busunju – Kiboga Road Uganda as the Chief Inspector of Works

Activities Performed:

Responsible for verification surveys, early, periodic, final measurements for the payment certificates to the Contractor STIRLING INTERNATIONAL CIVIL ENGINEERING LIMITED. The project was funded by the IDA/WB (International Development Agency/World Bank).

Financing: International Development Agency/World Bank

Jul. 2001 - Aug. 2001 UGANDA

COWI CONSULTING ENGINEERS AND PLANNERS AS

Conducting Traffic counts on the National Road network

Traffic Engineer

Main project features:

With COWI Consulting Engineers and Planners AS of Denmark in association with Project Management Engineering (Prome) Consultants on Conducting Traffic counts on the National Road network

Activities Performed:

Traffic Engineer in charge of zone 6 that is, Arua-Nebbi-Pakwach-Yumbe-Koboko-Moyo districts, in northern Uganda.

Nov. 2000 - May 2001 UGANDA

PROJECT MANAGEMENT ENGINEERING (PROME) CONSULTANTS

Feasibility Study of Domestic and Livestock Water Supply in Isingiro and Bukanga Counties in Mbarara District Uganda

Head Engineering Technician

Main project features:

With Project Management Engineering (Prome) Consultants on the Feasibility Study of Domestic and Livestock Water Supply in Isingiro and Bukanga Counties in Mbarara District Uganda

Activities Performed:

Head Engineering Technician responsible for data collection and costing of the proposed operation and maintenance costs of the non-functioning existing facilities and the new facilities such as valley tanks, valley dams, boreholes, shallow wells, rock tanks and artificial paved catchments.

Jun. 2000 - Nov. 2000 UGANDA

STIRLING - RODIO JOINT VENTURE

Owen Falls Dam Uganda Remedial Works Contract number OFE–56

Quantity Surveyor

Main project features:

With STIRLING - RODIO JOINT VENTURE on Owen Falls Dam Uganda Remedial Works Contract number OFE–56 as Quantity surveyor. The work involved Drilling & Grouting, of the existing dam and constructing of a Prop of Roller compacted concrete and refurbishing of the existing ladders, walk ways

and installation of extensometers to monitor the movement of the dam and bridge. The project was worthy 7.7m Euros. The consultant was GIBB LIMITED of the LAWGIBB Group Member of the United Kingdom using FIDIC (Federation Internationale Des Ingenieurs-Conseils), Conditions of Contract for Works of Civil Engineering Construction.

Activities Performed:

Mr. Zanule was involved in the making of Plant and Labour returns, calculation of price escalation as provided in the Conditions of Contract in respect of both foreign and local currencies used on the project.

Jun. 1999 - May 2000 UGANDA

SAUTI CONSULTING ENGINEERS

Emergency Repairs on Kabale - Katuna Road Project 22 km

Quantity Surveyor

Main project features:

With SAUTI consulting Engineers on the Emergency Repairs on Kabale - Katuna Road Project 22 km funded by European Union in Uganda. The project involved the reconstruction of high embankments that had failed with retaining structures like gabions, geocell mattresses and reinforced embankments in Tensar geogrids up to 5m high

Activities Performed:

Quantity Surveyor making the interim certificates of payment. The Contractor was M/S STIRLING INTERNATIONAL CIVIL ENGINEERING LTD. - FEDERECI of Italy and the Project was worth US $ 3.82 m dollars. The carriageway was 7m wide at a cross fall of 2.5% and the shoulders were 1.5m wide at a cross fall of 5% and one seal coat of chippings on selected areas.

Financing: European Development Fund

Jun. 1998 - Jun. 1999 UGANDA

GRAKEN ENTERPRISES LIMITED

Periodic Maintenance of Hamurwa-Kerere Road in Kabale District Uganda

Site Manager/Engineer

Main project features:

Responsible for the day to day work of the site and making of the interim certificates of payments, reports and handling of the correspondences between the Supervisor of Works Local Government Kabale, the Maintenance Engineer South Western Uganda Region at Mbarara and the Contractor

Activities Performed:

The Africa Development Bank funded the Project. The Project involved recharging the existing pavement with newly borrowed material up to 15 cm and reshaping to the required cross-fall of 5%. The project was worth $113.000. The carriageway was 6m wide and the shoulders were 1m wide all at a cross fall of 5%

Financing: Africa Development Bank

May 1998 - Jun. 1998 UGANDA

RENARDET SA CONSULTING ENGINEERS

Final feasibility study of Busunju-Kiboga-Hoima Road Uganda

Supervisor of the Drainage and Survey

Main project features:

Investigating the condition of the existing cross and access culverts, erecting and establishing temporary benchmarks along the full length of road of 143 km.

Activities Performed:

Responsible for the supervision of the drainage and survey team.

Financing: International Development Agency/World Bank

Jan. 1998 - May 1998 UGANDA

SKANSKA JENSEN INTERNATIONAL S.A.

Refurbishment of the Standard Chartered Bank building on Speke Road Kampala Uganda

Quantity Surveyor

Main project features:

This was supervised by BBE Quantity Surveyors and Estimators

Activities Performed:

Responsible for the making of the quantities for orders of purchase of materials and interim certificate of payment

Financing: Standard Chartered Bank

Jun. 1995 - Aug. 1997 UGANDA

RENARDET SA CONSULTING ENGINEERS

Kafu-Karuma Resealing and Rehabilitation Highway Project 93 km

Assistant Land/Quantity Surveyor

Main project features:

The Contractor was WADE ADAMS of United Kingdom later taken over by SKANSKA JENSEN INTERNATIONAL of Sweden and Sub-contracted to SOGEA of France. The project was worth US $ 17 m dollars. The carriageway was 6m, and the shoulders were 1.5m wide, lime stabilised base with double seal coat chippings. The shoulders were sealed with single seal coat chippings at areas with longitudinal gradient of more than 3% and crossing trading centres.

Activities Performed:

Responsible for making interim certificates of payments, design levels for horizontal and vertical curves, making and submitting the monthly physical road works progress report to the Resident Engineer.

Financing: International Development Agency/World Bank

Jun. 1995 - Dec. 1995 UGANDA

SKANSKA JENSEN INTERNATIONAL S.A.

Kampala City Roads phase II in Uganda

Part Time Quantity Surveyor

Activities Performed:

Responsible for making monthly interim certificate of payments supervised by TYPSA O'SULLIVAN & GRAHAM of Spain

Financing: European Development Fund

Dec. 1993 - May 1995 UGANDA

RENARDET SA CONSULTING ENGINEERS

Kampala Jinja Road Section II Repairs and Improvement Highway Project of 48 km

Quantity Surveyor

Main project features:

The project involved different treatments as patching repairs, partial reconstruction, total reconstruction with crushed rock base and overlaying the existing pavement with new asphalt concrete of different thickness along the full length of the carriageway of the pavement, and reshaping and clearing of earth drains, reshaping the shoulders with the necessary fresh granular material and sealing with one seal coat chippings of the pavement

The project was worth $ 9.7 M dollars. The carriageway was 7m wide, and the shoulders were 2m wide at a cross fall of 2.5% and 5% respectively.

Activities Performed:

Responsible for making quantities ready to cross check with the contractor M/S STIRLING INTERNATIONAL CIVIL ENGINEERING LTD Federeci for making interim certificate of payment at the end of the month adhering to the contract drawings, specifications and cross sections. Assisted the Resident Engineer to make the physical road works progress report into the monthly report. Responsible for submitting to the Coordinator to the project from Ministry of Works, Transport and Communications a year quarterly physical road works progress report and making of the Consultants monthly invoice. Prepared the variation order submitted to Ministry of Works, Transport and Communications and eventually to Africa Development Bank

Client: Ministry of Works

Financing: Africa Development Bank

Nov. 1993 - Dec. 1993 UGANDA

STAR BUILDING COMPANY

Site Supervisor

Activities Performed:

Responsible for overseeing all the operations and employees at the construction site, purchasing of materials and submitting to the Engineer estimates of the quantities of materials needed to keep the site running for two weeks in Kinsugu Kampala Uganda

Financing: Uganda Industrial Properties Limited

Sept. 1992 - Nov. 1993 UGANDA

INDEPENDENT EXPERT

Mason

Activities Performed:

Mason in Bukoto Kampala Uganda, responsible for carrying out all masonry and concreting works on the one storey semi-detached maisonette

Jul. 1992 - Aug. 1992 UGANDA

INDEPENDENT EXPERT

Private Mason

Activities Performed:

Private Mason responsible for all masonry works on bungalow structures and the purchasing of construction materials.

Languages:

	Speaking	***Reading***	***Writing***

English	Excellent	Excellent	Excellent