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INYUVESI YAKWAZULU-NATALI

Research Title

An investigation into road freight challenges faced by transport companies in South Africa

By

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Abstract.

The South African economy slipped into recession during the second quarter of 2018. The current economic conditions in the country are characterized by slow economic growth coupled by high unemployment rate. The Reserve Bank has raised interest rates by twenty-five basis points in November 2018, amid inflation concerns. The country's economy is currently under-performing and sluggish. The government has intervened by appointing a team of five special envoys as well as one economic advisor to the president. The role of the economic advisory team is to sell South Africa to the foreign investors. Logistics remains a catalyst for the country's economic development. Facilitating trade and transportation are at the core of galvanizing economic development. Efficient logistics services contribute towards a country's international competitiveness. However, logistics and road freight transport industry in South Africa is marred by several challenges, like port delays, on the road constraints, lack of skills, poor infrastructure, rising costs and other issues. These challenges are hindering freight transportation to deliver on its prime mandate, which is to provide place and time utility for cargo. This research study aimed to understand the various road freight challenges faced by the transport companies in South Africa. The qualitative research methodology was used to conduct the study from road freight transport companies, located in the major cities of Durban, Port Elizabeth, Cape Town and Johannesburg. The research respondents were comprised of General Managers as well as Operations Clerks who are employed by the road freight transport companies. The data was collected through face-to-face interviews with Durban-based respondents, while telephonic interviews were conducted with respondents from other provinces. The collected data was manually analysed by the researcher by identifying themes and grouping findings into clusters. The visual presentation of data was achieved by using Microsoft SmartArt programme. The study highlighted various challenges that confront road freight transport companies. The main challenges were port congestion, poor road conditions, rising costs of doing business, theft and truck hijackings, poor road infrastructure, non-compliant trucks on the South African roads, delays at the border posts, bribery and corruption and lack of skills labour. Due to these challenges, the transport companies have suffered and continue to suffer financial losses. The transport companies are finding it difficult to meet client's requirements, due to these challenges. Despite these challenges, there is an

opportunity for the private-public sector partnership to address the road freight challenges. The Department of Transport should engage with all relevant departments to address road freight challenges. Transnet should implement performance-based incentives to improve productivity. The Department of Energy should review diesel prices by considering a reduction on the fuel levy to reduce escalating diesel costs. The law-enforcement agencies should improve policing on the road to protect trucks against criminal elements. In addition, non-compliant trucks should be suspended on the road to improve road safety. On-the-job skills development programs should be developed by the Department of Transport in conjunction with the Department of Labour to ensure that the country's road freight industry has access to sufficiently skilled labour.

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CHAPTER ONE

Introduction

1.1. Introduction.

South Africa's Gross Domestic Product (GDP) fell by 2.2% in the first quarter of 2018 (Statistics South Africa, 2018a). The unemployment rate increased to 27.2% in quarter two 2018 (Statistics South Africa, 2018b). The country's economy on grew by 1.3% in 2017 (Statistics South Africa, 2018c). These numbers do not convey a positive message regarding the country's state of the economy. The South African economy is currently experiencing slow growth. Hence, a need for all stakeholders to leave political issues aside and collaborate to increase GDP, reduce unemployment and increase the economic growth.

According to World Bank (2018) facilitating trade and transportation is at the core of galvanizing economic development, as a result most countries have developed comprehensive logistics strategies at national level. However, logistics in the road freight transport industry is marred by several challenges, like port delays, on-the - road constraints, lack of skills, poor infrastructure, rising costs and other issues. These challenges are hindering road freight transportation to deliver on its prime mandate, which is to provide place and time utility to customers.

Most of these logistics challenges are external and uncontrollable, as a result, they place a huge burden on the performance of road freight transport companies. Logistics challenges have a negative impact on the overall logistics costs. Transport costs are the dominant contributor towards logistics costs (Havenga, Simpson, Kinga and Braun, 2016, p.9). Therefore, understanding road freight challenges is crucial to unlock the full potential of the road freight sector.

The purpose of the first chapter is to introduce the research paper. The first section will provide motivation for the study. The second section will discuss the focus of the study. The third section will then present the problem statement of the study. The

fourth section will discuss the objectives of the study and the questions underpinning the research will then be discussed in section five. The limitations of the study will be discussed in section six. A summary will then be presented to conclude chapter one.

1.2. Motivation for the Study.

Transport plays a pivotal role in the economy and is also a competitive force in business (Goldsby, Iyengar and Rao, 2014, p.1). Therefore, the researcher was motivated by the desire to see South Africa's road freight industry contribute positively towards the country's economic growth and competitiveness. Efficient logistics services have a potential to position South Africa as a preferred trade partner in the global trade arena.

The research was undertaken with full cognisance of the struggles faced by the road freight operators on daily basis when they move cargo for imports, exports and domestically. The stakeholders who will benefit from this study include:

- Road Freight Companies
- Suppliers to Road Freight Companies
- Customers
- Policy-makers

Road freight companies will gain a better understanding of the prevalent road freight challenges in South Africa, which will allow them to implement necessary interventions to improve their performance. The suppliers to road freight companies will also benefit from this study, because improved business performance for transport companies will lead to increased demand for their goods and services like procurement of new trucks. The import, export and domestic customers will also benefit from this study because an understanding of road freight challenges will allow customers to implement preventative measures. Finally, the study will benefit legislators at national and provincial regarding the implementation of the necessary policies and strategies that will be geared towards supporting the road freight industry.

This research paper is also expected to contribute to the body of knowledge. Most of the existing research papers focus on fragmented topics, focusing mainly on

logistics costs. However, this paper has taken a holistic view by looking at road freight challenges in totality, across the main corridors in South Africa, based on insight from operational staff as well as senior managers.

1.3. Focus of the Study.

The focus of this study was to gain insight from the road freight companies regarding the business challenges that they go through on daily basis, when they collect cargo from port and depots, the challenges on the road and challenges when they deliver to customers. The study aimed to understand how those challenges impact the road freight companies and what are the necessary interventions to unlock the industry's full potential. Unlocking the potential of road freight transporters is key for the South African economy, given the fact that most of the cargo in South Africa is by road, due to frail freight rail system.

The study did not investigate the views of the intermediaries like transport brokers and 3PLs (3rd party logistics service providers), since these intermediaries do not own any assets and are not directly involved with physically running the transport operations. 3PLs only act as brokers. However, the study focused on transport companies that own trucks and have first-hand experience of the prevalent road freight challenges.

1.4. Problem Statement of the Study.

The proportion of commercial cargo transported by road in South Africa has increased steadily over the last ten years to approximately 89% (Barloworld, 2013). Therefore, efficient road freight industry is essential for South Africa's economic growth. Economic growth is important, because it is through stimulating the economy that jobs can be created to address the issue of unemployment.

However, the road freight industry is confronted by many challenges, which impact their ability to operate at optimum level. According to a recent research by Havenga, Simpson, King, de Bod and Braun (2016, p.3-13) shortage of skills in the logistics sector at all levels, increasing logistics costs and infrastructural constraints are the main hindrances that negatively impact the performance of the country's logistics and supply chain.

All these challenges are contributing to rising logistics operating costs. According to the 9th State of Logistics Survey for South Africa 2012, the contribution of transport costs to overall logistics costs in 2012 was 61%, the highest it had been in nine years and far higher than the global average (Barloword, 2013). According to Kruger and Luke (2015, 1) lack of appropriate skills, hijackings and road accidents are some of the challenges facing the road freight sector in South Africa. South Africa is dependent on road transportation, the negative impact of the road freight challenges on the overall economy is a cause for concern. Inefficiencies in the transport sector, which lead to high freight transport cost, can restrict economic growth and job creation.

The study therefore undertook to research the challenges faced by the road freight transport companies in South Africa, when they conduct haulage business from place of cargo pick up, up to the place of delivery.

1.5. Objectives of the Study.

Research objectives are the results sought by the researcher at the end of the overall research process. The research objectives cover what the research study intends to achieve.

The objectives for the research study were thus, as follows:

1. To understand the challenges that the transporters face in major South African shipping corridors, i.e. Durban, Johannesburg, Cape Town and Port Elizabeth.
2. To explore how these challenges impact the performance of transporter's companies.
3. To explore possible tools, resources and interventions that are required to address road freight challenges.

1.6. Research questions.

The specification of the research questions is the methodological point of departure of scholarly research. Because it focuses the study, provides a guide throughout all the states of enquiry, analysis of the results and presentation of the report findings.

The research questions that were investigated were as follows :-

1. What are the challenges that the road freight transporters encounter in South Africa's main shipping corridors, i.e. Durban, Johannesburg, Port Elizabeth and Cape Town?
2. How are road freight challenges impacting the road freight transport companies?
3. What are the tools, resources and interventions needed in the freight industry to address the road freight challenges?

1.7. Limitations of the Study.

Although this research was carefully prepared and executed, the study also achieved its objectives, it is nonetheless significant for the researcher to acknowledge and share some pf the limitations and shortcomings that were encountered during the research process. Following are the limitations and shortcomings of the research study:

- The research was conducted on a sample of sixteen (16) respondents from the road freight transport companies, who are based in Durban, Johannesburg, Cape Town and Port Elizabeth. Hence, it may be cumbersome to generalize the results to the overall population, because operational dynamics elsewhere may be slightly different.
- Qualitative research study is information-heavy. Hence, mining gathered data was daunting and time consuming.
- Qualitative research study is heavily dependent on the researcher's interpretation and perspective; as a result, it may include instinctual decisions, which may have a potential for bias.

- Conducting interviews as data collection method is largely dependent on spoken words, as a result it was difficult to present spoken words visually.

1.8. Summary.

Economic growth means an increase in real Gross Domestic Product (GDP); basically, an increase in GDP means an increase in national income, national output and total expenditure. Economic growth is important to improve the standard of living within a country and greater consumption of goods and services. As a result, economic growth is a catalyst for economic and social advancement.

To achieve economic growth, the road freight sector should play a pivotal in improving efficiencies, which will contribute towards improving the country's economic performance. Improving the performance of the road freight companies will also contribute towards the creation of job opportunities in the sector. Yet, road freight companies encounter many challenges which hinder them to grow and, some of the transport companies have been liquidated due to their inability to sustain business operations. Operational road freight challenges place an immense pressure on the transport companies to operate effectively and efficiently. The failure of road freight companies has a negative impact on the country's competitiveness, especially in the area of imports and exports, because road freight challenges increase logistics costs.

The research study investigated the challenges that road freight operators had to deal with when they transport goods from place of pick up to the place of delivery. Understanding road freight challenges is important in providing solutions and strategies to improve operational efficiencies in freight transportation. To fully understand the road freight challenges, it was important to start with conducting a literature review with an intention to understand the existing body of knowledge that deals with the phenomenon.

The following section is a discussion on the literature review in the area of logistics and road freight transportation as well as the challenges that are prevalent in the road freight industry.

CHAPTER TWO

Literature Review

2.1. Introduction.

This chapter discusses the existing body of knowledge in the area logistics and road freight transport, which is a key phenomenon under study. Findings, arguments and key issues related to road freight transport are discussed in this chapter.

2.2. Road freight challenges faced by the transport companies.

Transport plays a pivotal role in the economy and is also a competitive force in business (Goldsby, Iyengar and Rao, 2014, p.1). Due to the globalization of the world's economy, transport therefore plays a strategic role in economic development.

Various studies prove that there is a strong correlation between logistics performance and country's economic development (Hayaloglu, 2015, p.525). According to studies conducted in twenty-three industries based at the Chinese coastal areas, the results revealed that investment in transportation is a catalyst for economic growth (Hayaloglu, 2015, p.524).

According to The Logistics Performance Index report by to World Bank (2018) facilitating transportation is at the centre of supporting economic development, as a result most countries have developed inclusive logistics strategies at the national level. World Bank (2018) argues that a well-functioning logistics system is a major contributor towards national competitiveness.

Freight logistics is a backbone of the economy. It is through transport that place and time utility is achieved, transport makes it possible for goods to be available at the right place and at the right time for purchasing and subsequent consumption by the final consumers. Logistics is responsible for coordinating and moving goods and

people from place of origin to the place of delivery either for storage or for final consumption (Mngomezulu, 2018).

However, despite the pivotal role of the road freight transport in enhancing the country's competitiveness, the South African road freight industry is subjected to various challenges. Road freight challenges emanate from diverse sources, these include external environment and internal environment, which are factors within the control of transport companies. The following section will discuss the road freight challenges in detail.

2.2.1. Port constraints.

Port infrastructure plays an important role in connecting sea-freight with road freight. Therefore, without port efficiency, road freight will not be able to successfully deliver on their 'mandate' i.e. to ensure cargo is delivered to the right place, at the right time. Figure 2.1 shows that although Port Elizabeth, Durban and Cape Town are the main seaports in South Africa, cargo is transported over the long distance from the main seaports to Gauteng, which is the country's economic hub.

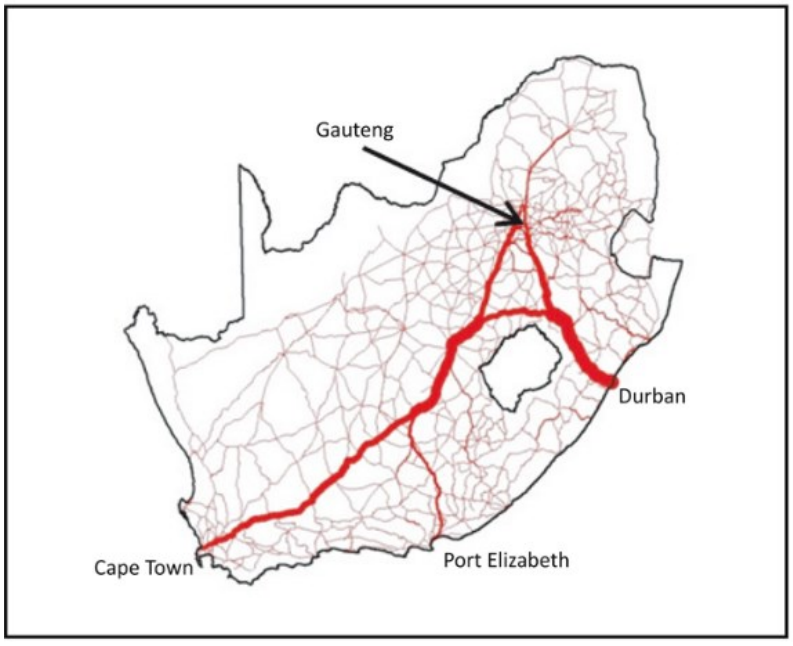


Figure 2. 1 South Africa's main freight corridors

Source: Adapted from Havenga, J.H. and de Bod, A., 2016. Freight corridor performance measurement system: A framework for South Africa. Journal of Transport and Supply Chain Management, 10(1), p1-11.

Figure 2.1 shows that Cape Town, Port Elizabeth Durban are the main seaport hubs in South Africa. However, interestingly a large portion of freight volume discharged at these ports are not consumed around discharge ports, however the freight is transported by rail or road to the South Africa's economic hub, which is Gauteng Province.

The Cape Town to Gauteng and the Durban to Gauteng trade corridors connect South Africa's imports and exports with the economic hub of the country, which is Gauteng (Port and Corridor, 2013). Cape Town port handles 19 million tons of cargo annually, of which 85% of which is on-carriage by road-freight, while only 15% is transported by rail.

2.2.1.1. Durban Corridor.

Durban to Gauteng is an import corridor for the country's international trade by sea. Gauteng is dependent on Durban port to facilitate the movement of imports and exports, because Gauteng is a land-locked province. According to Port and Corridor (n.d.) the Port of Durban's growth can be attributed to the economic activity from Gauteng province, which is South Africa's industrial and mining capital. The Port of Durban is the busiest and the largest container port in Africa, according to Transnet (2014). According Transnet Port Terminals (2014, p.16) 61% of all container imports and exports in South Africa pass through the Port of Durban. Therefore, Durban port plays a vital role in facilitating the country's logistics.

However, the Durban port is not without its challenges. Some of the challenges at the Durban Port according to Transnet (2017, p.18) include the following issues, low productivity, inefficient operations, labour issues, lack of skills, systems and ageing infrastructure. According to a research by Arjunan (2004, p.21) some of the challenges facing Durban port include limited maritime infrastructure, limited space

for terminal expansion, low port productivity, limited container handling capacity, poor port management and poor management of human resources.

2.2.1.2. Cape Town Corridor

Cape Town port is the second busiest port in South Africa, after Durban. The port handles the largest amount of fresh fruits for the export market (Ports and Ships, 2018).

According to Port and Corridor (2013) around 19 million tons of cargo is transported along Cape Town to Gauteng corridor annually, of which 85% of which is road freight, leaving 15% to be transported over rail.

Transnet uses ‘average moves per ship working hour’ to measure operational efficiency around ports. The average moves per ship working hour declined in Cape Town from 55 to 45 during 2017/2018 (Transnet, 2018, p.8). The main reason for a decrease in productivity include to poor weather conditions in Cape Town and challenges in equipment reliability.

2.2.1.3 Port Elizabeth Corridor

The Port of Port Elizabeth is a geographically well-positioned, customer-centric, multi-cargo port that prides itself on flexibility and service excellence (Transnet National Port Authority, 2018). Port Elizabeth port plays a crucial role to serve the Eastern Cape economy, which is dominated by the automotive firms. Being a congestion free port allows it to maintain high cargo handling rates, fast and efficient ship turnaround and unparalleled service levels (Transnet National Port Authority, 2018). As a result, it serves as an alternative port to counteract congestion in Durban as well as bad weather conditions that are usually experienced in Cape Town.

The average moves per ship working hour slightly declined in Port Elizabeth from 25 to 23 during 2017/2018 (Transnet, 2018, p.4). The main reason for a decrease

in productivity is due to poor weather conditions which impacted crane productivity and delayed turnaround time for the ships.

2.2.1.4. Johannesburg Corridor

City Deep terminal is the largest is the largest inland port in Africa and the fifth largest internationally. At peak, the terminal handles about 300 trucks and also offloads up to 10 trains a day (Creamer, 2015). City Deep therefore plays a crucial role in facilitating cargo movements in the Gauteng region. City Deep terminal also plays an important role in connecting inland export cargo, with South Africa's seaports like Durban, Port Elizabeth and Cape Town.

One of the main constraints for City Deep terminal was the issue of traffic management for trucks in and out of the terminal. However, due to R800m terminal upgrade by Transnet in 2015, the turnaround time for the trucks improved drastically (Transport World, 2015). As part of modernizing the terminal, Transnet replaced the handling equipment, installed the new Navis operating system, upgraded the infrastructure and installed the new weight-bridge. (Transport World, 2015).

As a result, operational efficiencies have improved at City Deep Terminal.

It is evident from the discussion above that ports play a crucial role in supporting road freight. However, due to poor leadership, Transnet has been performing very poorly. As a result of pressure from various stakeholders most of the Transnet board members opted to resigned and the Minister of State Enterprises fired the remnants of the old Transnet board, as part of stabilizing the organization (van Zyl, 2018).

The following section will discuss on-the-road specific challenges that impact the performance of truck companies in South Africa.

2.2.2. On-the-road challenges.

Most production and consumption centres in South Africa are located far from ports (Havenga, Simpson, King and Braun, 2016, p.7). As a result, truck drivers spend an

enormous amount of time on the road, navigating the country's provinces, municipalities and neighbouring countries in SACU (South African Customs Union) and in some cases delivering to SADEC (Southern African Development Community) countries.

As a result, the truck drivers experience challenges on the road, which impact their ability to deliver to customers on time. The following section will discuss on-the-road challenges that impact the performance of the transport companies.

2.2.2.1. Traffic congestion.

Traffic congestion occurs because of increase in road usage, while infrastructure itself remains constant, it is characterized by slower speeds, which leads to longer trip times, and increased vehicular queuing (Varma, 2016, p.116). In some cases, traffic congestion is caused by bad weather conditions, road construction, poor road visibility, faulty robots (Olivier and Bruwer, 2017, p.698).

Moridpour, Mazloumi and Mesbah (2015, p.550) assert that heavy trucks have a greater impact on their surrounding traffic in comparison with passenger vehicles. This is due to their physical characteristics like length and size and their operational characteristics like acceleration and manoeuvrability. A 16 meters long truck, with 36 000Kgs gross weight, travelling at 100km/hour, will stop after 160 meters, in comparison with a passenger car which will stop at around 96 meters (Utah.gov, n.d.). These numbers show the magnitude that the trucks may have on the traffic congestion.

According to TomTom Traffic Index Study of 2017, traffic congestion has increased by 23% internationally since 2008 (TomTom, 2017). However, there are major differences between continents. Table 2.1. shows how traffic congestion has increased at the continental level between 2015 and 2016.

Table 2. 1 Traffic increase at continental level between 2015 and 2016

Continent	**% increase in traffic**
United States	5%
Europe	9%
Asia & Oceania	12%
South America	7%
Africa	15%

Source: Adapted from to Tom Tom., 2017. TomTom Traffic Index 2017: Mexico City Retains Crown of 'Most Traffic Congested City' in the world. *Tom Tom.* [Online]. Available at: http://files.shareholder.com/downloads/TOMTOM/0x0x928844/034CDB5B-6FA7-42A8-B1E6-1521C19FD8DD/TOM_News_2017_2_21_General.pdf [Accessed 05 August 2018].

As per Table 2.1, the developing continents reflected higher increase in traffic congestion over 2015-2016. This trend may be due to increase of cars on the road, which has exceeded the road infrastructure capacity to handle the traffic.

According to TomTom (2017) traffic congestion globally has increased by 10%, based on 2015-2016 statistical analysis. Table 2.1 above shows that Africa reported the highest increase in traffic congestion from 2015-2016, this trend is likely to have a negative impact on the road freight industry, due to on-the-road delays which are likely to occur. How does South Africa compare with the rest of the world? Congestion in South Africa's big cities like Johannesburg, Pretoria, Cape Town and Durban, including major highways is a common phenomenon which leads to frustration for the drivers and has a huge economic impact due to lost time while in traffic.

According to a research survey by TomTom in 2011, the results show that at least one quarter of all drivers on the South African roads spend 45 minutes or more in traffic on daily basis. In financial terms this amounts to R1.1bn of cost to employers per month, due to wasted time in traffic (Olivier and Bruwer, 2017, p.698). In addition

to economic impact, a research conducted in Nigeria revealed that high traffic congestion has negative implications for the socio-economic outlook, these implications include increasing health problem, loss of productivity in the workplace, delivery delay and increased cost (Ofalabi, Olalekan, Oluwaji and Fashola, 2017, p.252). These findings are consistent with research by Elisongou (2013, pp.51-61) conducted in Tanzania, which revealed the negative implications of the road traffic congestion include increase in fuel consumption, increase in operating costs, wastage of time on the road, increase in accidents, physical and mental impact for the truck drivers as well environmental pollution.

2.2.2.2. Truck hijackings and theft.

Truck hijacking refers to the taking of a truck by force, or the threat of force to the driver, while theft refers to the taking of another person's property or services without that person's permission or consent. Hijackings and theft are some of the struggles faced by the freight companies. A report by a tracking company C track (2016) states that ‘rising truck hijackings statistics remain a major concern’. As the levels of technological innovations increase so is the level of criminal sophistication. Criminals are now using advanced methods like signal jammers, diversion tactics and infiltration teams to gain access to the trucks. Criminals are also disguising as road traffic officials.

According to a report by Engineering News (2014) truck hijackings is up by 10% from 2013- 2014 and the loss to the road freight industry is estimated at R1.2bn per annum. According to South Africa’s official crime statistics, released in 2014, 991 of truck hijack incidents were reported in 2013/14, in comparison with943 trucks in 2012/2013.

The criminals usually target trucks for three reasons, i.e. to access cargo due to its resell value, to access truck and trailer for resale and lastly to dismantle the truck and sell as used spare parts (Venter, 2014). C Track (2016) state that according to the South African Insurance Crime Bureau, fast moving consumer goods (FMCG) like tobacco are currently in high demand. Criminals also target trucks to access the

truck and trailer for resale and in such cases, cargo is just viewed as an extra bonus. Lastly, criminals hijack trucks to dismantle it for its valuable components like engine parts. A research by C-track (2016) reveals that Nissan and Scania were the most targeted trucks brands in South Africa.

The issue of truck hijacking is not peculiar to South Africa only, a report from the US by the Texas Department of Insurance (n.d.) The National Safety Council warns that some commercial vehicles may be especially vulnerable to hijacking. Hijackers may target these vehicles not for the resell value of the cargo they carry, but for using them for other illegal activities, such as for committing robberies, transporting explosives or perpetrating terrorism. Truck hijacking and cargo theft is thus a concern for the freight industry, where criminals may hijack truck and cargo for various criminal reasons. It is important to investigate the matter to understand its prevalence at the company level.

2.2.2.3. Poor road conditions and infrastructure.

The conveyance of goods by road has increased drastically over the past ten years, due to inefficiencies experienced in rail service. According to Barloworld Logistics (2013) the percentage of cargo tonnage transported by road has increased to 89%. This increase seems to place a huge pressure on the road infrastructure, which is already in poor state of repair, which leads to increased traffic congestion and higher maintenance costs for vehicles.

According to Wall and Rust (2018, p.4) roads in South Africa fall under the jurisdiction of the three spheres of the government, i.e. national government, provincial government and municipalities. National roads are main corridors connecting the provinces, while provincial government is responsible for roads development at provincial levels. The municipality is responsible for road infrastructure within its jurisdiction. However, this segregation has led to disconnect in the road infrastructure, where some areas are well developed, while some e.g. rural areas are under-developed and poorly maintained. Kannemeyer (2016, p.3) reported that the total proclaimed roads in the country amount to +/-618 081 km in

length, and 131 919Kms of un-proclaimed roads, total 750 000Kms. Un-proclaimed roads refers to the roads that were constructed by the government departments, but were never handed over formally to any provincial authorities.

The pavement condition for the South African roads as of 2016 is as follows, 17.2% is classified as very good, 41.6% good, 35.5% average, 5.3% poor, while 0.4% is very poor (Kannemeyer, 2016, p.5). SANRAL manages primary intercity roads, which are of national economic importance (Wall and Rust, 2018, p.4). According to SANRAL (2016) 95% of the roads managed by SANRAL are in “good to very good condition” and100% of their network is under routine maintenance. However, the rural road infrastructure on the other hand, has not been properly maintained for a couple of decades (Morabedi and Makhari, 2016, p.780). As a result, the road conditions in the country vary greatly with category, type of road, sphere of government and geographical location (Wall and Rust, 2018, p.4).

Road conditions and road infrastructure play an important role in road freight business. Good road conditions contribute towards road freight efficiencies. Townsend and Ross (2018, p.331) posit that poor road conditions have an impact on vehicle operating costs. These authors argue that the average maintenance cost of vehicles travelling on poor quality roads is double that of trucks travelling on good quality roads. In addition, poor road conditions increase fuel consumption by 15%. Tyre life for trucks travelling on poor roads is shortened by two-thirds. Poor road conditions also contribute towards cargo damages (Townsend and Ross, 2018, p.332).

2.2.3. Increasing logistics and transport costs.

One of the most dominant challenges facing the road freight transport industry is the issue of rising operating costs. The issue has received attention, because rising operating costs have a negative impact on the price of finished goods. Increasing logistics costs have an impact on exports and imports and eventually to the economy at large. According to World Trade Organization (2018, p.76) “high costs

for exporting and importing make it hard for African economies to fully benefit from their proximity to markets".

Rising logistics and transport costs may prompt international buyers to source to materials from countries with lower transport costs, while on the import, the South African buyers may reduce their spending on imported goods, which may overall reduce the country's GDP. Nieman, Kotze and Mannya (2018, p.1) argue that global sourcing has increased, buyers search for new that can offer better pricing, quality, and delivery lead times, better than the local suppliers.

Figure 2.2 shows the trajectory of the logistics costs, as a % of GDP in South Africa over a twelve-year time-series according to Logistics Barometer Report 2016 by Havenga, et al. (2016, p.5).

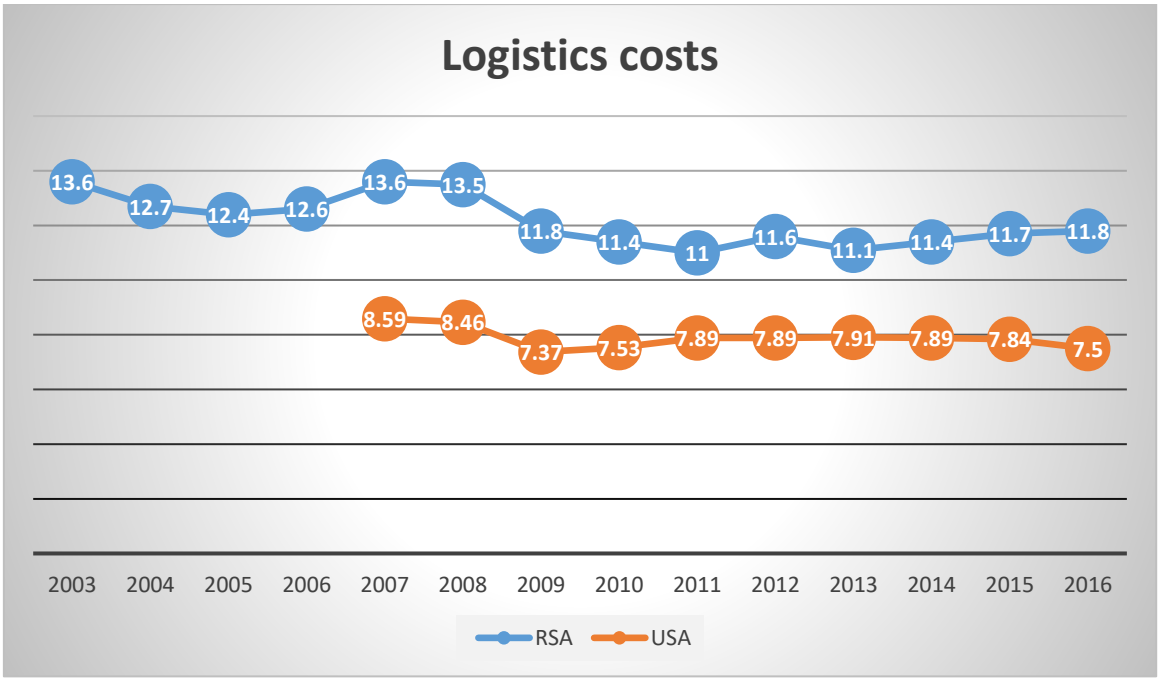


Figure 2. 2 Logistics costs fluctuation as a percentage of GDP, 2003-2016: A comparison between South Africa and United States

Source: Adapted from Havenga, J.H., Simpson, Z.P., King, D. de Bod, A. and Braun, M. 2016. Logistics Barometer South Africa 2016. Stellenbosch: Stellenbosch University. and Ward, J., Zimmerman, M. and Sonthalia, B., 2017. State of Logistics Report: Accelerating into uncertainty. In: The 28th annual Council of Supply Chain Management Professionals. Illinois, United States. Illinois: A.T. Kearney.

According to Figure 2.2, South Africa's Logistics have decreased slightly over the years. Logistics cost as a percentage of GDP were at 13.6% in 2003 and this figure decreased to 11% in 2011. However, subsequent to that, the logistics have slightly increased during a period of 2011-2016 from 11% to 11.8%. Therefore, based on these numbers there is an urgent need for the industry and regulators to work together to identify costs drivers, with an intention to reduce the logistics costs. The question is: are the logistics increasing due to inefficiencies in logistics services or is the increase in costs due to external factors? The following section looks at the logistics costs in South African against other selected countries.

2.2.3.1. South Africa's logistics costs in comparison with other countries.

Figure 2.3 shows how South Africa compares with the other countries in terms of logistics costs as a % of GDP.

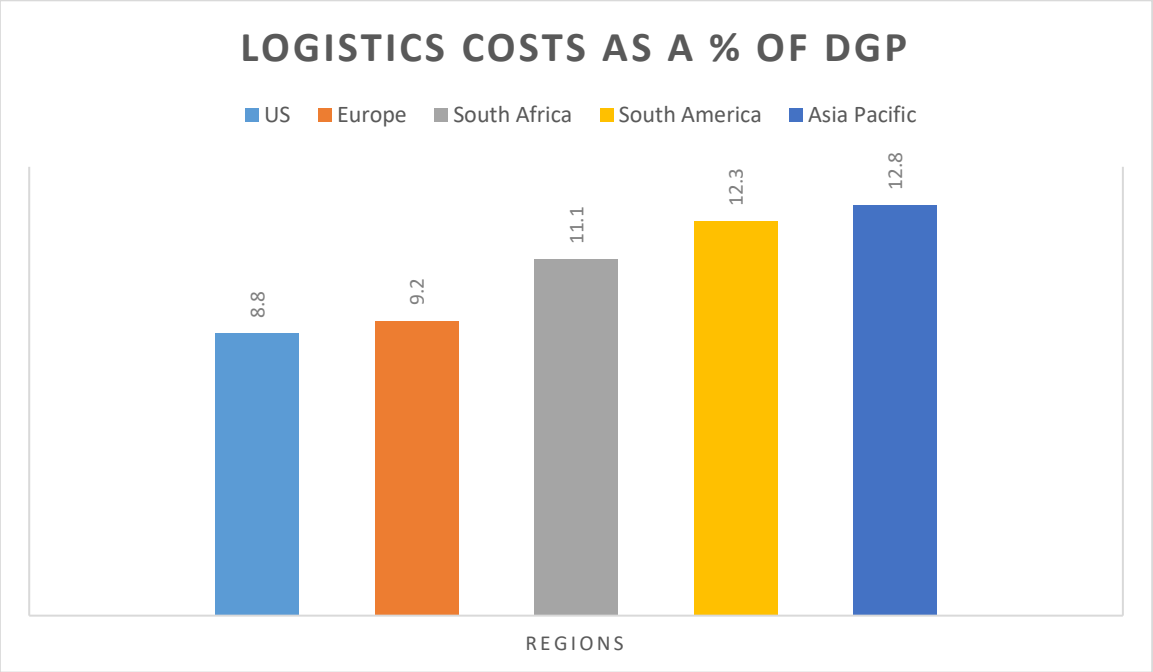


Figure 2. 3 South Africa's Logistics costs in comparison with other countries

Source: Adapted from Havenga, J.H., Simpson, Z.P., King, D., Viljoen, N., de Bod, A. and Braun, M., 2015. Logistics Barometer South Africa 2015. Stellenbosch: Stellenbosch University.

Figure 2.3 shows that logistics costs as a percentage GDP in the US were at 8.8%, 9.2% in Europe, 11.1% in South Africa, 12.3 in South America and 12.8% in Asia Pacific Region in 2015. US have managed to reduce their logistics costs. According to the 28th State of Logistics Report for the US, US logistics costs declined for the first time since 2009, even though e-commerce led to a boom in the US market (Ward, Zimmerman, and Sonthalia, 2017, p.1). The logistics costs in the US decreased from 8.59% in 2007 to a low 7.5% of GDP in 2016. Some of the reasons provided by Schulz (2017) for this trend include overcapacity as new entrants enter the market, innovation disruptions, rate pressures and sluggish economy. However, in the South African market, logistics costs have been on the upward trajectory.

2.2.3.2. Transport costs in relation to overall logistics costs.

Various research reports confirm that high logistics and transport costs in comparison with other countries, remain a challenge for South Africa. According to a research by Havenga (2009) cited in Akinlabi and Mbohwa (2016) South Africa's transport costs contributed 50% of the total logistics costs.

The State of Logistics Survey for South Africa which was conducted by CSIR in 2012 revealed that transport's contribution to the overall logistics costs in 2012 was 61%, this is the highest it had been in nine years and this number is higher than the global average (Barloworld Logistics, 2013). The challenge of rising logistics costs has a huge negative impact on the industry, the margins are reduced, and as a result some of the transport companies are fighting for survival, due to unbearable high costs of running the business. Myers (2017) states that 'between March 2016 and February 2017, 410 companies registered with the bargaining council closed and 2 648 employees lost their jobs'. Brit (2018, p.36) argues that the issue of high transport costs in South Africa is due to lack of proper multi-modal solution, hence road transport remains a preferred mode of transportation and it is driven by the private sector.

Transport costs remain a significant portion of the overall logistics costs. According to Havenga, Simpson, King, Viljoen, de Bod and Braun (2015, p.6) the contributors to the logistics costs in South Africa in 2013 were, transport at 59.8%, inventory carrying costs at 13.5%, warehousing at 14.3% and management and administration at 12.5%. The following section will discuss the various components of the transport costs.

2.2.3.3. Components of the road freight transport cost.

Transport cost components refer to all the items that contribute to the total costs of road freight transport in South Africa. Figure 2.4 shows the various cost components of the transport cost.

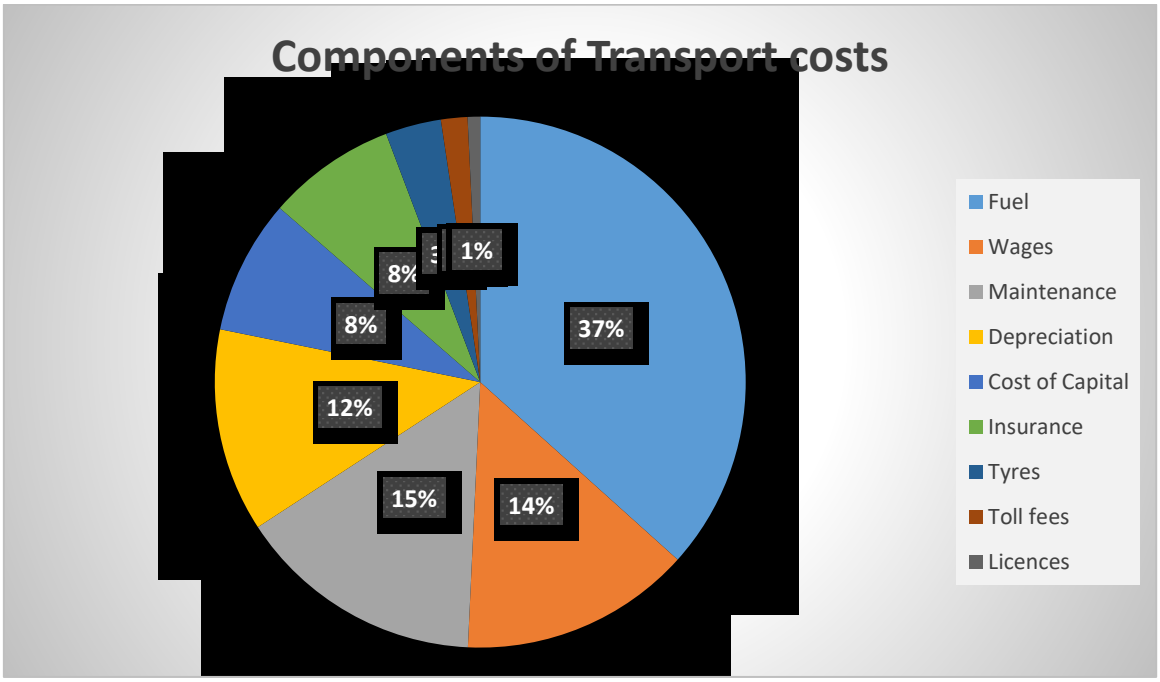


Figure 2. 4 Components of in South Africa

Source: Adapted from Havenga, J.H., Simpson, Z.P., King, D., Viljoen, N., de Bod, A. and Braun, M., 2015. Logistics Barometer South Africa 2015. Stellenbosch: Stellenbosch University.

According to Figure 2.4 it is evident that the top three transport costs are fuel, wages and maintenance costs. The fuel costs are due to rising fuel prices globally. The wages are due to skills shortages, which has led to increased demand for truck drivers, hence in the study of economics, if demand exceeds supply, a shortage is created in the market, as a result the remaining few drivers demand high salaries. The bargaining council has also been negotiating higher than inflation wages for the truck drivers. The issue of high maintenance costs is linked to poor road infrastructure. A research by Steyn, Monismith, Nokes, Harvey, Holland and Burmas (2012, p. 15) concludes that one of the effects of deteriorating pavement quality is increased maintenance costs for the freight industry, which eventually contribute to higher transport freight costs.

2.2.4. Shortage of skilled labour.

A business venture requires some resources to operate effectively. These resources include physical, intellectual, financial and human resources. In freight transport business physical resources will include items like trucks, while intellectual resources will include commercial astute of the business, financial resources will include capital, while human resources will include office administrators and drivers. Human capital is arguably the most important resource in business, since it is only people who are capable of executing business strategy. Educba (2018) argues that “it is the human assets and not the fixed or tangible assets that differentiate an organization from its competitors”.

However, despite this crucial role of human resources, the existing body of knowledge laments the scarcity of skilled labour in the logistics sector. According to the US State of Logistics Report 2017 by Ward, Zimmerman and Sonthalia (2017, p.15), driver shortage is one the issues facing the road freight industry. Shortage of

truck drivers is estimated at 15% in the US (Ward, Zimmerman and Sonthalia, 2017, p.15). In the South African context, The 10th State of Logistics Report 2013 revealed that lack of skilled labour at all levels has a negative impact on the performance of supply chains (Council for Scientific and Industrial Research, 2013, p76.).

Lack of skills seem to be a concern globally and nationally. According to Laubscher (2018) Manpower Group 2016/17 talent shortage survey, revealed that 40% of the employers globally are having a difficulty filling jobs due to lack of skilled labour. The percentage for South Africa is over 30% Laubscher (2018).

According to industry surveys it appears that the education does teach the necessary required 'hard skills', however it is the 'soft' skills and practical exposure that is lacking (Council for Scientific and Industrial Research, 2013, p.81). The Logistics Barometer 2016 also highlights lack of skills in logistics as major challenge for the industry. According to Havenga, Simpson, King, de Bod, Braun (2016, p.13) there is a looming threat in South Africa due to lack of skills, the issue is due to poor basic education, underperformance of higher education, and lack of practical skills transfer at the workplace. Lack of skills is prevalent across all levels, however, it is more prevalent at management level.

The issue of skills is important for the road freight industry, because without properly trained staff freight companies may not be able to function effectively and efficiently. Shortage of staff may negatively impact other areas of business, for an example poorly skilled drivers may contribute towards road accidents. According to the US Department of Transport (2006, p.13) 87.2% of truck road crashes are driver related.

Shortage of experienced staff may be a contributing factor towards the outcry regarding the illegal employment practices in the industry where freight companies are employing foreign drivers without following the correct employment procedures. According to Poree (2011) a study conducted by Durban Harbour Carriers Association (DHCA) among 36 transport companies found that 30% of drivers were foreigners, of which some of them may not have been employed following the correct legal protocols.

The employment of foreign drivers is allegedly linked to the current unrest in the road freight industry, which recently led to an incident where 35 trucks were

damaged, and some set alight in Mooi River, KZN (Khoza, 2018). The violence against foreign drivers is viewed by some as politically motivated.

There is an increased pressure from various stakeholders, including the Department of Transport to stop employing foreign drivers. According to the Acting deputy director-general for road transport at the Department of Transport 'the employment of foreign drivers over local drivers is not just disregarding the labour laws of the country, but it also creates unnecessary tension, given high unemployment rate in South Africa' (Venter, 2018).

2.2.5. Road freight challenges that emanate from customers.

Some of the external challenges in the road freight industry emanate from the customers. The following section discusses customer-induced challenges.

2.2.5.1. Overloading of freight trucks.

For imports into South Africa, overseas suppliers are responsible for packing cargo. Also, for exports out of South Africa, local suppliers oversee packing cargo into containers or other type of packaging. Hence, issue of overloading is beyond the control of the transport companies, yet it is an issue which impact the transporters directly and indirectly.

Overloading occurs when a supplier loads cargo mass that exceeds maximum permissible tonnage for a specific truck size. Mahmoudabadi and Abolghasem (2013, p.1) claim that overloading of trucks is increasing, yet it is a major cause for deterioration of road surface condition, as well as a safety concern for other vehicles, due to ineffectiveness of the braking system for overloaded trucks.

Truck and Freight (2018) warns that 'overloading vehicles has many negative consequences from both a safety and financial angle'. A report by Bouchacourt (2016, p.1) reveals that damage to the road infrastructure by truck's axle loads

exceeding limit, increases exponentially with the increase of load above the designed axle load, which reduces the life span of road pavement. The report further reveals that 60% of the damage to the road network in South Africa is caused by illegally overloaded heavy vehicles.

Table 2. 2 Overload Control Statistics in 2014

No of vehicles weighed	2 041 000
No of vehicles overloaded	416 364 (20%)
No of vehicles chargeable	53 525 (2.6%)
Mpumalanga	669 000
Limpopo	413 000
KwaZulu-Natal	145 000
Gauteng	142 000
North-West	77 000
Free State	44 000
Northern Cape	10 600
Eastern Cape	65

Source: Adapted from Nordengen, P., 2015. Heavy Vehicle Overload Control Challenges. In: 2015 Transport Forum, University of Johannesburg. Johannesburg, South Africa, 4 June 2015. Pretoria: CSIR.

Table 2.2 shows that around 2 million trucks were inspected for overloading across the country in 2014. Out of 2 million trucks, 20% were found to be overloaded, however only 2.6% of these overloaded trucks were chargeable. Nordengen (2015) states that although overloading is a problem on the South African roads, overload control challenges like trucks using alternative routes, bribery and corruption, lack of sufficiently trained staff, ineffective court systems and low fines make it difficult for the law-enforcement agencies to curb the scourge caused by overloaded trucks.

Due to the negative impact and consequences of overloaded trucks, this information contributes towards extending our understanding of road freight challenges in South Africa.

2.2.5.2. Delays in loading and offloading trucks.

According to US Department of Transport Inspector General the loading and offloading delays transportation. Loading and offloading delays leads to travel delays which may have financial implications for the transport companies. To compensate for the delays, the drivers may then drive faster to make up for the lost time, which may increase the risk of crashes and subsequent fatalities on the road (Trucking Info, 2016). As a result, the Inspector General has initiated an Audit to assess loading and unloading delays, with an intention to measure the potential impact of these delays in the US.

Another study by Ilinois Soybean Association (2015, p.7), conducted in the US, found that more than 90% of survey respondents had a truck unloading delay in 2014. One-quarter of respondents have experienced a truck unloading delay on 60% or more of their deliveries. 36% of respondents said truck unloading times were a serious or moderate concern that requires intervention.

The above problem is also prevalent in South Africa. Braun (2007) reported that the reefer cargo hauliers are frustrated due to knock-on costs that are due to perpetual long delays when loading and unloading cargo. As a result, most hauliers are now opting to load and deliver at night to avoid delays. Barloworld Logistics (2013) claims that packing and unpacking turnaround times in South Africa are often above the standard four hours for line-haul transportation. Line-haul transportation refers to movement of cargo between the two major cities like Durban-Johannesburg.

Understanding the impact of delays in loading and offloading of trucks is important for this research, because delays in loading and offloading may have a negative impact on the performance of road transport companies.

2.2.6. Internal challenges.

Although, it appears that most of the challenges in road freight originate from external factors, some of the challenges are 'self-inflicted'. In some cases, transport companies fail to implement sufficient compliance policies and practices, aimed at controlling the operations. This section will discuss the two main controllable internal factors, which is non-compliant/defective vehicles as well as human factors.

2.2.6.1. Defective trucks on the road.

An increasing number of defective trucks on the South African roads seem to be a major concern for the communities, the government and the freight industry. The National Road Traffic Act of 1996, Section 42(1) states that 'No person shall operate a motor vehicle which is not in a roadworthy condition on a public road'.

However, according to the truck inspection results from the Fleetwatch national campaign, it is evident that some transport companies are operating non-compliant vehicles (Nordengen, 2015). The transport companies are failing to ensure that the drivers and trucks are fully compliant with the legal and safety requirements. Table 2.3 shows the results from 28 truck inspections which were conducted by Fleetwatch between 2006 and 2015.

Table 2. 3 Brake and Tyre Watch Results from 2006- 2015

Areas inspected	Inspected Trucks	Discontinued Trucks	%
City Deep	24	21	88%
Middelburg	35	24	69%
Nelspruit	13	12	92%
Centurion	41	17	42%
Bloemfontein	24	20	83%
Midway KZN	26	10	38%

Kroonstad	8	7	92%
Polokwane	11	10	91%
Midway KZN	24	20	83%
Brackenfell, W. Cape	25	25	100%
Pietermaritzburg	12	11	92%
Port Elizabeth	15	6	40%
Rustenburg	7	5	72%
Total Events (28)	594	397	67%

Source: Adapted from Nordengen, P., 2015. Heavy Vehicle Overload Control Challenges. In: 2015 Transport Forum, University of Johannesburg. Johannesburg, South Africa, 4 June 2015. Pretoria: CSIR.

Table 2.3 shows the results of road inspection campaign conducted by Fleetwatch the campaign was conducted from 2006 – 2015. A total of 594 vehicles, in 28 events across the country were stopped for inspection for inspection, out of 594 trucks, 397 had serious defects such that they were immediately taken off the road (Nordengen, 2015).

O'Leary (2015), cited in Adams (2015) states that there are only around seven major trucking companies in South African which maintain their fleet faithfully. Many small to medium sized operators are not conducting scheduled services. The 'Big Seven' trucking companies only represent around 30 000 trucks out of around 300 000 on SA's roads (O'Leary, 2015 cited in Adams, 2015).

According to Insurance Institute for Highway Safety (IIHS) (2016, p.6), IIHS researchers partnered with the University of North Carolina Highway Safety Research Center and the North Carolina State Highway Patrol in the US to investigate factors that affect crash risk for trucks in North Carolina. The research collected data from 197 truck crash incidents and compared with similar trucks that were not involved in accidents. The findings were as follows, 'Nearly three-quarters of the crash-involved trucks had vehicle defects identified during a post-crash inspection'. Therefore, according to their research truck defects raise crash risk.

Some of the prominent defects identified by the researchers included brake defects, tyres and lighting systems.

These findings are consistent with a report by Jungu-Omara and Vanderchuren (2006, p.455), where they identified brakes, tyre burst, smooth tyres and faulty lights were identified as major factors in heavy-duty vehicles that contribute to road accidents.

According to MiWay's Head of Business Insurance, Stolz (2016), cited in Independent Online (2016) light delivery vehicles, accounted for 22.7% of the road accidents in 2015-16, while trucks were responsible for 4.8% of the accidents, small motor vehicles 47.9%, minibus taxis 10.1%. The commercial vehicles were responsible for 1755 people losing their lives. Direct costs for road accidents were estimated at R306 billion in 2015-16, due to costs of hospital care, police time, clearing accident scenes and other costs Stolz (2016), cited in Independent Online (2016).

The transport companies are therefore responsible for ensuring that their vehicles are fully compliant with road requirements to reduce the effect of defective trucks on the road, which include accidents as well as other non-safety critical affects like vehicle breakdown, which leads to road traffic congestion, environmental impact and fuel consumption (Cuerden, Edwards and Pittman, 2011, p.6).

2.2.6.2. Driver fitness for the job.

In addition to maintaining roadworthy vehicles, the transport companies are also responsible for ensuring that the legal human resources practices are in place.

Chapter IV of the National Road Traffic Act of 1996 outlines the requirements for the operators to ensure 'Fitness of Drivers' (National Road Traffic Act, 1996, p.23). Section 12, states that 'driver of motor vehicle to be licensed'. Therefore, truck drivers should be in possession of a valid driver's license for the appropriate class of vehicle that they drive. And the license should always be in their possession for presentation to the law-enforcement authorities on the road (National Road Traffic Act, 1996, p.24).

Section 15 of the National Road Traffic Act outlines conditions under which a person may be disqualified from obtaining a driver's license (National Road Traffic Act, p.25). The transport companies are thus responsible for ensuring that the truck drivers are in good state of health to allow them to operate successfully. Driver fatigue is one of the pressing challenges for the road freight industry. The transport companies are also responsible for implementing and regulating drivers working hours to ensure the drivers get enough rest on the road.

2.2.6.3. Driver fatigue.

Davis (n.d.) defines fatigue as a general feeling of lack of energy and motivation that can be physical, mental or both. Fatigue is one of the prevalent issues in the road freight industry, due to long hours that the drivers spend on the road. Symptoms of fatigue include lack of energy, constantly tired or exhausted, lack of motivation and difficulty concentrating (Davis, n.d.). Concentration is one of the requirements on the road, lack of concentration can have negative consequences for the drivers and other road-users.

A research by Insurance Institute for Highway Safety (IIHS) (2016), in collaboration with the University of North Carolina Highway Safety Research Center and the North Carolina State Highway Patrol in the US reported that truckers who drove more than five hours without any rest break were more likely to crash, in comparison with those who drove one to five hours and rested.

According to a report by U.S. Department of Transportation (2006, p.13) to Congress on the Large Truck Crash Causation Study, it was discovered that 87.2% of all crashes were driver related. The study found that driver fatigue was a critical factor in 13% of all accidents involving large commercial trucks, while work pressure from the employer contributed 10% in the US.

Road Traffic Management Corporation (2005, p.12) asserts that an increase in the level of fatigue, leads to an increase in crash risk. Fatigue is a prevalent problem for drivers in South Africa. According to Transport World Africa (2016) a research conducted by the Interdisciplinary Accident Research Centre in South Africa shows

that 41% of accidents are fatigue related and 39% of the problems that drivers face are related to fatigue. Therefore, fatigue is one of on-the-road challenges for the freight companies, which may have negative consequences for the freight transport companies.

2.2.6.4. Driver behaviour.

Driver behavior refers to the way truck drivers conduct themselves while they are on the road. Some of the incidents on the road have directly been linked to the drivers' ill behavior. In addition to driver fatigue, other driver offences include reckless, negligent, inconsiderate and aggressive behavior on the road.

U.S. Department of Transportation (2006, p. 15) identified that traveling too fast for conditions contributed 23% to the truck crashes, driver's unfamiliarity with the roadway contributed 22% to the truck crashes, over the counter drugs use by the driver contributed 17%, driver illegal maneuver and driver inattention accounted for 9%. Road Traffic Management Corporation (2005, p.37) in South Africa identified some of the traffic offences and contraventions that mostly contribute to traffic crashes as, driving under influence of alcohol, unsafe and illegal overtaking, ignoring traffic signals, non-wearing of safety belts and excessive speed.

The non-compliance issues discussed above make an important contribution to this research paper, because they bring to light the internal matters that are within the control of transport companies, yet which may have devastating negative consequences if they remain unattended to.

The following section will discuss how are the road freight challenges discussed above, impacting the transport companies.

2.3. How are road freight challenges impacting the transport companies?

To fully understand the road freight challenges, it is also important to understand how these challenges impact the transport companies on their key performance indicators.

Wisner, Tan and Leong (2012, p.503) argue that most performance measures used by firms today continue to be traditional cost-based. However, cost-based measures don't necessarily reflect the underlying performance of the productive systems of an organization Wisner, Tan and Leong (2012, p.503). It is thus, important to use an all -encompassing model to measure the organization's performance.

One of the common strategic performance management tool in business is the Balanced Scorecard (BSC), which was developed by Kaplan and Norton in 1992 (Abdulla, Umair, Rashid and Naeem, 2013, p.134). BSC measures the firm's performance from four different angles, i.e. innovation and learning perspective, internal business perspective, customer perspective and financial performance.

2.3.1. Financial performance.

Road freight challenges may contribute to inefficiencies in logistics. Due to inefficiencies in logistics, the transport companies may suffer financial consequences. Supply Chain Digest (2018) reports that rising transportation and logistics costs in the United States are hitting the corporate bottom line.

Chopra and Meindl (2016, p.412) state that "transportation is a significant component of costs incurred in supply chains". This is due to the fact that transport is involved from downstream all the way to the customer. Transport is responsible for the movement of raw materials, work-in-progress materials as well as finished goods.

Another research by Stępień, Łęgowik-Świącik, Skibińska and Turek (2016, p.491) assert that logistics within a firm is one of many functions that generate costs, which may have a significant contribution to the firm's financial position. Road freight

challenges lead to increase in logistics costs, yet logistics costs are an important instrument in creating the financial results for the firm.

2.3.2. Customer perspective.

“Performance measurement systems for supply chains must effectively link supply chin trading partners to achieve breakthrough performance in satisfying end users” (Wisner, Tan and Leong, 2012, p.513). Chopra and Meindl (2016, p.15) argue that the main objective of a supply chain is to create value for the customer. The authors posit that transport is responsible for the movement of the product from place of origin to the customer (Chopra and Meindl (2016, p.412). Therefore, delays in supply chain directly impact the customer.

Delays during road freight transportation are likely have a negative impact on the transport companies’ ability to service customers. Transportation is responsible for ensuring goods are delivered at the right time, therefore delays from port, delays on the road and theft have an impact towards the customer. A study by Brooks and Trifts (2008) conducted in North America, cited in Garcia, Mondejar and Sarande (2015, p.4) found that the impact of road congestion on transit time and cargo delivery was identified as a key element of the delays in North Americas road freight industry.

2.3.3. Internal business perspective.

Due to road freight challenges, the road freight companies have had to interrogate and review their business processes. According to Barloworld (2013) the major freight transportation companies are addressing some of these issues by optimising vehicle fleets and implementing strategic route planning. These strategies assist freight companies to manage and optimise the entire logistics process in a proactive manner. As a result, efficiencies in transport management service can reduce transportation costs, transform and optimize the distribution network (Barloworld, 2013).

2.3.4. Innovation and learning perspective.

The road freight companies should identify creative solutions to address road freight challenges, as part of achieving innovation and learning. The innovation and learning perspective should aim to answer the question of how is business able to apply continuous improvement, create value and foster innovation?

The freight companies are exploring innovative solutions like fuel efficient vehicles, advanced training for the drivers and other appropriate technologies to improve supply chain (Barloworld, 2013). Some of the freight companies have considered moving into 'smart trucks', which have more loading capacity, reduced fuel consumption and lower harmful emissions (SA Forestry Online, 2011).

2.4. Interventions to improve the performance of the road freight industry.

The road freight challenges are diverse. Some of the issues emanate from the external environment, which is a non-controllable; hence government intervention is necessary to address most of the industry challenges. For an example, the industry cannot develop the infrastructure; the industry cannot design the legislative framework to control the industry. These duties fall within the jurisdiction of the government.

Pienaar and Voigt (2012, pp.346-349) argue that the government is an important stakeholder in developing the transport system. The authors assert that the government should intervene in controlling excessive competition, coordinating transport activities, maintaining safety, security and order, providing costly infrastructure, providing public goods, recovery of the true resource cost of transport inputs, regulation of harmful conduct and externalities, restraint of monopoly power and social support.

In response to addressing the challenges outlined by Pienaar and Voigt (2012, pp.346-349) the government has proposed strategies aimed at addressing the current challenges facing the industry. The following section will discuss the National Transport Master Plan (NATMAP) 2050.

2.4.1. The Scope of NATMAP 2050.

NATMAP 2050 was commissioned in 2005, developed in 2007, finalized in 2010/2011 and approved by the Cabinet in 2016 (Morapedi and Makhari, 2017, p.778). NATMAP 2050 sets a vision, which is aimed at ensuring that transport would have met the needs of freight and passenger customers by 2050. The identified customer needs entail reliable and efficient transport service supported by sound infrastructure (Parliamentary Monitoring Group, 2010).

NATMAP 2050 is a comprehensive plan which is aimed at addressing inefficiencies in the overall transport system in the country including, public transport, freight movement, road safety, infrastructure and accessibility, economic challenges, liveable communities and urban migration, modal integration institutional governance, regulation and funding (Parliamentary Monitoring Group, 2010). These objectives are aimed at improving the transport systems quality in the country. It is envisaged that NATMAP 2050 will contribute towards the economic growth, the creation of employment and social integration not only is South Africa, but across the Southern-African region.

Due to the long-term nature of NATMAP 2050, short-term and medium-term strategies have been established to achieve the NATMPA 2050 vision.

2.4.2. Short-term interventions.

There is a view from the government that the operational hours of Heavy Good Vehicles on public roads should be revisited in order to improve road safety. The transport infrastructure in rural areas also remains under-developed, hence as part of the short-term interventions, the infrastructure development in rural areas requires urgent attention to facilitate inclusive economic growth (Morapedi, 2017, p.780).

Institutional reform is another area of focus under short-term priorities, the institutions responsible for road freight are currently disintegrated, which hinders development of a world-class sector. The development of the transport sector is a

capital-intensive project, as a result the government should review the funding policies, strategies and reallocation of budgets. Due to the evolution of technology globally, the opportunities to integrate transport with science, technology and innovation should also be explored (Morapedi, 2017, p.781).

2.4.3. Medium to Long-term interventions.

Investment in transport strategy in rural areas and providing access to transport opportunities is the first long-term intervention (Morapedi, 2017, p.781). The issue of multi-modalism is another long-term objective that NATMAP should pursue, the national freight transport operations across all modes including rail and road must work together to supply efficient transport services.

Traffic congestion management is another area which is currently neglected by the current road transport system, hence there is a need medium to long-term to develop a Traffic Congestion management Plan, which will serve as a roadmap for managing traffic congestion in the country. The efficient transport system should also support Green transport system initiatives, aimed at reducing emissions, hence a need to develop Green economy strategy. NATMAP 2050 should also prepare regulations on universally accessible transport (Morapedi, 2017, p.781).

2.5. Partnership between the government and the private sector.

Although the government has an important role to play in improving the road freight industry in South Africa, the private has a role as well to make a positive and meaningful contribution to improve the sector. The government's funding commitment for all infrastructure projects is estimated at R844.5 billion for the 2012/2013—2014/2015 period, with Transnet to invest a further R300 billion in rail and port developments over seven years starting in 2012. However, private-sector involvement is non-negotiable for the success of transport infrastructure projects – both from a funding and planning point-of-view (Dovetail, 2013).

In addition to public and private sector partnership, technological advancements in the road freight sector are promising to unlock some of the challenges that

negatively impacting the industry. The following section will discuss the technological future trends in the road freight sector.

2.6. Technologically-driven future trends in road freight transportation.

Due to various challenges discussed above, various start-ups have engaged in exploring the opportunity to use technology to address some of the road freight transport challenges. US 28th State of Logistics Report by Ward, Zimmerman and Sonthalia (2017, p.36) identified five logistics industry trends that could transport the industry. These trends include:

- Connected vehicles
- Anticipatory logistics
- Uber for freight
- Electric fleets
- Autonomous vehicles

It is believed that these ground-breaking technologies have a potential to contribute towards the advancement of the road freight sector globally.

2.7. Summary.

In this chapter the existing body of knowledge as it pertains to logistics and freight transportation was explored, from both global and South African perspective. The main focus was on freight challenges faced by the South African transport companies. The industry is currently confronted by many challenges, hence a need for urgent interventions to unlock the full potential of the road freight industry.

The following section will discuss the research methodology that was pursued by the researcher in conducting the study.

CHAPTER THREE

Research Methodology

3.1. Introduction.

This chapter entails strategy and methodology followed in designing the research study. The research study is focused on understanding the challenges faced by Road freight transport companies in South Africa's main corridors, i.e. Durban, Port Elizabeth, Johannesburg and Cape Town.

The trajectory of this chapter includes discussion of the study's participants and location of the study, followed by the research design, research approaches, data collection method, study population, sampling and data collection instrument that was used for the study. The second part of the chapter discussed data quality control issues including reliability and validity, data analysis, data reduction, data display, and ethical considerations were discussed.

3.2. Participants and Location of the Study.

The research study was conducted in Durban, Port Elizabeth, Johannesburg and Cape Town. The targeted participants were road freight companies based in these corridors. These locations were selected since they are the main freight corridors in South Africa connecting inland provinces with seaports. The specific participants within the transport companies were:

- Senior Managers
- Operational Staff

The researcher chose a heterogeneous approach to attract diverse responses from different organizational levels. Senior managers deal with strategic issues within the company, while operational staff deal with day-to-day, on-the-ground operational matters. Hence their experience on road freight challenges is likely to vary

3.3. Research Design.

According to Akhtar (2016, p.68) the research design covers the overall strategy that a researcher chooses to integrate the different aspects of the research study in a cogent and logical way, to ensure that the research problem is addressed effectively. The research design constitutes the blueprint for the data collection, measurement, and analysis. The purpose of the study was to investigate challenges that are facing road freight companies in South Africa.

A qualitative method was chosen for the study; because the extent of the phenomenon of road freight challenges is unknown, hence qualitative research is the methodology capable of bringing out the insight from the transport companies, who have first-hand experience with the issue under study. Data collection, measurement and analysis methods, were then aligned with a qualitative research methodology.

3.4. Research Approaches.

Saunders, Lewis and Thornhill (2004, p.85) assert that a research study follows one of the two approaches, i.e. deductive approach or inductive approach. A deductive approach is a scientific research that uses theory as a point of departure to arrive at a conclusion. A deductive approach, therefore, is more suitable for quantitative research study. Inductive approach on the other hand is aimed at gaining insight into a problem in order to arrive at the formulation of a theory. Inductive approach, therefore, is more suitable for qualitative research studies.

The researcher chose to use inductive approach for this study, in order to gain insight from the experience of managers and operational staff members employed by the road freight companies regarding the challenges they must deal with in the road freight industry.

3.5. Data Collection Method.

Rouse (2016) states that “data collection is the systematic approach to gathering and measuring information from a variety of sources to get a complete and accurate picture of an area of interest”. Data collection methods can be classified into two broad classifications, i.e. secondary data collection methods and primary data collection methods. Secondary data refers to data that already exists in the body of knowledge like in books, newspapers, journals and other media platforms like internet. Primary data collection methods include both quantitative and qualitative modes of enquiry to collect research data (Rouse, 2016).

Primary data from the existing body of knowledge was used as part of the literature review. The research study used qualitative data collection method to collect data from the respondents. The research used words, feelings and emotions from the respondents to create a meaning. The aim was to ensure greater level of depth of understanding of road freight challenges from the respondents.

3.6. Selecting a sample.

Saunders, Lewis and Thornhill (2004, p.150) asserts that in a census study, it may be possible to collect and analyse data from every possible case. However, due to issues like time, money and access constraints, it is not always possible to collect data from the overall population. Hence, there is a need for a research to use sampling technique to select research sample from the population. Some research questions will need sample data to generalise about all the cases from which the sample was selected. Figure 3.1 shows the different levels in sampling technique, i.e. population, sample frame and sample.

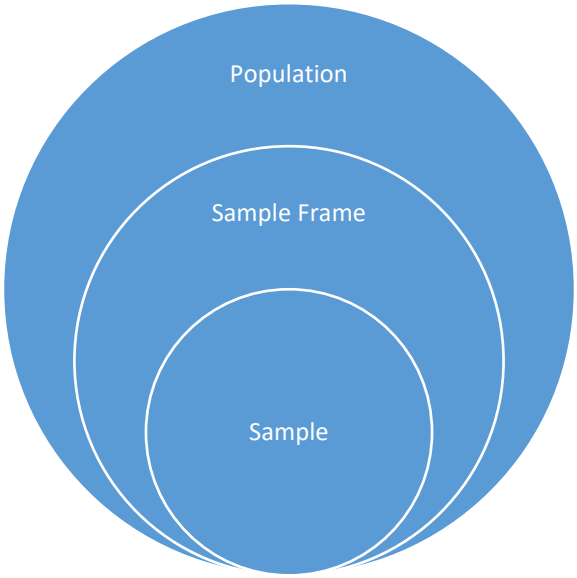


Figure 3. 1 Sample selection

Source: Adapted from Migiro, S.O., 2016. Qualitative and Quantitative Research Methods, GSOB8QR. Durban: University of KwaZulu-Natal, unpublished.

Figure 3.1 shows that a sample was drawn from the sample frame, a sample frame was derived from the research population.

3.7. Population.

According to Saunders, Lewis and Thornhill (2004, p151) a research population is also known as a well-defined collection of individuals who share common characteristics.

The population for this study included all employees working for the road freight transport companies in South Africa. A Statistics SA survey of registered businesses estimated 103,000 workers are employed in the road freight sector (Cokayne, 2016).

3.8. Sample frame.

A sampling frame is a list used by the researcher to define the population of interest. A researcher selects a sample of the target population form the sampling frame.

The sample frame for this study was all senior managers and operational staff, employed by the road freight companies in Durban, Cape Town, Johannesburg and Port Elizabeth.

3.9. Selected sample.

A sample is a subset of a population that is used to represent the entire group as a whole (Cherry, 2018). When conducting research, it is often impractical to survey every member of a particular population because the sheer number of people is simply too large.

Table 3. 1 Research Sample

No	Company Name	Management Level	Participated in the study	Operational Level	Participated in the Study	Respondent's location
1	DS Transport	1	Yes	0	No	Durban
2	Storm & Co.	1	Yes	1	Yes	Durban
3	SACD	1	Yes	0	No	Johannesburg
4	Palamang	1	Yes	1	Yes	Johannesburg
5	Hambanathi	1	Yes	1	Yes	Durban
6	STS Logistics	1	Yes	1	Yes	Durban
7	Dynamic Express	1	Yes	1	Yes	Port Elizabeth
8	Milltrans	1	Yes	0	No	Cape Town
		8		5		

Source: The researcher, summary of the research sample. (2018)

As evidenced in Table 3.1, a total of eight transport companies based at different regions were selected for the research study. From each company, one participant was chosen at one at management level and one at the operational level. A sample was comprised of sixteen participants in total. Out of 16 possible participants, 8 managers participated in the study and only 5 participants from the operational staff. Therefore, in total 13 respondents participated in the research study.

The research cases were selected based on the researcher's judgement, because the research cases are well-informed about the state of affairs in the road freight industry and they also possess necessary knowledge and expertise to successfully contribute positively towards the research study, as they are subject matter experts in their respective field of work.

3.10. Sampling method.

A sampling methodology is an important aspect of a research study, because it allows the researcher to draw sample members from the population. Figure 3.2 shows the main types of sampling methods (Saunders, Lewis and Thornhill, 2004, p.153).

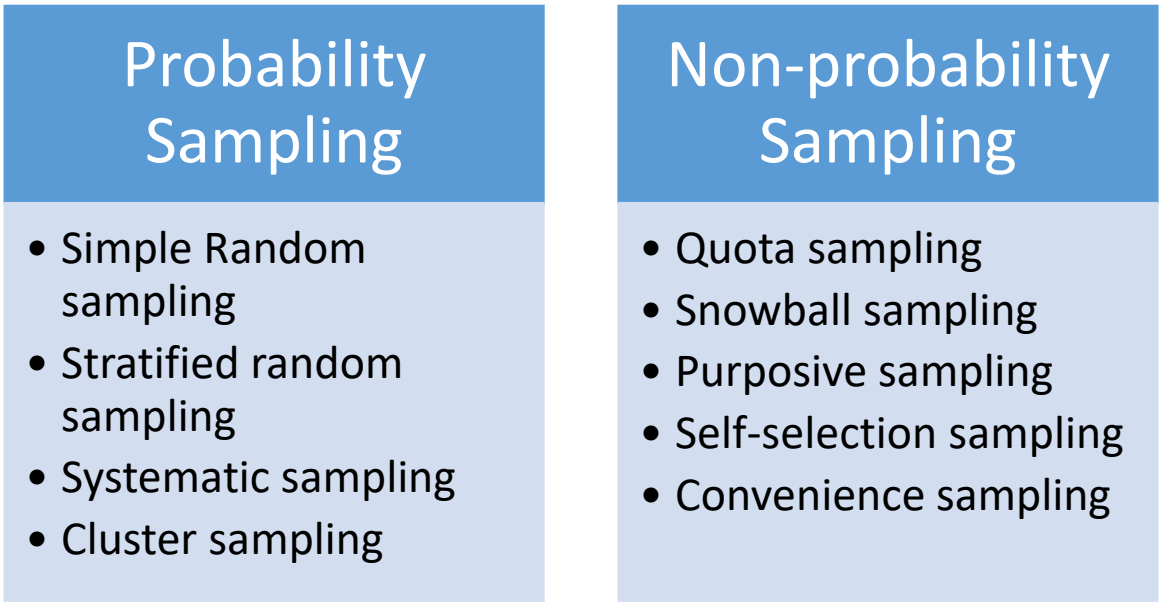


Figure 3. 2 Sampling Methodology

Source: Adapted from Saunders, M., Lewis, P. and Thornhill, A., 2004. Research Methods for Business Students. 3rd ed. Harlow: Pearson Education Limited.

According to figure 3.1., the main sampling methods include probability and non-probability sampling. Probability sampling uses random selection. In probability sampling all cases usually have equal chance of being selected (Saunders, Lewis and Thornhill, 2004, p.159). Probability sampling includes simple random sampling, systematic sampling, stratified random sampling and cluster sampling. Probability sampling is usually associated with quantitative research studies. In non-probability sampling on the other hand, the odds of any member being selected for a sample cannot be calculated, sampling is based on the researcher's subjective judgement. The main types of non-probability sampling include quota, purposive, snowball, self-selection and convenience. Non-probability sampling is usually associated with qualitative research studies.

The sampling method that was used for the research study is non-probability sampling method and purposive sampling method was chosen. The reason for this selection is as follows:

Saunders, Lewis and Thornhill (2004, p175) posit that purposive sampling enables a researcher to use his/her judgement to select cases that will best enable the

researcher to answer research questions and to meet the research objectives. The interest in purposive research is based on identifying and selecting particularly informative members of the group.

A heterogeneous mix of respondents from operational and senior management was selected for this study. All cases have more than five years industry experience, hence they are able to associate and discuss their experience with challenges that they have encountered in their line of duty.

3.11. Instrument for data collection.

Data collection instruments refer to the fact-finding strategies that are used in research to collect data. The type of instrument used by the researcher should correlate with data collection method that has been selected. The instrument plays a pivotal role in data collection and eventually to the presentation of results, hence research instrument must be reliable and valid (Mohajan, 2017, p.3). The common types of research instruments include questionnaire, checklist, distribution, interview, observation, records, experimental approach and survey approach (Nalzaro, 2012).

The research study used interviews to collect data from the cases. Two types of interviews were used to collect data, i.e. face-to-face interviews as well as telephonic interviews. Face-to-face interviews were used for all eight cases located in Durban, due to accessibility. However, a telephonic interview was conducted for the other eight cases that are in other provinces, due to costs associated with travelling to other provinces to conduct face-to-face interviews. The subsequent interviews to arrive at data collection saturation point were conducted telephonically for all interviews. Two respondents, one from Cape Town and one from Johannesburg decided to transmit their responses through email.

The aim of the interviews was to gain insight from the respondents regarding their experience with road freight challenges, how those challenges impact their business performance and the last section of the interview was to investigate respondents' viewpoints regarding possible interventions to address road freight challenges in South Africa.

3.11.1. Interviews.

Migiro (2016) asserts that interviews are discussions, usually one-on-one (i.e. discussion between the researcher and the respondent), meant to collect information on a specific set of topics that are planned for discussion. The interviews can be conducted face-to-face or telephonically. According to Saunders, Lewis and Thornhill (2004, p.249) the situations favouring qualitative research interviews include, nature of the approach to research, significance of establishing personal contact, nature of the data collection questions and length of time and completeness of the process.

The interviews were selected as the most appropriate instrument for data collection, because the interview process is qualitative in nature. In addition, the topic is exploratory; hence the interviews were able to yield rich data through a conversation with the experienced road freight experts. As a result, the researcher was able to gain an in-depth understanding of the phenomenon.

3.11.2. Semi-structured interviews.

According to Saunders, Lewis and Thornhill (2004, p.246) a researcher has an option to choose from three types of interviews, i.e. structured interviews, semi-structured interviews and unstructured or in-depth interviews. Structured interviews use questionnaires that are based on a predetermined and identical set of questions, usually administered by the interviewer. In semi-structured interviews, the researcher may have a list of themes and questions to be covered during the interview, however, these may vary for each interview. The unstructured interviews are informal, a researcher would use unstructured interview to explore in depth a general area or a topic of interest and allow respondents to freely express their views and opinions without any guiding themes or pre-determined questions on the topic under discussion.

The interviews for the study were conducted individually face-to-face and also telephonically with the managers and operations staff in road freight. The face-to-face interviews were conducted at the respondents' offices, while telephonic interviews were conducted from the researcher's office. The time for the research was pre-arranged and pre-approved by the respondents and the researcher ensured that the time was convenient for the interviews to avoid appointment clashing with other business commitments, leading to incomplete interviews. The duration of each interview was set at around 25 minutes and this time proved to be sufficient for the interviews.

The interviews were all recorded on the researcher's Smart-phone. The recordings were then transcribed onto a word document by the researcher. The transcribed documents were saved on the researcher's computer for further data analysis.

3.11.3. Types of questions.

The research process involves various steps, from research design up to reporting the results. McNeill (2017) posits that the development of research questions is one area that is mostly overlooked by the researchers, yet this is an important step. According to an adage "ask the right questions, if you're to find the right answers".

Depending on the research methodology, a research may ask specific type of questions to obtain answers from the respondents. The quantitative studies usually use descriptive, comparative and relationship-based questions to establish a connection between variables (McNeill, 2017). However, in qualitative research exploratory, predictive and interpretive questions are used to gather answers from respondents. The proper usage of open-ended and closed-ended questions is also pivotal in research. Closed-ended questions are conclusive in nature and they assist to provide quantifiable data, which is useful in quantitative studies. Open-ended questions on the other hand, are exploratory in nature, they allow a respondent to choose any answer they choose without any restrictions.

The research study used exploratory, open-ended questions to gather data from the respondents regarding their experience with road freight challenges. These types of questions enabled a researcher to gather insightful data, which was based on respondents' first-hand experience with the phenomenon under study.

3.12. Qualitative research trustworthiness.

Trustworthiness is one way researchers can persuade themselves and readers that theirresearch findings are worthy of attention (Lincoln and Guba, 1985, cited in Nowell, Norris, White and Moules, 2017, p. 3). The readers of a research report should have confidence in the truthfulness of the findings. Some researchers have argued that the concepts of reliability and validity were developed to ensure the quality of measures in the form of variables. However, qualitative research doesn't 'measure' things and also doesn't include variables, hence these two concepts are not relevant for the purpose of qualitative research. Qualitative research is concerned with exploration and investigating phenomena with an intention to gain insight. As a result, (Lincoln and Guba, 1985, cited in Nowell, Norris, White and Moules, 2017, p. 3). proposed trustworthiness as the most appropriate manner to ensure rigour in qualitative research, trustworthiness involves establishing, credibility, transferability, dependability and confirmability.

According to (Lincoln and Guba, 1985, cited in Nowell, Norris, White and Moules, 2017, p. 3). credibility is concerned with establishing confidence in the 'truth' of the findings. Transferability shows that the findings have applicability in other contexts. Dependability shows that the findings are consistent and could be repeated and confirmability refers to a degree of the extent to which the findings of a study are based on the information from the respondents and are not shaped by researcher bias.

To address the issue of trustworthiness, the following techniques were therefore adopted and applied in the research study.

3.12.1. Triangulation.

Multiple data sources were used to investigate the issue of road freight challenges to produce a comprehensive understanding of the subject under study. The

literature was used to identify the existing body of knowledge and the field interviews were then conducted both at operational level and also at senior management level, to gain insight into the phenomenon. In addition, companies from different regions were selected for interviews, to compare results from different regions.

3.12.2. Audit trail.

A transparent description of the research steps was recorded and these records regarding what was done in an investigation were kept by the researcher.

3.13. Elimination of bias.

Cambridge Dictionary (n.d.) defines bias as 'the action of supporting or opposing a particular person or thing in an unfair way, because of allowing personal opinions to influence your judgment'. Addressing research bias is important, because bias exists in all research, in research design and is difficult to eliminate (Smith and Noble, 2014, p.2). Bias occurs at each stage of the research process and it may eventually impact on the research reliability and validity (Smith and Noble, 2014, p.2).

According to Smith and Noble (2014, p.3), there are four types of research bias that researchers should address in qualitative research, these include design bias, selection bias, data collection and measurement bias and analysis bias.

3.13.1. Design bias.

Poor study design and incompatibility between study aims and methods used increases bias likelihood. Bias can occur when researcher's personal beliefs and agenda influence the choice of research questions and methodology Smith and Noble (2014, p.3).

To address the issue of design bias, the researcher framed investigative questions that will allow respondents to provide in-depth information regarding road freight challenges, and the qualitative method was chosen to align research method with research questions.

3.13.2. Selection bias.

According to Smith and Noble (2014, p.3) selection bias relates to both the process of recruiting respondents as well as the inclusion criteria to participate in a research study. For a research to be successful, it is important to identify and recruit participants who meet the purpose of the research. Selection bias may arise should a researcher select participates who are incapable to participate in a study.

To eliminate the selection bias, the researcher firstly identified and selected participants who are experts in the field of logistics. And to facilitate heterogeneity, samples were drawn at different organizational levels, i.e. senior management and operators, based at different geographical locations.

3.13.3. Data collection and measurement bias.

Data collection bias can occur when a researcher's personal beliefs and agenda influence data collection methodology. In qualitative research, the way in which questions are asked is pivotal, because it will influence the nature of information elicited Smith and Noble (2014, p.3). For an example, asking a closed-ended question will lead to a yes or no, which will not provide insight for an explorative study.

The current research study addressed data collection and measurement bias by using face-to-face interviews with Durban based respondents, this method was useful to develop rapport with respondents and to probe for further clarity on the issues under discussion. A telephonic interview was conducted for respondents based in other provinces; however, same interview schedule was used for consistency. The interviews used open-ended questions to allow respondents to

expand and explain their experience with road freight transport challenges in South Africa.

3.13.4. Analysis bias.

Smith and Noble (2014, p.3) argue that data analysis bias can occur when the researcher is naturally looking for data that confirm the hypotheses or to confirm their personal experience, while ignoring any data that may be inconsistent with their own personal experience.

To counteract possible data analysis bias, the researcher's analysis was based on themes that emerged from raw data that was gathered from the respondents during the interviews. The following section will unpack data analysis method in more detail.

3.14. Data analysis.

According to Lewins, Taylor and Gibbs (2010) qualitative data analysis is the range of processes and procedures that are used to transform qualitative data into some form of explanation, understanding or interpretation of the phenomenon under investigation. Data analysis in qualitative research serves two purposes, firstly to understand the participants views and experiences and secondly to answer the research questions.

According to O'Connor and Gibson (2003, p.65) the analysis of qualitative data includes five steps, which include, organizing the data, finding and organizing ideas and concepts, building over-arching themes in the data, ensuring reliability and validity in the data analysis and the findings and lastly finding possible and plausible explanation of the findings.

For the current research project, thematic analysis was used to identify and extract the themes and patterns from the data that pertain to themes in road freight transport challenges, the impact of road freight challenges was also identified, and various suggested interventions to address the phenomenon also emerged from the data analysis.

3.14.1. Data condensation.

Qualitative research data tends to be very large. Though samples in qualitative researchers may be quite small compared with those used in quantitative research approaches, the kinds of data collected, for an example field notes, video recordings and interviews tend to be very overwhelming (Lewins, Taylor and Gibbs, 2010). As a result, data requires intensive examination, understanding and reading that only humans can do. In order to reduce the large volume of qualitative data, a researcher may be required to do data condensation.

Data condensation refers to the process of refers to the process of selecting, focusing, simplifying, abstracting and transforming the data. Data reduction is necessary in qualitative research to reduce data into a meaningful format that can allow trends to be identified from raw data. Billups (2012) asserts that data reduction entails raw data management, which refers to 'data cleaning', this step is followed by data 'chunking', data coding and clustering, which then culminates to data representation.

To accomplish data reduction, the researcher read the transcripts several times to gain immersion. Data was then classified and categorized based on emerging themes, which led to the identification of similarities and differences. The similarities were allocated into clusters and they were arranged thematically.

3.14.2. Data presentation in qualitative research.

Data presentation or display has been considered to be a pivotal step during the qualitative data analysis (Verdinelli and Scagnoli, 2013, p.360). The process helps in the presentation of reasoning and conclusions and provides ways of organizing, summarizing, simplifying, transforming and presenting data (Verdinelli and Scagnoli, 2013, p.359).

Billups (2012) asserts that there are various methods that researchers can use to present qualitative research results. These methods include but not limited to

storytelling, narrative, chronological, flashback, critical Incidents, theatre, thematic, visual representation, figures, tables and charts**.**

The researcher used thematic presentation as well as interpretative phenomenological analysis (IPA). Smith and Osbourne (2015, P.43) assert that IPA is a qualitative approach which aims to provide detailed examinations of personal lived experience of the respondents.

The researcher presented data by identifying, grouping and discussing themes that emerged from data analysis. Figures, tables and charts were used to display the research results. The researcher also used interpretative phenomenological presentation to translate the themes into a narrative account. Verbatim extracts from the transcripts to support the presentation of the research results were used.

3.15. Ethical considerations.

Research ethics is an important aspect of empirical research, due to ethical considerations that should be taken into the account during the research process. Palaskar (2018, p.1) posits that a research that involves human participants raises ethical issues. Research ethics deals with the analysis of ethical issues that are raised when people are involved as participants in the research process (Palaskar, 2018, p.1).

The main objectives of research ethics include the protection of human participants. Secondly, research should be conducted in a manner that serves interests of individuals, groups, and the society at large. And thirdly, research should address the issue of risk management for the participants, protection of confidentiality, and the process of informed consent (Palaskar, 2018, p.1).

To ensure that the ethical considerations were taken care of, the researcher firstly obtained gatekeepers letter to gain access into the database of respondents. From therefore, the ethical clearance was submitted to the university's Ethics Committee, of which the approval to conduct research was granted by the committee. The consent form was issued and signed off by the participants.

The researcher was committed to the research ethics principles and codes, which include honesty, objectivity, integrity, carefulness, openness, respect for intellectual

property, upholding confidentiality, non-discrimination, competence, legality and protection of human subjects.

3.16. Chapter three summary.

The purpose of this chapter was to discuss the research methodology that was followed by the researcher in conducting the research study. The aim of the study was to gain an understanding into road freight challenges faced by transport companies in South Africa. The participants that were selected for this study include the senior managers responsible for managing the transport companies; the study also targeted the operational staff in order to compare feedback from different organizational levels. The participants were recruited from companies based in different cities within the country, i.e. Durban, Port Elizabeth, Johannesburg and Cape Town. The aim was to compare feedback among respondents from different locations. The researcher used a qualitative researcher method to conduct research, using interviews to collect data. The researcher was personally responsible data collection and analysis. The reason for using qualitative research methodology was to collect descriptive data from respondents, where respondents would be able to discuss and describe their own experiences with road freight challenges, without any restrictive measurement of variables. A non-probability sampling was used to select experienced respondents who would be able to provide the required insight based on their experience. The research used a semi-structured interview guide to direct the trajectory of the interviews. The researcher manually sorted data based on themes and data clusters that emerged from the interviews. Chapter four will provide an insightful presentation and discussion of the research findings.

CHAPTER FOUR

Presentation of the Results

4.1. Introduction.

The aim of this chapter is to present and discuss the research findings based on the interviews that were conducted by the researcher. The specific themes emerged during the interviews and these are presented and discussed in this chapter. Findings from the interviews are then compared to the literature that was discussed in Chapter two of this paper under literature review to ascertain alignment between literature and the research findings.

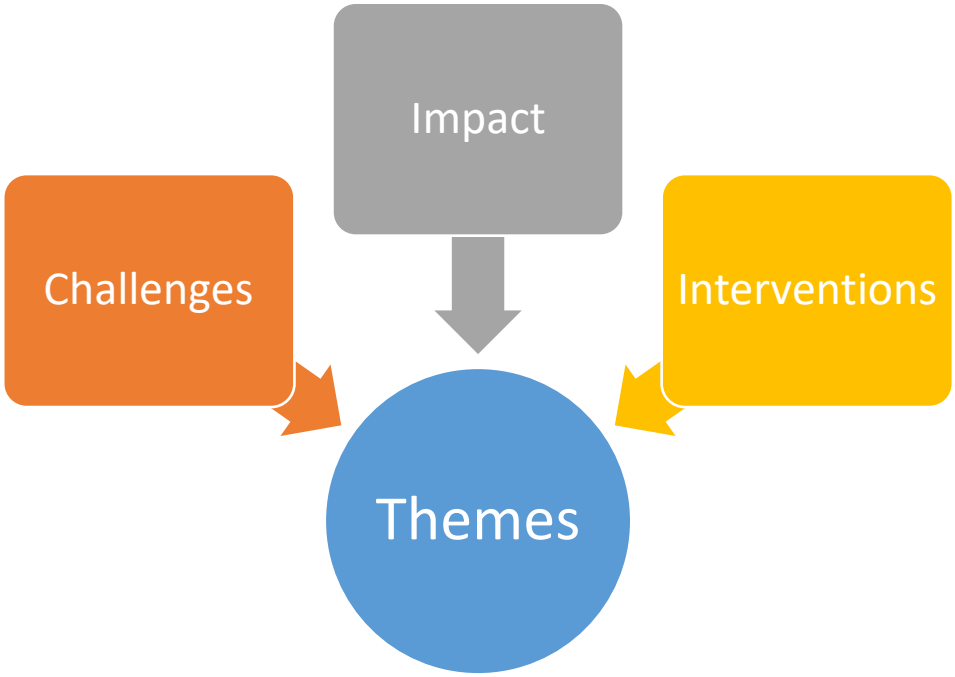
4.2. Presentation of data.

The researcher manually sorted data that was collected from the interviews. The data was sorted according to research themes, which were formed by the research questions. The themes that emerged are: road freight challenges, impact of the challenges and interventions needed to address road freight challenges. Data will be presented according to themes, as shown in the following section.

4.3. Overview of the related themes.

The themes that emerged are: road freight challenges, impact of the challenges and interventions needed.

Figure 4. 1 Main themes that emerged from the research



Source: The researcher, summary of relevant themes. (2018)

According to figure 4.1., three themes emerged from the research, these themes include challenges faced by road freight companies in South Africa, the impact of these challenges on the transport companies as well some of the possible interventions to address the road freight challenges.

4.3.1. Theme 1 – Road freight challenges

Theme 1 emerged from objective 1, which was to understand the challenges that the transporters face in major South African freight corridors, i.e. Durban, Gauteng, Cape Town and Port Elizabeth. Based on the discussion with the respondents, a list of road freight challenges like port congestion, bargaining council, financing, rising

costs and other issues were raised. These challenges will be discussed in more detail in the following section.

4.3.2. Theme 2, impact of road freight challenges on the performance of freight transport companies.

Theme 2 emerged from objective 2 of the research, which was aimed at exploring how road freight challenges are impacting the performance of the transport companies. From the feedback received from the respondents, it became clear that one of the areas mostly impacted by the road freight challenges is the financial performance of the transport companies, which has a ripple-effect to also impact the financial well-being of the employees including the drivers.

4.3.3. Theme 3, interventions needed to address road freight challenges.

Theme 3 emerged from objective 3 of the research study, which was aimed at exploring possible tools, resources and interventions that are required to address road freight challenges. According to the discussion with the respondents, it became clear that the government as well as Portnet have a pivotal role to play in unlocking the full potential of the road freight industry. The road freight companies also have a role to play in address internal challenges.

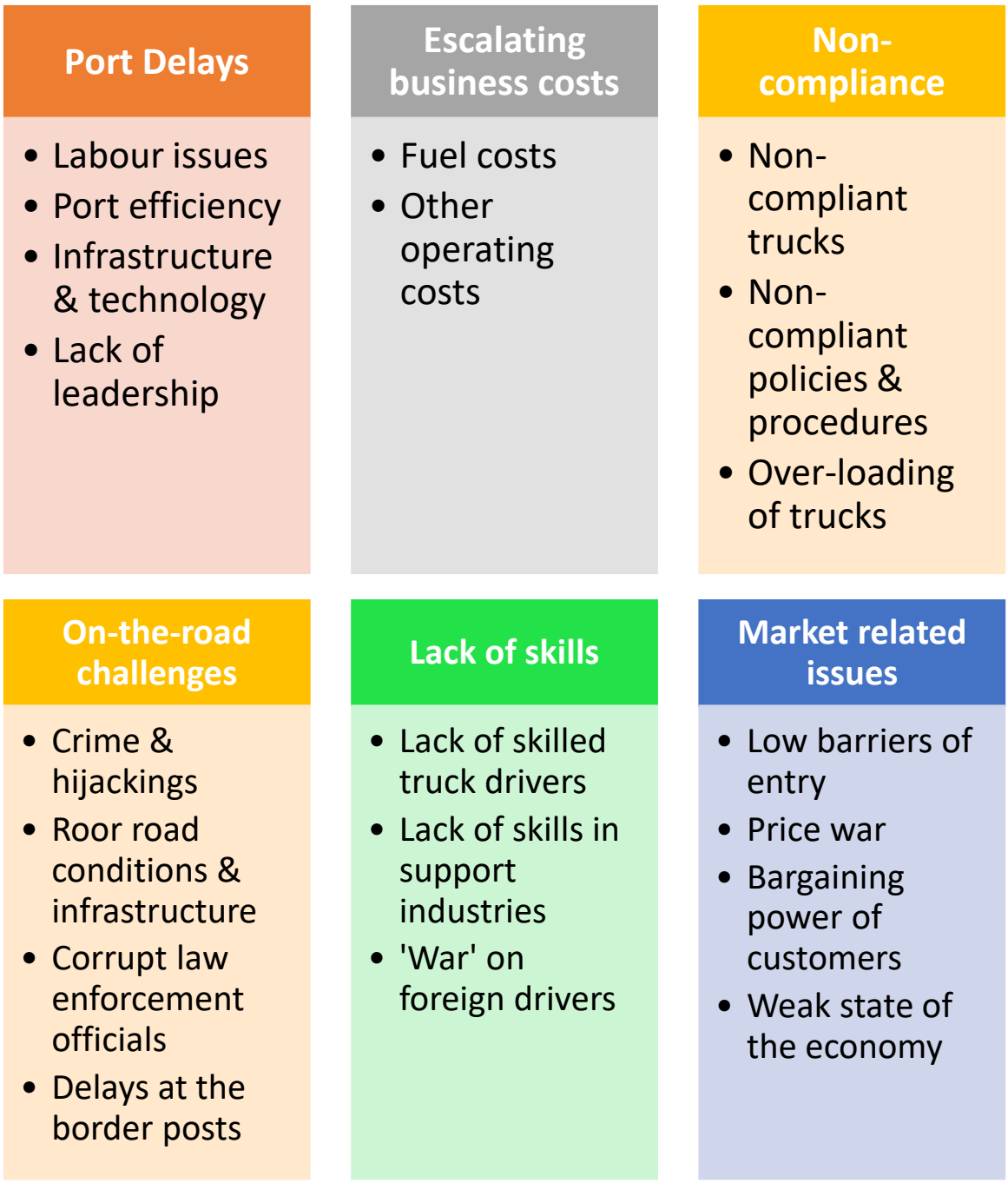
The following section will present and discuss findings of the research starting with Theme 1, followed by Theme 2 and then Theme 3.

4.4. Road freight challenges.

Objective 1 of the research study was to understand the challenges that the transporters face in major South African shipping corridors, i.e. Durban, Gauteng, Cape Town and Port Elizabeth. The researcher will present the views that were expressed by the freight companies in this regard. Feedback from research will then be contrasted with the existing body of knowledge that deals with road freight challenges in South Africa and globally.

The main road freight challenges that were discovered during the research are presented in figure 4.2.

Figure 4. 2 Road freight challenges



Source: The researcher, summary of road freight challenges. (2018)

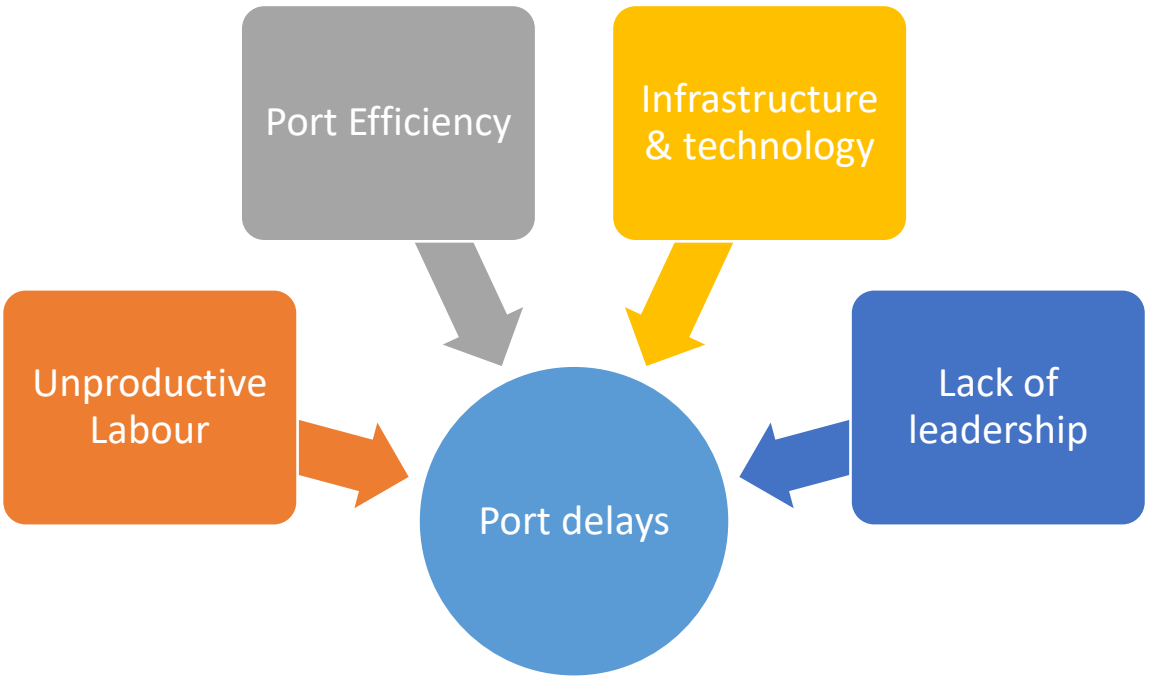
As evidenced in Figure 4.2., although road freight is a cornerstone of the economy, it can be argued that the industry is confronted by many challenges. The challenges

are also diverse in nature. There are challenges at the port, on the road, within the freight companies themselves, some of the issues emanate from the customers, while some of the challenges emanate from the macro environment. The following section will discuss these findings in detail.

4.4.1. Port delays.

Port productivity plays a crucial role in the performance of road freight companies. Most of the import and export cargo movements in South Africa is by sea-freight. Therefore, port is an important enabler in connecting sea-freight with inland transportation. Any delays that are experienced at the port of discharge and port of loading impact the performance of road freight companies.

Figure 4. 3 Port Delays



Source: The researcher, summary of port delays

Port delay is a major issue facing ports in South Africa. A Managing Director from STS Logistics mentioned that *"last week a vehicle stood at the port for 18 hours to load 1 box".* According to figure 4.3 five issues were identified by respondents as major contributors on the issue of port delays at the port, these challenges include

4.4.1.1. Unproductive labour.

According to respondents, one of the reasons for port delays in Durban is due to inefficient manpower. The employees at Durban container terminal are not motivated and in some cases lack skills to provide necessary service to the transport companies.

There is a huge delay when changing shifts. It can take up to 2-3 hours to change a shift, and this delay leads to a build-up of congestion for the transport companies. A General Manager from DS Transport, Durban stated that *"a shift change is a handover and its supposed to be a 5 minutes process, but you get these employees of Transnet who take one hour before a shift change, and another one hour after the shift change …if a shift changes at 2 O'clock, you find the guys downing at 1 o'clock and they coming back at 3 o'clock and sometime even after 3".*A manager from STS Logistics mentioned that *"last week a vehicle stood at the port for 18 hours to load 1 box".*

4.4.1.2. Port efficiency.

Port efficiency remains a major challenge for the road freight companies. A General Manager from Storm & Company, lamented operational inefficiencies that they experience at the Port of Durban, in his own words he stated that *"the initial challenge and one of the biggest challenges is the Port, the efficiency of the Port has reduced drastically over the last 5-10 years ….it will be narrow minded to say port issues are due to labour, but I think the port they concentrate more on the waterside, because if they fail to service a vessel, the line imposes a fee on Transnet*

and its quite expensive, on the landside, if the Transporter stands for 2 hours or if it stands for 20 hours, there are no implications".

There is also no quota specifying a number of moves that each person needs to make during a specified period of time. *"If one person decides to make one move for the entire half an hour or something, while the next person can do 10 moves with the same time, there are no repercussions for it. It is not performance based anymore. Transnet operate to improve their own efficiencies only and not for the landside"* according to feedback from General Manager at Storm and Company.

4.4.1.3. Poor infrastructure and systems.

According to the respondents, Transnet doesn't seem to have enough capacity to service both sea-side and landside services equally. As a result, they tend to pay more attention to the sea-side activities off-loading ships, while trucks are neglected. As a result, congestion becomes a major challenge for the transport companies to pick up import cargo or to drop off export cargo.

A General Manager from Storm and Company, Durban stated that *"the port concentrates more on the waterside, if they fail to service a vessel, a line will impose a fee on Transnet and its quite expensive".* On the landside services, there are no fines for keeping trucks standing, as a result Portnet focuses on loading and offloading ships, while the trucks line-up to collect and deliver containers.

4.4.1.4. Lack of leadership.

Lack of leadership seems to be another challenge impacting Portnet's ability to service the freight industry. A GM from DS Transport stated that *"We have heard the story of about lack of machines for a long time ..before you joined BPL, they always had excuse of machine breakdown, no machines, there is no enough machines …its been like that I think 7-8 years … they only had a new batch of machines sometimes end of 2017.. yet still no improvement".* A GM from STS stated

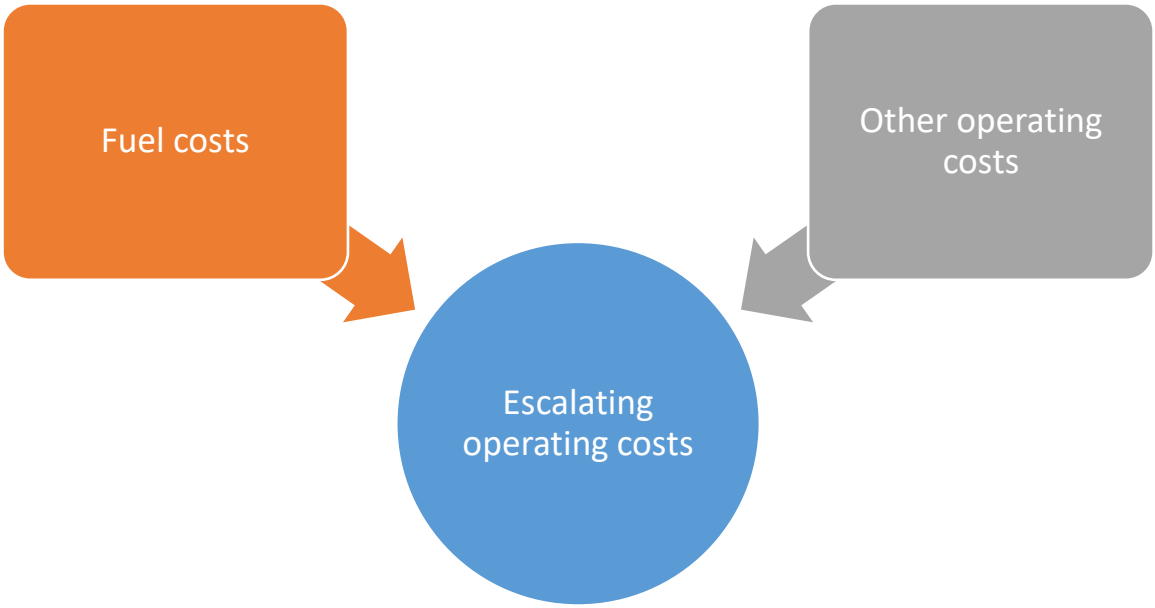
that *"for me I feel over the last example 10 years, the port is still in the same place, when it comes to loading times and off-loading times"*

Port delays seem to be prevalent in Durban, because respondents from other cities like Cape Town and Port Elizabeth didn't report any port delays in their respective areas of operation.

4.2. Escalating costs of doing business.

Road freight business is a capital-intensive business. For an example a latest 2018 Mercedes Benz Actros truck can cost around R1.8m. Despite costs of procuring vehicles, running a legitimate and fully compliant operation is a costly business, due to a variety of costs that are involved. Figure 4.5 shows that fuel costs remain a critical issue for transport companies, followed by other costs of running the business. Keeping up with escalating costs is becoming an almost impossible task for the road freight companies.

Figure 4. 4 Escalating costs of running a freight transport business



Source: The researcher, summary of escalating operating. (2018)

According to figure 4.4, the escalating costs of doing business include mainly fuel costs and other operating costs are having a negative impact on the performance of the road freight industry.

4.2.1. Fuel costs.

The ongoing increase in fuel prices is one of the sensitive issues in the road freight industry at the moment. The increase in fuel price leads to an increase in the cost of road transportation. As a result, the clients pay more to transport their goods. To recover theses costs, clients also increase their selling prices, an increase in selling prices reduces demand for goods and services, which overall has a negative impact for the country's economy.

Diesel 500ppm which is the grade used to fuel trucks increased sharply recently, a coastal price increased from 1392 cents per litre in September 2018 to 1516 cents per litre in October 2018, that is whooping 124 cents per litre increase (Department of Energy, 2018). And that is putting a major strain on the transport companies, given the fact that fuel accounts for almost 40% of the total transport costs.

A Sales Manager from Dynamic Express in Port Elizabeth mentioned that *"everybody is feeling the impact of fuel price increases …I think that is one of our biggest challenges because it makes % of our costs …as I said because of pricing war, if you increase your fuel surcharge in line with the national fuel price, then the next guy will go and say ..'Ok I will bring your fuel surcharge to 20% instead of 25% and there is saving for the customer'.* Therefore, the fuel surcharge has contributed towards increasing competition in the market, whereby some transporters are charging lower fuel surcharge in order to keep the customer, by so doing creating the price competition in the market.

A GM at STS Logistics stated that *'we buy 200 000L a month, the increase has increased our bill by R250K a month. We have to implement a fuel surcharge to cover the increase'*. The increases in fuel surcharge means an increase in transport costs for the customers. According to Owner from Palamang Transport *"fuel price increases affect us a lot, because as you know fuel price has been increasing for*

the past three months, yet you cannot increase your prices to your customers all the time, you can increase them, maybe once a year".

4.2.2. Other operating costs.

It is important to highlight that although fuel is a major cost element; other costs have also increased, thus impacting the transport companies negatively. Other costs like salaries, tyres, maintenance, e-tolls, licences have also increased drastically.

To highlight the impact of rising costs, a GM from DS Transport stated that *"the customer want to pay you R5000.00 to bring a load from Johannesburg to Durban, but a tyre alone is R5000.00, so what do you do? …you must understand the cost of the vehicle to run up and down Durban-Johannesburg..right …you have at the variety of things …diesel, wear and tear, tyre costs, insurance, driver, toll…there is a whole list.. you know the formula …is R15000.00 gona turn your truck around? No…its not. Your cost of your truck you will be lucky if its around R16 000.00-R17 000.00, the cost… before any profit".*

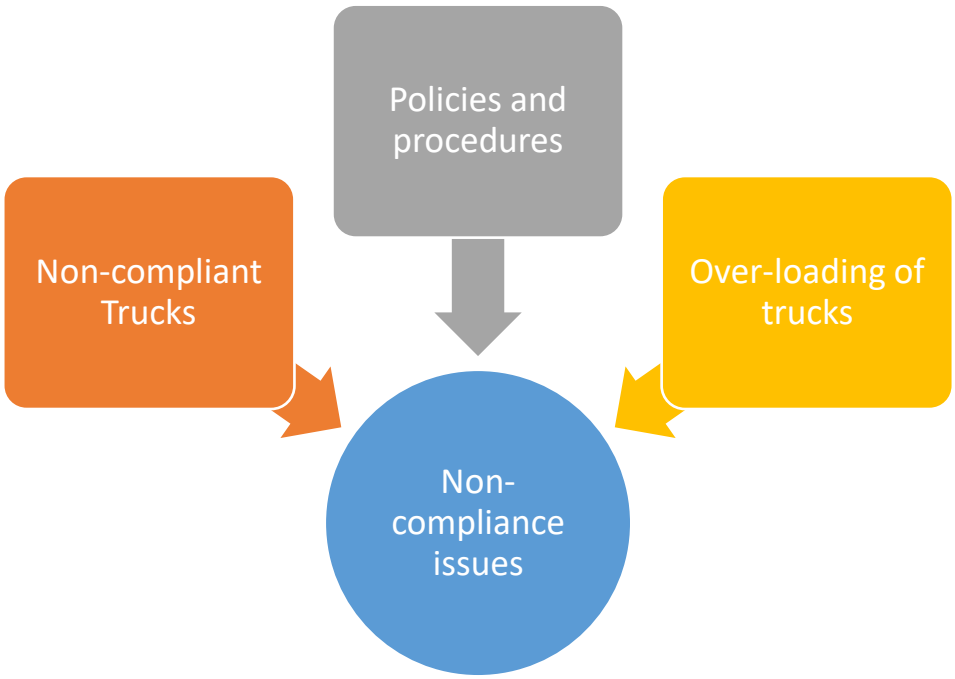
A GM from Storm and Company as he put it *"the cost of transport vs the rate for the transport, its not balanced ".*

4.3. Non-compliance issues.

Corporate compliance entails adhering to a wide range of rules, regulations, laws and standards which are set within a particular industry with an intention to protect the business, employees and other stakeholders. Road freight industry is no exception to this norm, there are various rules and laws that govern the industry, and for an example the industry is governed by the National Road Traffic Act of 1996 and its amendments. There are also various SANS Codes (South African National Standards) that outline standards for various operational standards. However, during the interviews, it became clear that there are some organizations in the road freight industry who are not following compliance rules and standards, hence placing road-users at risk.

Figure 4.6 shows that non-compliances issues in the road freight industry. Issues of non-compliant vehicles on the road surfaced during the interviews, non-compliant policies and procedures within the companies and also the illegal employment of illegal foreign is another contentious issue.

Figure 4. 5 Non-compliance issues



Source: The researcher, summary of non-compliance issues. (2018)

Figure 4.5 Shows the main non-compliance issues in road freight transport, these non-compliances include non-compliant vehicles, non-compliance in policies and procedures by transport companies and overloading of trucks by the clients.

4.3.1. Non-compliant vehicles.

The National Road Traffic Act of 1996 specifies the requirements for freight vehicles to operate on the South African roads. Some of the issues addressed by the Act include vehicle registration requirements and road-worthiness of the vehicles. Yet, feedback from the research respondents lamented the poor condition of some of the heavy vehicles on the South African road.

An operator from Hambanathi Transport mentioned that *"the vehicles that are non-compliant (that I have seen as well) they are becoming an issue. That is a major.. major risk".* Another respondent, a GM from DS Transport advised that *"then you got companies that basically do not service their trucks on time, they do not have warranties.. then you are looking at their tyres, their tyres are plain".* He further stated that *"One transport company was even barred from delivering into a client poor their trucks were too old and poorly maintained".*

An operations staff from Palamang Transport stated that *"accidents on the road cause a lot of delays for the transport companies".* He attributed prevalence of accidents to driver fatigue, negligence, lack of truck service and maintenance.

Another problem exacerbating the issue of non-compliance is sub-contracting, which is very prevalent in the freight industry. Where a client may issue a instruction to a compliant company to execute delivery, only to find that the initial transporter sub-contracts to another transporter, who may not have been vetted to ascertain if they meet safety compliance standards. A GM from DS Transport asked a question *"what necessary checks to they take to see if this transporter is 'Kosher'*?". It appears there are no tight vetting done when sub-contracting deliveries.

4.3.2. Policies and procedures.

Due to the complexities involved in logistics, most activities are controlled through written policies and procedures, which outline steps that staff should follow when conducting particular activities. For an example, delivery of dangerous goods by

roads is governed by policies and procedures which come from National Road Traffic Act, combines with SANS code, outlining steps to be taken by the transporters to ensure safety on the road and steps to be taken if there are accidents.

According to the feedback from the transport companies, it appeared that some of the transport companies are not adhering to policies and procedures when they execute deliveries, which is posing a major risk on the road. A GM from DS Transport mentioned that *"then you have transporters who are moving dangerous goods, yet who are not compliant, you are asking the driver where is your Tremcard? (A transport emergency card which specifies how cargo should be handled in case of accident) … he is looking at you like …whats the Tremcard? …. You ask him where is your dangerous goods declaration? … he looks at you and say 'think is what I got … I was told to bring the cargo here, I have the DN (Delivery Note)".*

4.3.3. Over-loading of trucks.

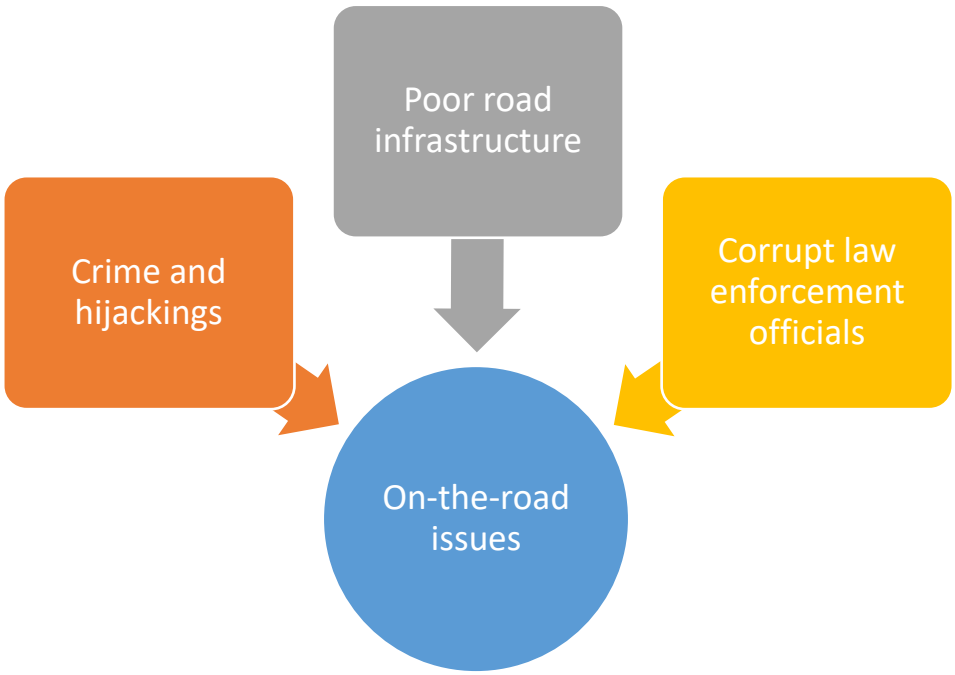
Trucks and trailers are allocated specific loading capacity, based on the guidelines issued by the respective manufactures. For an example a one-ton bakkie is designated to load 1000Kgs of cargo and a tri-axle truck is designed to officially load around 28 000Kgs of cargo, with small variance depending specifications by the equipment manufacturer.

However, in their quest to load more volume, it appears that some non-compliant clients are loading more tonnage into containers and into trucks than what is prescribed by the equipment manufacturers. A comment by a GM from DS Transport was that *"a transporter may run 30 tons – 30 tons, that is 60 tons on a tri-axle trailer, which is illegal, maybe you are allowed 32 tons depending on the trailer …same trailer can take up to 32 tons, but permissible weight is 28 tons for tri-axle … permissible by RTI Law".* RTI is Road Traffic Inspectorate responsible for law-enforcement on the road.

4.4. On-the-road challenges.

Trucks spend a lot of time on the road; this is due to the distance between ports and major economic hubs. As a result, transporters face multiple challenges while on the road. Figure 4.6 below shows crime and hijackings, poor road infrastructure and corruption as some of the main challenges facing the truck drivers on the road.

Figure 4. 6 On-the-road issues



Source: The researcher, summary of on-the-road challenges. (2018)

Figure 4.6 shows the main on-the-road issues that emerged from the interviews, these issues include crime and hijackings, poor road infrastructure and corrupt road officials

4.4.1. Crime and hijackings.

During the interviews with the road freight companies, it became clear that crime is currently posing a security threat for the industry. Road freight companies fear that the drivers, trucks and cargo are no longer safe on the road, due to an increase in crime targeting trucks.

A Sales Manager from Dynamic Express in Port Elizabeth stated that *" its increasingly becoming more dangerous for you have the trucks on the road, because of the truck hijackings that happen".*

A GM from Storm & Company was also concerned with crime targeting trucks in South Africa. He stated that *"crime has an impact on everything, the hijacking, the theft… the general crime, its like ummhh .. hijackings .. look at the number of hijackings, daily there is so many truck hijackings …from something so petty like them jumping into a truck to pull a reefer cable …when you stop at the robot, they jump in to slice a reefer cable ..it costs a lot, its about R3800.00 for a cable …they are slicing it for the copper in the cable".*

Some of the criminal activities stem from social/political unrest in the country, and that has created a huge frustration for the road freight companies. GM from DS Transport mentioned that "*besides all the issues confronting the road freight industry, we also have all the protesters on the road on the major highways, that are burning tyres, burning debris … then you have DWS (referring to Durban Solid Waste) going on strike the other day …as a result this is creating backlog and the traffic".*

The issue of crime is not prevalent to one province only, because respondents from diverse provinces raised the issue of crime as a major challenge for the road freight companies. A GM from Milltrans in Cape Town stated that *"safety of loads and drivers on the road is big problem, It is not safe anywhere on our Roads to sleep at night, cargo gets stolen, drivers been attacked, hijackings. This is creating problems with insurance companies as claims are frequent and high".*

4.4.2. Poor Road Infrastructure.

Road infrastructure plays an important role in the movement of cargo from port to customers, who are mostly based hinterland. Export cargo from suppliers to the port also depends on the road infrastructure, given the fact that South African railway lines are under capacitated. The road conditions also support local distribution to support movement of goods from city-to-city.

Despite the significant role of road infrastructure in supporting the road freight industry, South African roads since to be a bottleneck for the industry.

Findings from the research reveal that due to poor road conditions, operating costs are much higher for the transport companies. A Sales Manager from Dynamic Express mentioned that *"another challenge that we have is the state of South African roads, they impact our service delivery …they can cause a lot of delays on the road …the maintenance of the roads is a big issue".* This sentiment is also shared by GM at DS Transport, he stated that *"the road infrastructure, the poor conditions of the road are a big challenge, due to wear and tear on the tyres …tyres are very expensive …your fuel costs also spiral up, because now its not a plain road, your truck has to do more work now to try to get over a gravel road …so if your truck was designed to pull 30 tons, its now you have got a slag of another 4-5 tons basically, so you burning up fuel. So road infrastructure is a very very very pertinent part of the whole thing".*

4.4.3. Corrupt law enforcement officials

The interaction between truck drivers and road traffic officials is inevitable. The officials are responsible for law enforcement on the road, checking if the trucks are not carrying illegal goods, checking if trucks are road compliant, and also checking at the weighbridges if the trucks are within legal weight limits.

However, according to the respondents, it appears that in some cases, the drivers have become victims of bribery solicitation by the road officials, the very same officials who are tasked and expected to uphold the law. The officials are finding faults even if there are no faults from the trucks, just so that they can solicit 'soft-

drink' from the drivers. 'Soft-drink' is a local slang referring to a situation whereby road traffic officials solicit bribery from the road-users for a legitimate offence and in some cases, even if there is no offence at all.

An operator from Hambanathi Transport stated that *"Another challenges out of containerized cargo is on the N3, we have challenges of the weight bridges, where you travelling on N3 every 100-200 Kms there is a Weight bridge. When you are pulled off the weighbridge, whether you are compliant or not compliant, you are still become a defaulter. So that's a major challenge in the transport industry*. A GM from STS Logistics advised that "*when our trucks get to the Weighbridge, the officials sometimes want to charge drivers for overloading, then when I ask for a slip or a picture to be sent to me to prove overloading, you find that they cannot produce it, all of a sudden a truck starts moving. When they catch a truck with expired disc, they want to issue fines immediately, even though we have 21 days to renew disc … they advise that such rule doesn't apply to us".*

4.4.4. Delays at the border posts.

Delivering cargo between South Africa to the neighbouring countries depends on the border posts for border customs clearance. However, the border posts are seen by the transport companies as major constraints in the road freight industry, due inefficiencies at the borders.

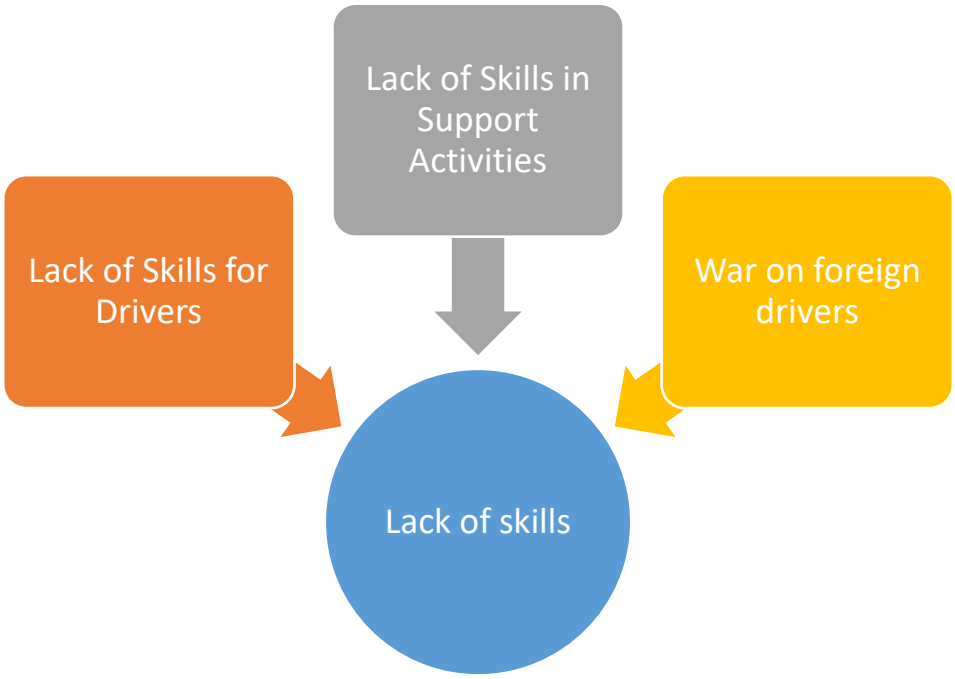
Both GM and Administrator from Palamang Transport in Johannesburg expressed their frustration with delays at the border connecting South Africa with Swaziland. The GM state that *"the delays at the border affect us a lot, you find that a truck is standing there, maybe you find that the reason is because the exporter didn't complete the documents properly, they keep us at the border for more than three days".* The Administrator from the same company stated that *"the systems are usually down at the border. If the person clearing the shipping documents from the client captures the information incorrectly, verification process at customs causes some delays*".

A GM from DS Transport also complained about the situation at the border posts, he stated that *"I have been to Beitbridge border post, right!, I saw the challenges there especially over like the Christmas period time, Customs themselves or SARS, lets say Customs, they were never geared up in terms of preparing for what was about to happen, which was a huge…huge influx of vehicles that move across the borders. You have basically maybe two or three guys trying to do like check the documentation, then you have bribery going on around there …just to get the truck across the border…..so yah, the biggest challenge will be Customs Officials there".*

4.5. Lack of skills.

Skilled labour plays a crucial role in logistics, due to the complex nature of activities that need to be undertaken to deliver goods from place of origin to place of delivery. Road freight companies need both qualified and experienced operational staff and drivers to run their businesses successfully. Skills labour is also key in support industries. However, it appears that the shortage of skills is hampering the logistics industry.

Figure 4. 7 Lack of skilled labour



Source: The researcher, summary of lack of skills. (2018)

As per Figure 4.7, skills are lacking for drivers and in support industries, in addition, there is another challenge to clamp down on skills that have been brought into the country by the foreign drivers, which exacerbates skills shortage.

4.5.1. Lack of skilled truck drivers.

Road freight companies need drivers to operate trucks. The companies need matured, experienced and responsible drivers who can exhibit good behaviour on the road, yet the situation is gloom.

A GM from Storm and Company stated that *"labour for us is a big issue, to get qualified drivers and you know people who can perform a task, to an ability that you require is becoming more and more difficult … the standard of staff and drivers these days its… its… its has decreased drastically'.*

4.5.2. Lack of skills in support industries.

Lack of skills is not only prevalent among the truck drivers, but it also manifests itself in other support industries, that are expected to support the logistics industry. For an example, maintenance of road infrastructure is an important enabler in road freight transportation. Yet there is serious skills shortage in this area. A GM from DS Transport mentioned that *"Remember, there is also a lot of unskilled labour, you understand? We are trying to put people with no background education, no education, no skills.. there is a shortage of engineers in the country …how do you train somebody who has no background, no qualifications to go fix the road?"*

He further stated that *"when you have an unskilled labour attending to, lets say a breakdown on your truck or engine, you gonna have a problem, because he is going to fix it up to a certain point where is going to fall out again and then you gona have to get somebody else, its overtime cost, you paying another mechanic, you paying*

call-out fees". As a result, using unskilled labour may lead to additional costs to rectify their errors.

4.5.3. 'War' on foreign drivers.

Due to skills shortage in the country, most freight transport companies have looked North to employ drivers mainly from Zimbabwe. Most truck drivers from Zimbabwe have relocated to South Africa in pursuit of greener pastures. They seem to have necessary skills and willingness to work hard. But due to high unemployment rate in South Africa, a huge concern has emerged as to why are freight companies employing foreign drivers, at the expense of local drivers?

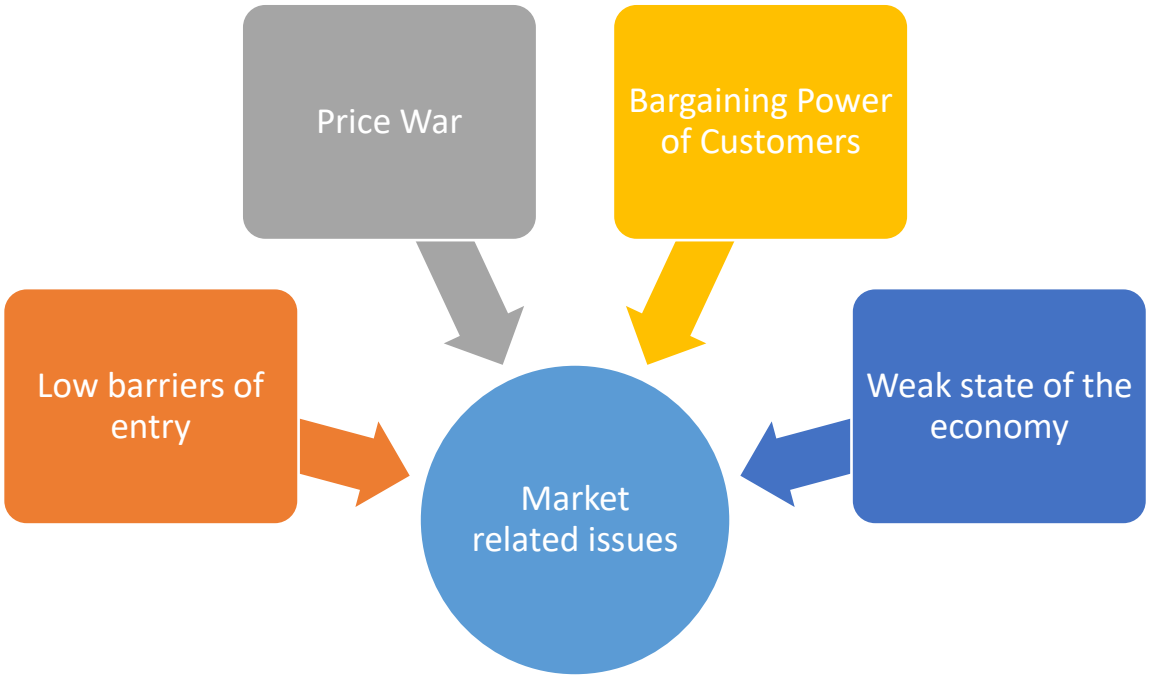
There is a general feeling among the local transport companies that the local drivers do not work hard, they are lazy. They make unnecessary demands, yet they are not willing to go extra mile. Findings from the research among the freight companies were interesting. A GM from Storm & Company stated that *'I do not know whether its appropriate to say that our local drivers are complacent, they don't … they have gone lazy ….they have gotten into a point where …because everything is governed …its like you work a 9-5 or whatever, what you do in that 8-5 is irrelevant to the person, they still get rewarded their salary, basic salary for that month… but if they go and sit the entire day, they still get their basic salary. So they don't need to put in any extra effort to get the job done".*

However, on the other the employment of foreign drivers has led to violent protests in the road freight sector. A GM from Hambanathi Logistics also expressed his view about the negative perception against the foreign drivers. He stated that *"foreign drivers are very hard working guys, but then authorities are now clamping down on the foreign drivers. The local drivers are clamping down on the foreign drivers. Some of them feel that the foreign drivers are prepared to do lot more work, than local drivers are. Then the guys have a problem, because the local drivers are a bit lazier, they see foreign drivers working hard and getting more jobs, while they are unemployed they start protesting , burning trucks, looting, which is a major issue".*

4.6. Market related issues.

The road freight operators also face challenges that emanate from the market itself as shown in Figure 4.5. The barriers of entry into the market are very low, a transporter with one truck can successfully enter the market, create competition and 'steal' clients from established firms. Due to the market competition, price war has become another challenge in the industry. High bargaining power of customers also places huge pressure on the road freight companies.

Figure 4. 8 Market related issues



Source: The researcher, summary of market related issues. (2018)

Figure 4.8 shows market related issues that currently placing challenges on road freight transporters, these market challenges include low barriers of entry, which

have led to intense competition. The competition has as a result led to price, whereby competition is now almost solely based on price, at the expense of service.

4.6.1. Low barriers of entry.

The structure of the road freight industry may be described as fragmented and monopolistic competition, where there is a large number of sellers offering differentiated services.

Due to this type of market structure, the entry barriers are very low. Low barriers of entry lead to extremely intense market competition. The rivalry among the transport companies is very high, each company is doing whatever it takes to survive.

A GM from Hambanathi stated that *"there is too much transporters around, so it makes it difficult where transporters are cutting rates. In order to keep their business alive. They sometimes work from their backyards and they have no overheads, and they can afford to go cheaper. Some of them might have collected packages and bought trucks cash and have no instalments to pay.* A GM from DS Transport also agrees with this statement, he stated that *"But remember you also find a guy taking a package to buy a single truck …hes either retired from a company and he is putting a truck back there now…so the previous employer is now giving you transport work, then you have 1 truck …the you have 2 trucks … then you have 3 trucks… you understand?"*

4.6.2. Price war among the transport companies

A price war is a competitive strategy among rival companies to lower prices with an intention to undercut one another. Rao, Bergan and Davis (2000) assert that in a low- price strategy creating low-price appeal is often the goal, but the result of one retaliatory price slashing after another is often leads to a decline in industry profits.

Most respondents pointed towards a price war that is currently raging in the road freight industry, whereby the companies are under-cutting each other in order to keep the customers and to make a sale.

A Sales Manager at Dynamic Express stated that *"there is multiple challenges, but one is of course the pricing wars that exist in transport … its very difficult to maintain your customers…it is very competitive, we will maybe go out at R2.00 a kilo and our competitors will go and say 'I will give it to you for R1.90 a kilo'...transport is one area that 'bites' into the customers' profits…so the customer as long as they are getting the same service, they will move to the competitor to save 0.10c".*

This challenge is not prevalent to a particular region, however it seems to be a national phenomenon, because a GM at Milltras in Cape Town also raised the same issue of price war. He stated that "*Rates are not determined by a transporter but most off all by the market we are into ...clients sometimes look at price and not service*". The transport companies have therefore become price takers instead of price makers in the industry.

4.6.3. Bargaining power of customers

Due to the rising costs of doing the business, importers, export and local suppliers and buyers are also feeling the pitch, as a result they are looking at various aspects of their supply chain as to where they can reduce costs. Transport is a major cost element in the supply towards the total cost of ownership, hence in their pressure to increase their profits, clients are now placing pressure on the transport companies to provide more value-added services, for free, while they keep prices constant. The clients are aiming to achieve more for less.

Failure to play into client's tune is detrimental for the road freight companies, because the clients reserve a right to 'chop and change' transport companies as they wish. A GM from Palamang Transport in Johannesburg stated that one of the challenges they experience is that *"clients do not even want to give us contracts anymore".* Basically, without a contract, the clients are at liberty to change transporters continuously, without any contractual repercussions.

Clients demands have increased such that clients are now even asking the transport companies to reduce their transport rates. According to a GM from DS Transport Durban "*the clients are now saying 'can you reduce your costs?', how do you reduce your costs when everything else is inflating around you, VAT is gone up by 1% …so challenges are there...".* Another responded GM from Storm & Company also highlighted the issue of demanding customers, he stated that *"the customers are more demanding now, they expect a higher level … of which you won't blame them.. you have to keep up with their requirements".*

4.6.4. Weak state of the economy

The South African rand is currently trading at 14.54 against the US Dollar as of 14 April 2018. Compare this with the exchange rate in 2010, on the 31 December 2010, 1USD was equal to R6.59. According to these statistics, the local currently has depreciated drastically over the past eight years for an example.

The depreciation of the local currency negatively impacts imports of finished goods and raw-materials. Because, it has become more expensive for the South African buyers to source imported goods. South African companies need more Rands to import, hence this problem has dampened the state of the economy in the country. Also, on the export side, exports depend on imported raw materials and semi-finished materials, if costs of imported raw materials are up, the export prices will also go up. Sourcing locally is also not a viable option, because in some cases, local supplies are even more expensive. In addition, some specialty materials are only available from overseas suppliers.

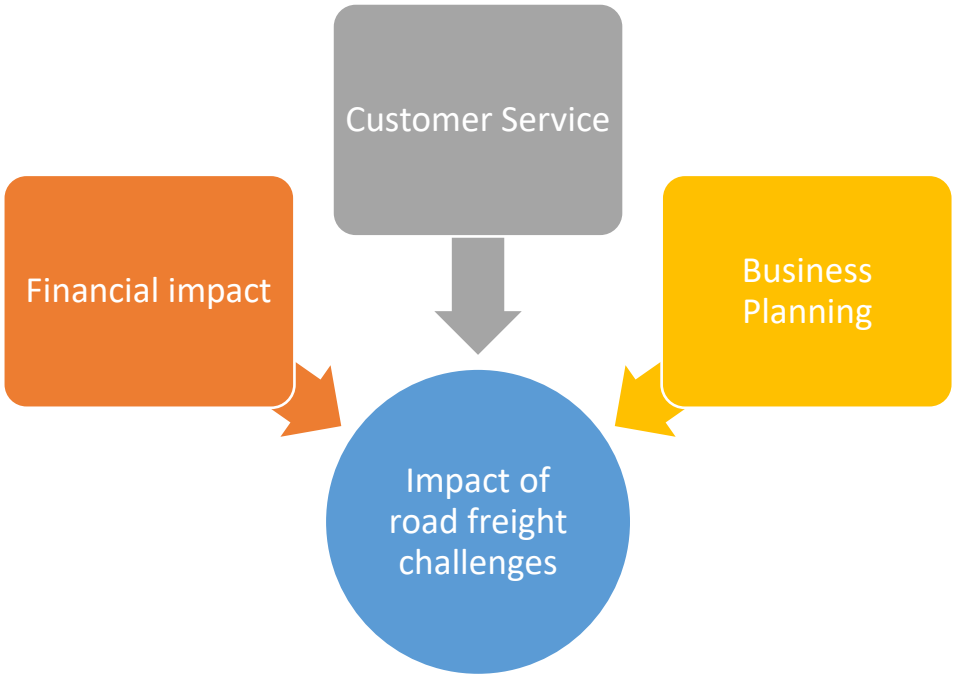
As a result, the movement of goods is reduced, leading to over-supply of trucks, chasing less cargo. A GM from Hambanathi Transport stated that *"Because of the weakening of the rand, there is not much import work. The importers have no enough raw materials in SA to produce, so there is no much business, if they buy local, local prices for raw materials are much higher, so we have a consumer, a man on the street who has less money to spend. Because of inflation, and obviously it's a domino effect, if the man in the street has no money to spend, everything slows down".* A GM from DS Transport also feels that the current economy is not doing

justice to the freight industry, he stated that *"so you not exporting as much as you should be doing ..and you cant buy imports as much as you should be, because of the currency".*

4.5. How are these challenges impacting the road freight companies?

The second objective of the research was to understand the impact of road freight challenges on the road freight companies. As shown in figure 5.1. below, after conducting the interviews with the road freight operators, the following issues emerged, financial impact ranked very highly among the respondents, client impact was also raised by the respondents, impact of the business processes was also raised as an area of concern.

Figure 4. 9 Impact of road freight challenges on the performance of transport companies



Source: The researcher, summary of the impact of road freight challenges. (2018)

Figure 4.9 shows that it became clear from the interviews conducted with the road freight companies that all the issues discussed above have an impact on the financial position of the company, customer service is impacted and business planning.

4.5.1. Financial impact.

There was a recurring agreement among respondents that the road freight challenges have serious financial implications for the road freight companies. As a result, the profit margins on the transport companies have dwindled.

A GM from STS Logistics mentioned that *"at the moment, our profit line is sitting at around 2%, 2% is near to 0, very low".* A GM from Hambanathi Logistics also highlighted the financial impact of the road freight challenges. He stated that road freight challenges have caused *"drop of profits, drop of GP (GP refers to gross profits)… certain customers will accept rate increases as fuel price fluctuates, certain customers don't want to hear of it, especially the smaller guys. It gets to a point where we have to absorb fuel cost increases up to a point where we cannot afford and we tell the customers 'we cannot afford it anymore'. You cannot do anything, you have to …sometimes you are forced to walk away, even if it's a long standing relationship. You have to turn around and walk away, because it ends up costing us money to do their work".*

4.5.2. Customer service impact.

The road freight challenges are also placing a pressure on the transport companies' ability to service the clients satisfactorily. Logistics is responsible for ensuring that time and place utility is achieved, i.e. to ensure the goods are at the right time, at the right place. Transport is also responsible to ensuring delivery in right condition and in right quantities.

However, due to delays at Durban port and on the road, the deliveries are arriving late to the clients. And as such, planning for the client's is negatively impacted.

Some clients require goods for production, while some require goods for selling to direct customers. If deliveries are late, production lines and distribution is negatively impacted. Consequently, the transport companies have to deal with irate clients. In some cases, the transport companies have lost client's due to their inability to deliver on time. A GM from Hambanathi Logistics stated that *"We have lost few customers in the same way".*

4.5.3. Operational planning.

Logistics business largely depends on planning. Without proper planning, it will be difficult to run a transport business efficiently. Vessels arrive at the port during a prescribed docking time. Clients operate within specific working hours. Therefore, estimated time of departure and estimated time of arrival is very important for the transport companies.

However, the road freight challenges have made it impossible for the road freight companies to plan their operations. A truck can plan to collect a box from the port and deliver to a client, but only to find that they are delayed at the port or delayed on the road due to accidents or weight bridge stoppage. As a result, the transport companies have had to engage in anticipatory logistics, to anticipate what may go wrong and what would be the contingency plan to rectify service delivery issues.

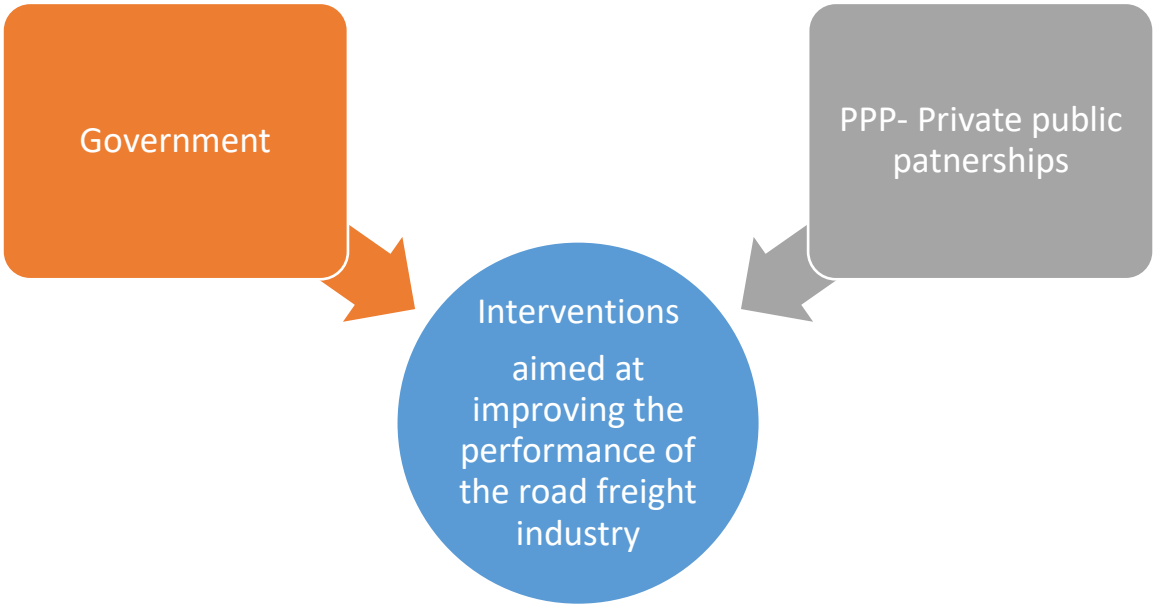
A GM from Milltrans in Cape Town stated that *"One has to try to avoid these challenges making alternative plans to keep a customer happy".* A Sales Manager from Dynamic Express in Port Elizabeth also believes that *"we have to adapt of the challenges".*

4.6. Interventions to 'fix' the road freight industry

The third main question of the research was what are the tools, resources and interventions needed in the freight industry to address the road freight challenges? The respondents were therefore asked to explain the interventions that they feel are necessary to address the issues and to 'fix' the industry. As shown in Figure 4.1. most respondents felt that the government has a pivotal role to play in improving the

road freight company. However, some respondents felt that both public and private sector stakeholders should take a collective approach and collaborate to address the challenges.

Figure 4. 10 Interventions aimed at improving the performance of the road freight industry



Source: The researcher, summary of the interventions aimed at improving the performance of the road freight industry. (2018)

Figure 4.11 shows that although some of the challenges in the road freight industry fall under the scope of government, there is a scope for private public partnership to address the road freight challenges in South Africa.

4.6.1. The Government.

A GM from Storm and Co stated that *"the regulation needs to be improved*". Due to lack of intervention from the Department of Transport, it appears as if the road freight industry is operating on almost 'auto-pilot'. A Sales Manager from Dynamic

Transport, Port Elizabeth stated that *"one thing that is missing in freight transport is there is no governing body for pricing in the transport sector….most of the problems can be resolved if government were to get involved with the sector".*

A GM from Hambanathi Transported in Durban stated that *"Its all the government issues Mr D. When it comes to fuel price, the government is in control of that … that will help us if they can drop it. I believe we are selling fuel to the African countries who are selling it cheaper than us, so there is a big profit on fuel. We need to drop the fuel price".*

According to respondents, the government should also be involved to improve productivity at the port of Durban. A GM from Storm and Company stated that *"if they (Department of Public Enterprises) can put pressure on the Durban port to improve efficiencies. At the end of the day, the port makes the difference on our GDP. If they can improve efficiencies there, then obviously our GDP can increase for the entire country".*

4.6.2. Public-private sector partnerships.

Although it appears that the government is responsible for addressing most of the road freight issues, some of the respondents stated that the issue of addressing road freight challenges is a collective effort. A collaboration is required among various road freight stakeholders to find solutions to improve the operating conditions.

A GM from DS Transport mentioned that *"we want key sort of role players from transport industry and the Transnet officials play a crucial part in this… basically you should have the government, Transnet, key players in the Transport Sector, the private sector – businesses should be there".*

A researcher asked a GM from Storm and Co, what should be done to address the issue of crime on the road? A GM from Storm and Company giggled and stated that "*I wish I knew how to improve crime prevention … I would get an award for that…there is already a talk among the transport companies to start a security*

association that will patrol trucks along the N3, do random stops to ensure that the truck drivers are safe".

CHAPTER FIVE

Discussion of the Research results

5.1. Introduction.

The purpose of this chapter is to interpret and describe the importance of the findings presented in the previous chapter. The discussion will connect findings with the research questions that were listed in chapter one. The aim of this chapter is also to ascertain if a correlation exists between the findings and the existing body of knowledge dealing with the road freight challenges.

5.2. Aim and objectives of the research.

The aim of this study was to investigate and understand the road freight challenges faced by the transport companies in South Africa. The objectives of the research were listed in chapter one as follows:

- To understand the challenges that the transporters face in major South African shipping corridors, i.e. Durban, Johannesburg, Cape Town and Port Elizabeth.
- To explore how these challenges, impact the performance of transporter's companies.
- To explore possible tools, resources and interventions that are required to address road freight challenges.

The following discussion will interpret the research findings against the research aim and objectives. The research findings will also be compared with the existing body of knowledge to establish if corroboration exists or if there is a gap between existing literature and the research findings.

5.3. Road freight challenges

The first research objective was to understand the road freight challenges faced by the transport companies in South Africa. According to the feedback from the interviews with the respondents, the following challenges emerged.

Figure 5. 1 Road freight Challenges faced by the transport companies in South Africa

Source: The researcher, summary of road freight challenges. (2018)

As evidenced in figure 5.1 the road freight industry is confronted by various diverse challenges, including challenges at the port, on the road, compliance concerns, customer issues and yet some of the issues emanate from the external macro environment.

5.3.1. Port delays.

Port delays at the Durban container terminal featured prominently as a major challenge for the road freight sector. Due to delays at the port, the trucks are spending excessive time waiting to collect import cargo. The trucks are also spending excessive time to deliver export containers. The port delays have a negative impact on the performance of the road freight companies and to the South African economy at large.

The findings on port delays, due to inefficient operations are consistent with the existing body of knowledge. According to Transnet's Integrated Report 2017, Transnet acknowledged the following risks facing the business, pricing, capital investment, macro-economic, volume growth, operational, human resources, productivity/efficiency, regulatory, ICT infrastructure and sustainability risks (Transnet, 2017). According to a research by Arjunan (2004) some of the challenges facing Durban port include limited maritime infrastructure, limited space for terminal expansion, low port productivity, limited container handling capacity, poor port management and unskilled human resources.

Hence, there is an urgent need for Transnet to do a turnaround strategy to improve poor productivity.

5.3.2. Escalating business costs.

The escalating costs of doing business are a major challenge for the transport companies. The rising costs of fuel came up as a major concern among the respondents. The escalating fuel price is not a South African problem; however, it is a global challenge. Besides fuel costs, other operating costs like maintenance, parts and wages have also been on the upward trajectory.

The rising costs are placing an extreme pressure on the profit margins. As a result, the transport companies are finding it difficult to grow the business due to escalating costs. Instead, they are reducing their operating costs, through measures like fleet reduction, staff reduction and operational rationalization. Some of the transport companies have been liquidated, due to operating costs exceeding profits.

These findings are consistent with the existing literature. Havenga, et al. (2016) and Havenga, J.H., Simpson, Z.P., King, D., Viljoen, N., de Bod, A. and Braun, M. (2015) assert that the logistics costs in South Africa remain high in comparison with other countries like the US and as a result the country's GDP is negatively impacted. Transport ranks as the highest contributor towards the logistics costs in South Africa, and within transport costs, fuel prices and labour remain the highest cost factors.

There is therefore, an urgent need from the government to review the fuel price pricing mechanism, like reducing the fuel levy to reduce the burden of escalating fuel costs.

5.3.3. Non-compliant practices.

Port delays and rising costs of doing business are external costs that are outside control of the transport companies, however compliance is an internal matter that the transport companies are expected to be in control of. Yet, according to the research findings, major gaps exists in the compliance standards of the transport companies.

Some of the transport companies are operating non-compliant vehicles. Some transporters fail to comply with the legal framework which regulates the road freight industry.

Failure to comply with compliance standards is placing the transport companies at risk, due to fines which are usually imposed by the regulators for running non-compliant operations. In addition, operating non-compliant vehicles is a major safety risk for the society at large, due to the prevalence of road accidents in South Africa.

These findings seem to corroborate with the existing body of knowledge, especially research by Fleet Watch, which found that most of the trucks on the South African roads are non-compliant. A total of 594 trucks were inspected during a Fleet Watch campaign between 2006 and 2015, in 28 events across the country, 397 trucks were found to have serious defects such that they were immediately taken off the road (Nordengen, 2015).

Truck over-loading is another non-compliance issue facing the road freight sector. The implications for overloading include damaging the road infrastructure, including bridges. Over-loaded trucks increase wear and tear on the truck and trailer. Over-loaded vehicles are a huge safety hazard on the road, for other road-users. Hence, the road officials should strengthen their fight against this non-compliance, to protect lives on the road and to preserve our ageing road infrastructure. Hefty fines should be issued to companies that operate overloaded vehicles and such vehicles should be banned on the road until they comply with legal load capacity limitations.

These findings are consistent with the existing literature. According to a report by CSIR (2014), cited in Venter (2015) truck overload control statistics for 2014 show that out of just more than two-million vehicles that were weighed at South African weighbridges in 2014, 20%of these vehicles were over-loaded. Two truck drivers were loaded on the N3 for overloading; the first truck was 23 tons over limit, while second truck was 18 tons over limit (Pillay, 2018).

The transport companies should implement policies and procedures, geared towards improving their internal compliance standards. In addition, the law-enforcement agencies should increase visibility on the road and act swiftly against perpetrators and ensure non-compliant operators face the full might of the law.

5.3.4. On-the-road issues.

Trucks spend most of their time on the road, as a result they are exposed to various challenges on the road. According to the research findings, trucks on the road are exposed to issues like crime and hijackings, poor road infrastructure and corrupt law enforcement officials.

The issue of crime emerged prominently during the interviews. The increase in truck hijackings and cargo theft is posing a major security threat for the transport companies. The drivers also fear for their safety. As a result, transport companies have invested in security measures like cameras and tracking devices to improve safety standards.

The issue of crime is consistent with the existing body of knowledge regarding increasing crime in the Country. C track (2016), Engineering News (2014) and (Venter, 2014) highlight the plight of crime in the country facing the road freight operators. There are also ongoing reports of illegal protesters damaging trucks, road infrastructure and looting from trucks. Khoza (2018) reported that in April 2018, a total of 35 trucks were damaged, including those that were set alight in a protest at Mooi River, KZN.

Crime is a serious issue for the road freight companies, hence urgent interventions are required to find solutions to address the matter, to ensure safety of the drivers, trucks as well as the cargo on the road.

Another major challenge on the road is the poor road infrastructure. Some of the South African roads are in poor condition, as a result costs of maintenance has increased due to poor road conditions. In some cases, poor road conditions contribute to accidents. Poor roads are also leading to delays in delivering cargo, because of the reduced driving speed.

These findings seem to corroborate the existing literature. According to the National Planning Commission, 20% of the paved road network is currently classified as being in a “poor” or “very poor” condition (Barloworld, 2013). Steyn, et al. (2012) state that one of the effects of deteriorating pavement quality is increased maintenance costs for the freight industry, which eventually contributes to higher transport freight costs. A research conducted by Akinlabi and Bohwa (2016) among logistics firms found that 26.5% of the respondents were concerned, while 25.8% were extremely concerned about the road infrastructural maintenance that is considered poor.

The truck drivers have a challenge dealing with the corrupt law-enforcement officers on the road. Regardless of how complaint a truck and driver may be, the corrupt officials always find an excuse to impose fines, so that they can solicit bribes from the drivers.

Nordengen (2015) identified bribery and corruption as one of the challenges facing the road freight industry in South Africa. The government should thus, consider setting up a special task unit to crack down on the corrupt officials on the road to

send a clear message that South Africa has no place for corrupt law-enforcement officials.

The respondents complained about ongoing delays at the border posts, due to inefficient border customs operations. Border delays have a major impact to the transport companies and to the customers, due to standing time as well as late arrival of goods at the place of delivery.

These findings are consistent with existing research. Khumalo and Chibiri (2015) discuss challenges that create bottle-neck for freight companies in over-border transportation. These challenges include, infrastructure and capacity constraints, obsolete and inadequate information systems, frequency and modus operandi of various border law enforcement authorities and authentication of documentation and institutional constraints.

Hence, there is an urgent need for the border management to unlock these challenges to speed the process of cargo clearance at the borders, to ensure quick turnaround time for the trucks at the border posts.

5.3.5. Lack of skills.

The lack of skills in logistics and in related services is negatively impacting the performance of the industry. Lack of skills in the road freight sector may be a contributing factor to the alleged illegal employment of foreign drivers in South Africa. The transport companies are closing the gap by employing drivers from neighbouring countries, in some countries without following the proper legal channels.

As a result, there is a current ongoing hostility in the industry directed towards the employment of the foreign drivers. According to the Acting deputy director-general for road transport at the Department of Transport ‘the employment of foreign drivers over local drivers is not just disregarding the labour laws of the country, but it also creates unnecessary tension, given high unemployment rate in South Africa’ (Venter, 2018).

To address the negative attitude and perception towards the foreign drivers, the industry should look at initiatives to offer salaries that are performance-based so that the performance of local drivers can be on par with that of foreign drivers. Labour department should also address the issue of transporter companies who are employing foreign drivers illegally. The rights of the foreign drivers in some cases are violated, because they operate outside the protection of the South African Labour laws.

Lack of skills is not only prevalent among the transport companies, but it also manifests itself in other support industries, that are expected to support the logistics industry. For an example, lack of engineering skills is negatively impacting the country's ability to maintain the road infrastructure.

The issue of lack of skills is consistent with existing literature in South Africa, not only in logistics, but this demise is also prevalent in other key sectors of the economy. South Africa should thus address the issue of skills deficit to unlock the full potential of the economy, including that of the logistics industry.

These finding seems to corroborate with the existing body of knowledge. Havenga, et al. (2016), Havenga, et al. (2015) and Barloworld (2013) posit that shortage of skills in the logistics sector is one of the main hindrances that negatively impact the performance of the country's logistics and supply chain. The shortage of skills also a prevalent problem in the US. A report by King and Waters (2018) warns that shippers and lines should expect drastic increases in US trucking freight rates this year due to driver shortages.

5.3.6. Market related issues.

The current market conditions are also placing extreme pressure on the performance of the transport companies. The road freight industry has low barriers of entry, the economy in general is weak, as a result price war has emerged among the competitors. The bargaining power of customers has also increased.

Regrettably, there is nothing that the well-established transport companies can do about address the low barriers of entry, despite that they need to improve on their

operational efficiencies to compete with smaller players, who may have lower cost base. Heileman (2017) posits that many segments within the logistics industry are commoditized and have low barriers to entry or exit.

Low barriers of entry and slow economic growth have led to price war in the market. The smaller operators are under-cutting well established companies, with higher operating fixed costs. The issue of price war has led to the erosion of the profit margins in the industry. According to Heileman (2017) low barriers of entry in logistics lead to a market characterized by low margins and high competition

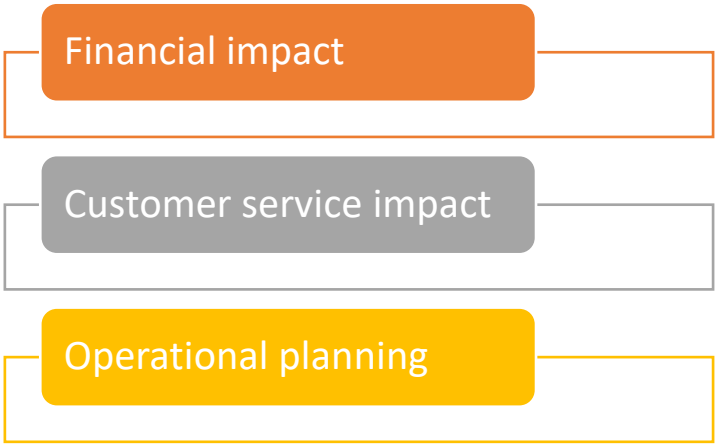
The general state of the South African economy is weak. The economic growth is low. Unemployment is high, business confidence is low, prices are increasing, and overall cost of living has increased. The rand has weakened against the US Dollar, which is a major global trading currency. The state of the economy impacts the movement of goods in and out of the country, as well as locally. Reduced movement of goods impacts the performance of road freight companies and the customers.

The customers are demanding more for less from the transport companies. According to PWC (2016) customer expectations are increasing greatly. Both individuals and businesses expect to get goods faster, more flexibly, and, in the case of consumers, at low or no delivery cost.

5.4. Impact of the road freight challenges on the impact of the transport companies.

The second objective of the research was to explore the impact of the road freight challenges on the performance of the transport companies. As shown in figure 5.2 the impact of the road freight challenges identified by the respondents included the financial impact, customer service and operational planning.

Figure 5. 2 Impact of the road freight challenges on the performance of the transport companies.



Source: The researcher, summary of the impact of the road freight challenges. (2018)

As evidenced in figure 5.2, according to the research findings, it became clear that the transport companies suffered serious financial losses due to the various challenges. In addition to the financial impact, the transport company's ability to service the customer was negatively impacted. Road freight challenges brought about uncertainty in the industry, hence the transport companies are finding it very difficult to plan their operations.

5.4.1. Financial impact.

It became evident from the respondents that the road freight challenges have major financial implications for the transport companies.

According to business management 101, the fundamental objective of a private business is to generate profits. There are other objectives in business though, however those objectives may be viewed as secondary objectives.

The issue of port delays at Durban container terminals reduces a number of loads or trips that a transporter can do between port and place of delivery, because trucks are spending unnecessary additional time at the Port waiting to load. By doing less loads, the sales are reduced. In addition, the overtime costs have escalated, due to drivers spending excessive time waiting for containers at the port.

The increased market competition, price war and weak economic growth are also having a negative impact of sales. As a result, road freight revenue is under severe pressure, which is negatively impacting transport companies.

The overall logistics costs are rising, which really put transport companies under severe pressure. Sales are declining, while business costs are rising. This situation is having a major impact on the financial performance of transport companies. As a result, the transport companies are operating on very low margins.

The above findings corroborate with existing reports and research. Supply Chain Digest (2018) reports that rising transportation and logistics costs are hitting the corporate bottom line.

Logistics in the company is one of many factors generating costs which may significantly contribute to the financial position of enterprises. Road freight challenges lead to increase in logistics costs. Logistics costs are an instrument increasing the financial result of the company (Stępień, et al., 2016).

5.4.2. Customer service impact.

The road freight challenges are placing a pressure on the transport companies' ability to service the clients satisfactorily. The transport companies are responsible for ensuring that service delivery to clients meets and exceeds customer expectations.

Logistics is fundamentally responsible for ensuring that the right product is delivered to the right place, at the right price, to the right customer, in right condition and the right time and in right quantities.

However, due to various challenges like port delays, border delays or on-the-road delays due to traffic congestion, the transport companies are unable to deliver to customers on time. As a result, customer service is placed at jeopardy. Delay's in deliveries are negatively impacting clients' production and distribution plans. The transport companies are in some cases losing clients due to their inability to offer service as expected.

Akinlabi and Mbohwa (2016) operational inefficiencies by Transnet are impacting the customers negatively.

5.4.3. Operational planning.

Planning is an important function in supply chain. Transport companies engage in fleet planning and delivery schedules, however due to road freight challenges, transport plans are becoming difficult to execute.

A transporter can plan for a truck to collect a box from port for delivery to a customer, but only to find that they are delayed, due to the road freight challenges like road closure. As a result, the transport companies have had to engage in anticipatory logistics, to anticipate what may go wrong and what would be the contingency plan to rectify service delivery issues.

To address these challenges, the logistics companies should optimize their logistics infrastructure and processes. Barloworld (2013) argue that an efficient transport management service can transform and optimise the entire distribution network**.**

5.5. Interventions required to address the road freight challenges

The third research objective was to explore possible tools, resources and interventions that are required to address road freight challenges. As shown in figure 5.3 government intervention as well as public-private sector partnership are required to address the road freight sector.

Figure 5. 3 Interventions required to address the road freight challenges

Source: The researcher, summary of the interventions to improve the performance of the road freight industry. (2018)

As evidenced in figure 5.3 addressing the road freight challenges requires serious intervention from the government, however some of the issues emanate from the transport companies and from the customers. Hence, public-private sector partnership is required to unlock the full potential of the road freight sector.

5.5.1. Government intervention.

The government should intervene in the industry by ensuring that the necessary regulations are in place to regulate the industry. The government has implemented many initiatives to regulate passenger transport sector, yet the trucking sector has remained neglected, which has led to self-regulation.

There are many non-compliant trucks on the South African roads, causing accidents on ongoing basis. Yet, those trucks seem to hold valid certificates of road worthiness, therefore, therefore a gap seems to exist in regulating various aspects of the road freight sector like road-worthiness of trucks, training for the law-enforcement officials, regulating and monitoring permissible weight limitations on the road. The government should improve the conditions under which the transport companies operate.

According to Barloworld (2013) to meet the challenges of transportation in South Africa will require a lot more efforts on the part of government to deliver on its

commitment, especially on the infrastructure development, to provide the necessary capital.

5.5.2. Public-private sector partnership.

The challenges faced by the road freight transport industry cannot be addressed and resolved by the government alone. Some of the issues like infrastructure development are indeed under the scope of government control, while some of the issues like compliance are a responsibility of the transport companies. The government cannot service trucks for the transport companies. The companies cannot draft policies and procedures for the transport companies. The government cannot train staff for the transport companies. The transport companies should take responsibility to improve compliance in areas under their own responsibility. Therefore, a joint public private partnership is required to unlock the full potential of the road freight industry. The government cannot do it alone.

According to CSIR (2013) to achieve transport efficiencies a proactive effort, courage and innovative solutions will be required from both the private and public sectors through public private partnerships.

5.6. Summary

The aim of this chapter was to discuss the research findings which were initially presented in chapter four. The road freight sector is confronted by various challenges, including port delays, challenges on the road, non-compliance issues, lack of skills, infrastructural issues and market constraints. These challenges are placing a huge pressure on the financial performance of the transport companies. The transport companies are finding it more difficult to service customers and to plan their operations due to road freight challenges. As a result, there is a need for an urgent intervention from the government to support the industry through regulation as well as providing the infrastructure. The transport companies should also however, work on improving their internal compliance standards address non-compliance practices within the industry.

CHAPTER SIX

Conclusion and Recommendations

6.1. Introduction.

The aim of this study was to investigate and understand the road freight challenges faced by the transport companies in South Africa. Chapter six will discuss the conclusion reached after the study. The chapter will also attempt to confirm if the research questions set in chapter were answered. The implications and benefits of understanding road freight challenges, impact of these challenges and suggested interventions will be highlighted. This section will also discuss limitations to the study. The last part of the section will discuss recommendations to unlock the full potential of the road freight industry. Recommendations for future studies will also be presented.

6.2. Conclusion.

The motivation for choosing the study was due to the prevalence of the road freight challenges faced by the transport companies in South Africa, which impacts their ability to sustain the business and reach their full potential. The researcher intended to understand what are the challenges that are faced by the road freight companies, how are those challenges impacting the performance of transport companies and what are possible interventions to address road freight challenges. The research findings and discussion outlined in chapter four managed to bring to the surface the various challenges in road freight sector, the impact of the challenges and possible interventions. According to the research findings the road freight challenges emanate both from internal and external environment. As a result, the transport companies suffer financially. There is, therefore, a need for the government to intervene in addressing the road freight challenges, because most of the challenges like poor port productivity, crime, poor road infrastructure and rising fuel prices are within the jurisdiction of the government. However, the transport companies, also need to do play their part, especially in the area of non-compliance, and ensure that they operate compliant vehicles and they comply with the relevant legal framework

governing the road freight industry. Therefore, a public-private partnership is required to address the road freight challenges. The research problem has therefore been addressed, because the findings reveal various challenges faced by the road freight companies in South Africa, impact thereof as well as required interventions. The research findings were presented and discussed in chapter four. The following section will discuss research implications and then proceed to recommendations.

6.3. Implications for practice.

The purpose of this section is to discuss the contributions that the research work has made to scholarship and the discussions highlights how the findings can be applied in practice. The research benefits for stakeholders that were identified in section one are also discussed.

6.3.1. Contribution to the body of knowledge.

The findings from this research have contributed to the body of knowledge buy taking a holistic view of the challenges faced by the road freight companies in South Africa. The results show that the struggles faced by the transport companies in South Africa are diverse and they are real issues that require immediate attention.

The road freight industry is a catalyst for economic growth in South Africa, yet various challenges hinder the industry to reach its full potential. Therefore, the first major practical contribution of the present research is that it provides much needed insight into the challenges faced by the road freight companies in South Africa. This insight is very pivotal, given the fact that the previous research like State of Logistics/Logistics Barometer is focused on costs, infrastructure and skills. The research study attempted to fill the gap, by adopting an open approach, which allowed diverse challenges to emerge from respondents. As a result, result stakeholders would be able to gain better insight from the research.

6.3.2. Benefits to policy-makers.

Delays at the Durban Container Terminal (DCT) was highlighted by most respondents as a major problem for the industry. 'Port functionality is a significant and important aspect of cargo transportation' (Loh and Thai, 2015). American Group (2015) states that shipments caused by the state of the ports can be frustrating. The respondents complained about delays caused by poor IT systems, labour issues, poor productivity, inefficiencies, lack of machineries and lack of leadership. Therefore, this research will provide insight into the policy makers, i.e. The Department of State Enterprises (DPE) with regards to the necessary interventions and investments that are required at Transnet Port Terminals to improve productivity and turnaround time at the Durban Port.

Fuel prices are by far the most volatile, unpredictable and expensive cost in the logistics process. (Belfreight, 2016)

Several on-the-road challenges were also raised by the respondents. The transport system is often described as the lifeblood system of modern society. Roads form an important part of this system, for both freight and passenger transportation (Engstrom, 2016). However, the South African freight companies face many on the road issues. The first issue if the poor quality of the road infrastructure itself. The transport costs are directly influenced by the condition of the transport infrastructure (Steyn, Bean, King, Komba and Julius, 2011). The truck drivers have to endure delays on the road, due to traffic congestion, accidents and stoppages at weight-bridges. The unethical conduct of road officials also poses a serious threat to the industry. Crime is another issue threatening the industry, the trucks, drivers and cargo are not safe on the road, due to increase in crime.

These findings have implications for the policy-makers regarding the necessary actions required to address road freight challenges. The Department of Transport will gain insight regarding the necessary interventions that should be undertaken to address the road freight issues. The issues of corrupt officials and crime on the road, falls under the scope of The Department of Police. This paper will enable SAPS officials to gain an understanding regarding the role that they should play to protect drivers on the road.

6.3.3. Benefits to road freight companies.

The respondents advised that road freight challenges have a financial impact for the business. The challenges also make it difficult for the transport companies to service clients, due to for an example unpredictable delays from port and on the road. The transport companies are unable to fulfil time and place utility due to the logistical constraints. Some of the issues raised by the respondents, like non-compliance emanate within the transport companies.

The researcher is therefore of the belief that this research would contribute towards the improvement of management systems within the transport companies. Because, the transport companies will be in a better position to understand the variety of challenges that impact their business, including those that are likely to impact their business in the future. As a result, the transport companies would be able to strategically plan preventative measures to address the challenges.

6.3.4. Benefits to service providers.

The road freight companies depend on the services of various service providers to successfully manage the business. Some of the service providers include, the recruitment agencies who provide staff to the transport firms. The manufacturers and suppliers of truck parts as well as related services. The financial sector provides financial services like loans which are required for capital expansion. The insurance companies play a crucial role in providing insurance cover for vehicles and for the goods. The security companies provide security products and related services to the transport companies.

This paper contributes to the service providers, by obtaining an understanding that exist in the industry. As a result, the service providers would need to provide goods and services that will assist in resolving some of the issues. For an example, there is a need in the industry for technology that will reduce fuel consumption in vehicles. Security is another area that requires urgent attention. Training academies have a pivotal role to play in skills development.

6.3.5. Benefits to customers.

The fundamental objective of supply chain and logistics is customer service. As a result, logistics is responsible for ensuring that the seven logistics rights are upheld, i.e. ensuring that the right product is delivered to the right place, at the right price, to the right customer, in right condition, in right quantity and at the right time.

Considering various road freight challenges like port delays and on the road challenges, it becomes difficult to achieve customer service. The customers don't receive materials on time and the production plans are negatively impacted.

This research contributes towards the customers, by giving them insight so they can engage in anticipatory planning. By incorporating road freight challenges on their planning, customers will be able to consider alternative solutions to address supply issues that may arise due to road freight challenges.

6.4. Limitations of the study.

Research has limitations due to possible research biases which may occur during the research process. The research limitations were identified in section one, the purpose of the following section is to highlight some of the mechanisms that were used by the researcher to minimize limitations.

- The research was conducted on a sample of sixteen (16) respondents from the road freight transport companies, who are based in Durban, Gauteng, Cape Town and Port Elizabeth. Hence, it may be cumbersome to generalize the results to the overall population, because operational dynamics elsewhere may be slightly different. To counteract this limitation, the researcher asked open questions and in general terms to identify generic road freight challenges, which impact transport companies within and across South Africa, up to South African borders.
- Qualitative research study is information-heavy. Hence, mining gathered data was daunting and time consuming. To address this limitation, the

researcher started with cleaning data, which culminated into the identification of themes. Clusters of data emerged from the themes.

- Qualitative research study is heavily dependent on the researchers interpretivism and perspectives, as a result it includes instinctual decisions, which may lead to potential bias. The researcher studied various types of research bias and how to avoid them, as a result, the researcher took an objective position throughout the process to ensure quality of the research project.
- Interviews as data collection method is largely dependent on spoken words, and it was difficult to present words visually. The researcher used Microsoft SmartArt Relationship Graphics to present the research findings.

6.5. Recommendations to address the challenges faced by road freight companies in South Africa.

The research identified and discussed several challenges that are faced by the road freight companies in South Africa when they transport goods. Therefore, in the following section, the potential solutions to address these challenges will be presented.

i) Port delays in Durban featured prominently as a serious bottleneck for the road freight companies. Public Enterprises Minister, Mr. Pravin Gordhan should intervene, by using a directive to Transnet officials to turnaround poor productivity at the port. Poor work ethic was identified as a main cause of poor productivity. Transnet should, therefore, introduce performance-based incentives, which will serve to motivate staff to change their work ethics towards improving productivity.

ii) The increasing fuel prices were identified by respondents as a major challenge for road freight companies. The South African fuel price is inclusive of two types of levies, i.e. general fuel levy and Road Accident Fund levy. Combined, these levies constitute R5.30 of every litre of fuel sold in South Africa. Therefore, the Minister in the Department of Energy, Mr. Jeph Hadebe should review the fuel levies, with consideration to

reduce the levy, which will lead to a reduction in fuel costs. However, long-term, the transport companies should move away from fossil fuels, but rather invest in electric vehicles, that will help reduce escalating fuel bill and also address the issue of gas emissions.

iii) Crime and hijackings on the road were identified by the respondents as a major issue for the road freight companies. It is therefore suggested that the transport companies should review and increase their security measures. The installation of cameras inside and outside trucks would assist to pro-actively identify safety hazards for the drivers. The transport companies should also re-enforce usage of safe parking areas for the trucks. SAPS has a pivotal to play in patrolling freeways to deter criminals.

iv) There is a prevalence of accidents on the roads and one of the main causes is non-compliant trucks. The transport companies should conduct maintenance of their trucks on on-going basis. The road authorities should also re-enforce law, by applying zero-tolerance on non-compliant trucks on the road. All non-compliant trucks should be scrapped from the road to improve road safety.

v) The poor condition of the South African road infrastructure is a major problem for the transport companies. The Department of Transport should consolidate the maintenance of roads under one national authority. Priority should be given to the maintenance of roads in rural and farming communities.

vi) There is a lack of pricing regulation in the road freight sector, which has led to price wars. The Minister in the Department of Transport, Mr Blade Nzimande should promulgate pricing structure guidelines to regulate the freight industry.

vii) The border delays are negatively impacting the freight transport companies; therefore, Customs Department should invest in infrastructure at the borders, manpower training on customer services should also be undertaken. Customs should also address the allegation of bribery at the borders, by having a hotline where drivers can call unanimously to report acts of corruption. Customs should also address the issue of productivity, by introducing performance-based incentives for Customs Officers.

6.6. Recommendations for future studies.

The research covered the road freight challenges faced by the transport companies when they deliver cargo from place of collection to the place of delivery. This is just on angle of understanding the road freight challenges from the supply-side of logistics. As a result, the research would like to make the following recommendations for future studies.

i) A qualitative study was conducted to investigate the challenges, from the research, several challenges were identified. Quantitative studies could assist to measure the impact of these challenge, with an intention to prioritize the challenges when implementing the corrective actions.

ii) The study also looked at how the road freight challenges impact the transport companies. It would be interesting to investigate the impact from the logistics demand side, by interviewing the clients regarding their experience with the phenomenon.

iii) The government featured prominently as a key stakeholder in addressing the road freight challenges. Therefore, conducting a study on the role of government in the road freight sector may contribute towards understanding the phenomenon.

iv) Most importers, exporters and local suppliers use the services of 3PL companies (3rd Party Logistics Service Providers) to act on their behalf in arranging logistics. I would be valuable to conduct a study among the 3PL companies to understand their experience with road freight challenges. The study may assist to corroborate or refute findings from the Transport companies.

v) Transnet port terminals operate seven ports in South Africa. Durban Port however features prominently as an inefficient port with poor productivity. I would be interesting to study causality of poor productivity in Durban and also to understand what other ports are doing to operate efficiently, with an intention to replicate their best practices in Durban.

6.7. Summary.

Understanding the road freight challenges faced by the transport companies in South Africa is a very important area of focus for the freight industry. As discussed in chapter two, efficient transport system is a catalyst for economic growth. Therefore, understanding the road freight challenges allows the various stakeholders to deliberate of the necessary interventions that are needed to address the challenges. Addressing the challenges in the road freight industry has a potential to improve the performance of the transport companies, which will lead to the creation of job opportunities and establishing a competitive industry that supports importers and exporters.

The research study was conducted by interviewing the freight transport companies, so that the researcher could gain an understanding the challenges faced by the service providers in their quest to service importers, exporters and local suppliers. The feedback received from the respondents identified a variety of challenges that the transport companies must contend with on daily basis. These challenges were discussed in detail in chapter four. From the research findings, the research was able to fulfil its mandate by providing answers to the research questions which were presented in chapter one. The findings culminated to recommendations presented by the researcher in chapter five both for the freight industry as well as for the scholarship.

Other studies have been conducted to investigate the road freight challenges, most of them focusing on isolated topics, like logistics costs. Some of the studies from the engineering field have studied the impact of road surface on the performance of trucks. The media has also reported on the isolated aspects of road freight challenges. However, this paper took a holistic view to conduct a scientific research with an intention to understand a full range of road transport challenges. A strong correlation was established between the literature review and the findings from this study. As a result, it can be concluded that the research was an astounding success.

Appendix 1 – Interview Schedule.

Interview Schedule

"**AN INVESTIGATION INTO ROAD FREIGHT CHALLENGES FACED BY TRANSPORT COMPANIES IN SOUTH AFRICA**"

Opening

Establish Rapoort	My Name is Dennis Khuzwayo, MBA Student No 217037570 from UKZN GSB&L. Employee at Bidvest Panalpina Logistics.
Purpose	I would like to ask you some questions about your background and some experiences you have had with road freight challenges, in order to learn more above industry challenges.
Motivation	I hope to use this information to contribute to the industry's intelligence by making recommendations that may assist to unlock the full potential of the road freight industry.
Time Line	The interview should take about 30 minutes. Are you available to respond to some questions at this time?

Body

Background	
Respondent's position?	
Length of service within the company?	
For how long your company has been in road freight business?	
What is your fleet size, how many Trucks do you have?	
What are your main routes of operation?	
Do you specialize in specific shipments e.g. *** LCL, FCL, Haz, Abnormal etc?	

Theme	**Experience with Road Freight Transport Challenges** 1. How would you define 'road freight transport challenges'? 2. What has been your experience with road freight challenges? 3. Do you operate locally or over-border or both? Is there any difference between challenges locally and over-border? Please explain further. 4. Over the past few years, would you say these challenges have evolved, i.e. old challenges resolved and new challenged emerged or are you still experiencing the same old set of challenges? Probe for examples…
	Impact of these challenges on your business performance 5. What would you say is the impact of these challenges on your business performance? 6. In which area/or areas of business are you most impacted? 7. How do you measure the impact of these challenges on your business?
	Interventions needed to fix road freight challenges 8. What do you think are the interventions needed to fix the road freight problems? 9. Who do you think should be involved in resolving road freight challenges? 10. Do you believe these interventions will address the problems completely or they will partially reduce the impact of the challenges?

****LCL = Less than a container load, FCL = Full container load, HAZ = Hazardous/Dangerous chemical products.*

Closing

Maintain Rapoort	I appreciate the time you took for this interview. Is there anything else you think would be helpful for me to know before we close-off this interview?
Action to be Taken	I should have all the information I need. Would it be alright to contact you at your office if I have any more questions? Thanks again for your participation on this interview, it is very much appreciated. Thanks for your time.

Date/Time

Date	

Time started	
Time finished	

Interviewer	**Dennis Khuzwayo**

Appendix 2 - Ethical Clearance.

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15 November 2018

Mr Mfanafuthi D Khuzwayo 217037570
Graduate School of Business and Leadership
Westville Campus

Dear Mr Khuzwayo

Reference number: HSS/1285/018M

Full approval - Change of project title

Your application dated 12 November 2018 in connection with the above, the Humanities and Social Sciences Research Ethics Committee has considered the application and the research protocol has been granted **Full Approval**.

- **Change in project title**: The impact of road freight challenges on the performance of transport companies in South Africa.
- **New project title**: An investigation into road freight challenges faced by transport companies in South Africa.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol.

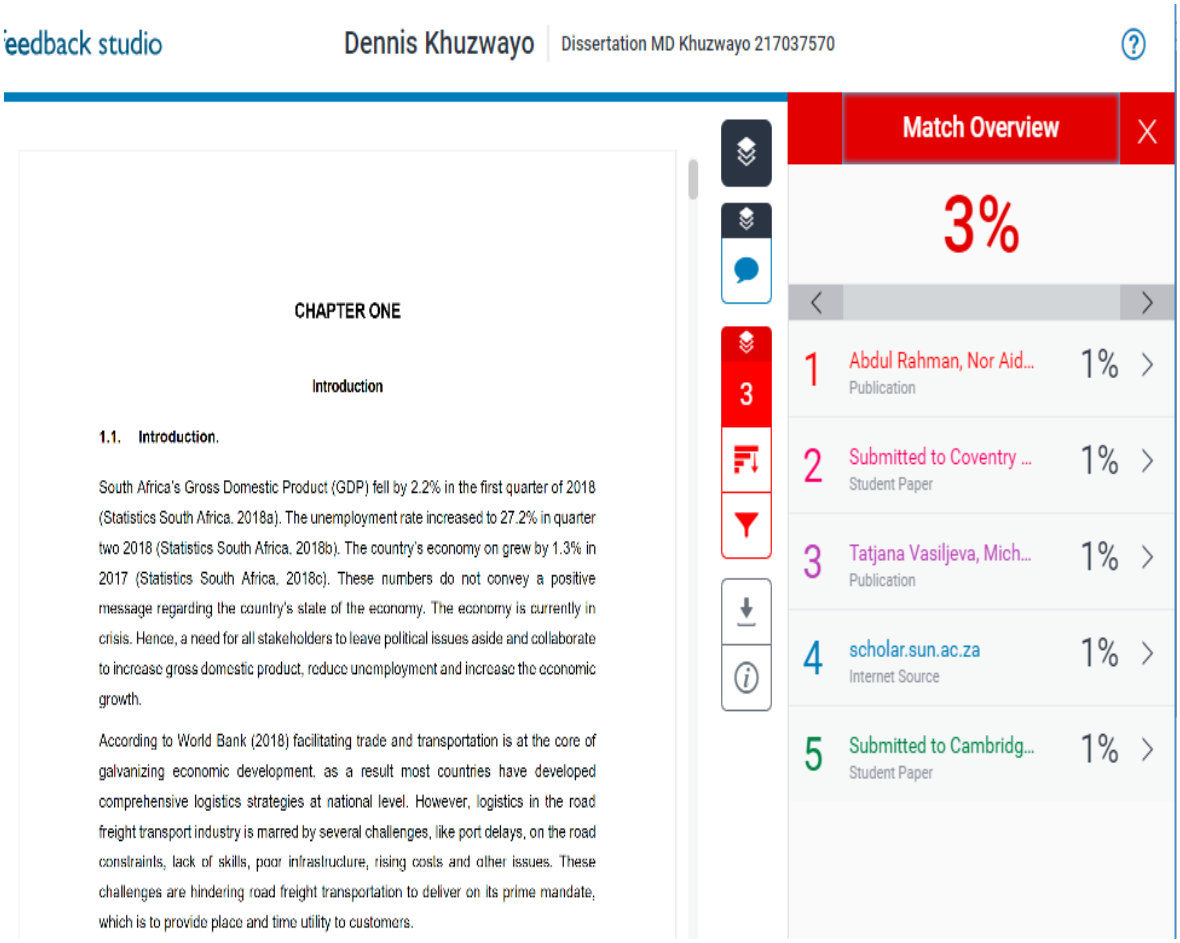
Yours faithfully

[redacted]

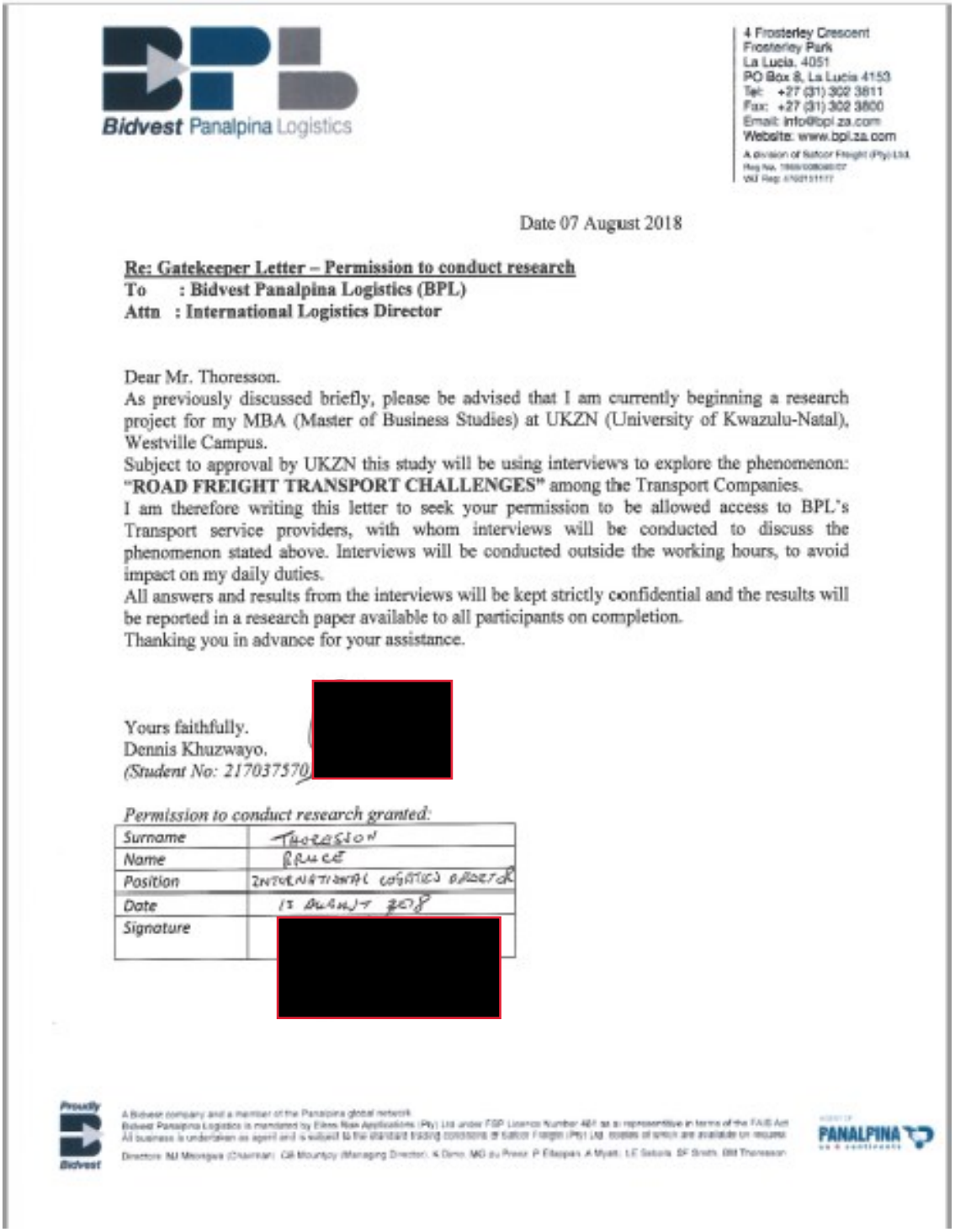
Prof S Singh

/px

Appendix 3 – Turnitin Report (3%).



Appendix 4 – Gatekeepers Letter.



Bidvest Panalpina Logistics

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A division of Safcor Freight (Pty) Ltd

Date 07 August 2018

Re: Gatekeeper Letter – Permission to conduct research
To : Bidvest Panalpina Logistics (BPL)
Attn : International Logistics Director

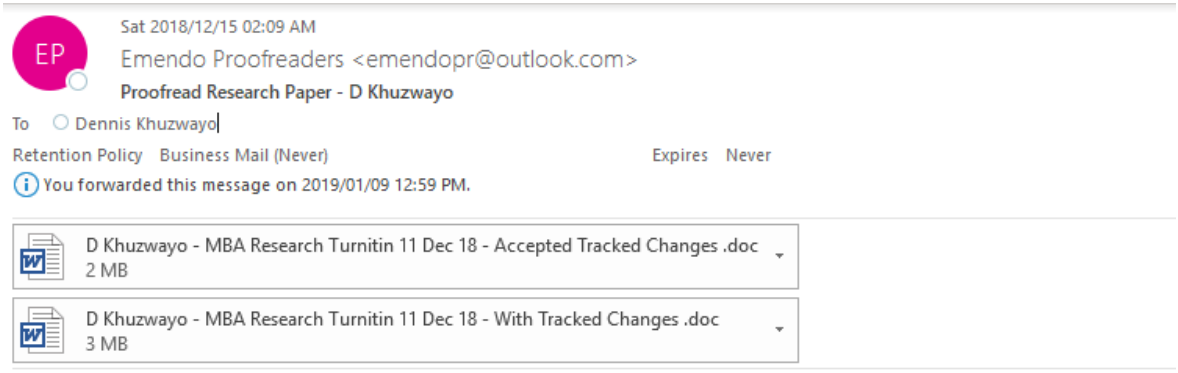
Dear Mr. Thoresson.
As previously discussed briefly, please be advised that I am currently beginning a research project for my MBA (Master of Business Studies) at UKZN (University of Kwazulu-Natal), Westville Campus.
Subject to approval by UKZN this study will be using interviews to explore the phenomenon: **"ROAD FREIGHT TRANSPORT CHALLENGES"** among the Transport Companies.
I am therefore writing this letter to seek your permission to be allowed access to BPL's Transport service providers, with whom interviews will be conducted to discuss the phenomenon stated above. Interviews will be conducted outside the working hours, to avoid impact on my daily duties.
All answers and results from the interviews will be kept strictly confidential and the results will be reported in a research paper available to all participants on completion.
Thanking you in advance for your assistance.

Yours faithfully.
Dennis Khuzwayo.
(Student No: 217037570)

Permission to conduct research granted:

Surname	THORESSON
Name	BRUCE
Position	INTERNATIONAL LOGISTICS DIRECTOR
Date	13 AUGUST 2018
Signature	

Appendix 5 – Proofreading Confirmation



Hi Dennis,

I have attached your proofread research paper.

There are two copies attached, one with the 'tracked changes' so you can see all the changes I made, and the other with 'accepted changes' where I accepted all the changes I made for your ease of reading.

Please let me know if you have any questions or require further assistance.

Yours in writing...

Sibongile Ndhlovu
Email : emendopr@outlook.com
Mobile +27 83 6603 629

Appendix 6 – Traffic Congestion at Durban Container Terminal.

Source: Reliable Freight, 2016. Chaos at Durban Container Terminal. *Reliable Freight* [Online]. Available at: http://www.reliablefreight.co.za/2016/04/07/chaos-durban-container-terminal/ [Accessed 19 August 2018].

Appendix 7 – Burning of Trucks by Protesters.

Source: Wicks, J., 2018. Protesters burn trucks and close N3 highway. *Times Live* [Online]. Available at: https://www.timeslive.co.za/news/south-africa/2018-04-02-in-pictures--protesters-burn-trucks-and-close-n3-highway/ [Accessed 19 November 2018].

Appendix 8 – Road Accidents involving trucks.

Source: Potgieter, M., 2018. Probe continues into deadly Limpopo Road Accident. *Eyewitness News* [Online]. Available at: https://ewn.co.za/2018/10/22/probe-continues-into-deadly-limpopo-road-accident [Accessed 19 November 2018].

Appendix 9 – Truck hijackings and crime.

Source: Escourt News, 2018. Trucks hijacked, drivers assaulted on the N3 near Estcourt. *Escourt News* [Online]. Available at: https://estcourtnews.co.za/52666/trucks-hijacked-drivers-assaulted-n3-near-estcourt/ [Accessed 19 November 2018].

Appendix 10 - Massive Fuel Price Increases.

Massive Fuel Price Hikes for October 2018

The Department of Energy has announced massive fuel price hikes that will take effect on 3 October 2018.

Rising fuel prices remain a major cause of concern for many South African motorists and consumers who have endured countless increases that continue to squeeze household budgets.

Now, a major increase will materialise in October 2018.

The price of 93 octane petrol will increase by 99 cents per litre while the cost of 95 octane petrol will increase by R1.00 per litre. Both grades of diesel (0.05% and 0.005%) will see a massive price increase of R1.24 per litre.

The main factors that contributed to the increase include a weakening Rand/Dollar exchange rate, increases in the prices of crude oil and increasing import proces of petroleum products.

Previously, the AA warned that the agricultural sector, which is already under stress from the prolonged drought, will be severely affected by the rising cost of diesel and price hikes such as this will place marginal businesses (including farms)

under considerable pressure and will ultimately have a negative impact on consumer pricing.

Source: Adapted from Lilleike, G., 2018. Massive Fuel Price Hikes for October 2018. *Cars.co.za* [Online]. Available at: https://www.cars.co.za/motoring_news/massive-fuel-price-hikes-for-october-2018/45531/ [Accessed 19 November 2018].

Appendix 11 – Poor road conditions.

Source: Botha, C., 2018. Pothole problem returns after heavy rains. *Randfontein Herald* [Online]. Available at: https://randfonteinherald.co.za/273629/pothole-problem-returns-after-heavy-rains/ [Accessed 20 November 2018].

Appendix 12 – Border delays.

Source: Malobola, B., 2017. Beitbridge delays. *SABC News* [Online]. Available at: http://www.sabcnews.com/sabcnews/traffic-volumes-decrease-mpumalangas-major-roads/beitbridge-delays/ [Accessed 20 November 2018].