

**An assessment of capital expenditure required to establish a steel distribution business, as a barrier to entry into the steel distribution industry**

A Dissertation

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by

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## **Abstract**

The South African steel industry plays a vital role in the economy of the country. It is seen to be a major source of employment for the South African people, and key to sustainable economic development for the country. In recent years however, the South African steel industry has been faced with a number of challenges resulting in the closure of some steel companies and consequently the loss of many jobs. It is posited that small and medium enterprises (SMME's) can minimise these negative effects, balance out the job losses and keep the industry sustainable. However, the barriers to entry in the steel industry, and especially access to finance capital, require policy interventions to assist entrepreneurs to enter into the industry. This paper explores the barriers to entry for new entrants in the industry, with particular focus on capital expenditure as the main barrier to entry and seeks to understand what policy interventions would be beneficial in promoting new entrants into the steel industry value chain.

Qualitative research was undertaken to gather data from senior personnel within various steel companies. A convenience sample of eleven participants were selected to participate in semi-structured interviews. Transcripts of the interviews were used to conduct an analysis of findings.

The research found that there is scope for new players in the steel industry value chain but that it is a highly competitive industry with many players currently. New entrants would need to focus on innovation or a niche area of specialisation, in order to compete effectively. In addition, having additional players would benefit the industry and contribute positively to economic development for the country. The largest challenge for new entrants is access is capital as financial institutions are risk adverse towards to the steel industry. However, there are various means by which small players can minimise the necessary capital outlay for a start-up business. Policy interventions can also go a long way in encouraging additional entrants to the industry and further developing the economy.

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## **List of Acronyms**

AHSS	Advanced High-Strength Steels
DTI	Department of Trade and Industry
EDI	Electronic Data Interchange
EHSV	Evraz Highveld Steel and Vanadium
GDP	Gross Domestic Product
IPAP	Industrial Policy Action Plan
IPP	Import Price Parity
NDP	National Development Plan
NGP	New Growth Path
NYEESIF	National Youth Economic Empowerment Strategy and Implementation Framework
Sassda	Southern Africa Stainless Steel Development Association
SME	Small and Medium Enterprise
SMME	Small, Medium and Micro Enterprise
SOE	State Owned Entity

# Chapter 1: Introduction

## 1.1 Introduction and Background

South Africa ranks 21<sup>st</sup> in the world's crude steel production and supplies roughly 1% of the world's steel (Brand South Africa, 2014). The South African steel industry plays a vital role in the economy of the country, contributing directly to roughly 1.1% and indirectly to an additional 0.4% of South Africa's gross domestic product (GDP) (O'Flaherty, 2015). It produces 19.6% of the total manufacturing production of the country (SA Treasury, 2015).

In 2015, the industry employed 300 000 people. In 2014 it provided 13% of salaries and wages in the manufacturing sector with 300 000 workers being paid a combined income of roughly R30 billion (The Real Economy Bulletin, 2016). Furthermore, the local steel industry was noted by the Trade and Industry Deputy Minister, as being a major source of employment in South Africa and key to sustainable economic development (Cloete, 2016).

The upstream sector of the South African steel value chain is dominated by six steel manufacturers. These consist of steel mills which are capital-intensive and require great economies of scale (Kupka & Thomas, 2014; Merchantec, 2014). On the other hand, the downstream sector of the South African steel supply chain is fragmented and underdeveloped. It involves labour-intensive work to produce value-added products. This is done by using steel in manufacturing, for mining activities, and in construction (Kupka & Thomas, 2014).

In recent years, the South African steel industry has started experiencing decline as the global primary steel sector is faced with an oversupply of steel (Van Rensburg, 2015). Many steel merchants are faced with the challenges of insufficient capacity in the local mills to meet demand, unstable steel prices, on-going labour disputes, and an increase in steel imports mostly from China, India and Turkey (Stewarts & Lloyds 2017). The news has been studded with numerous reports of steel companies having to shut down or retrench large numbers of employees. Bell (2015) reported the closure of Evraz Highveld Steel and Vanadium (EHSV) where 2000 employees lost their jobs and were forced to leave without any pay, and the possible closure of Vanderbijlpark Steel Works, where nearly 5000 jobs will be lost. Van Rensburg (2015), also reported that Trident Steel had recently retrenched 700 employees.

Despite the apparent crisis in the industry and a plea from the main player in the industry for an intervention from the trade authorities to protect the industry from imports, it has been reported that the government has been slow to respond and there has been no commitment to put safeguarding measures in place (Steyn, 2016).

## 1.2 Research Area and Problem

In order to protect the steel industry and maintain employment in the sector, intervention measures, such as policy intervention from the government, need to be put in place. According to the Trade and Industry Deputy Minister, “The steel industry holds enormous potential for investments, deepening of manufacturing capabilities and job creation” (South African Government News Agency, 2015:1). The National Development Plan 2030 (NDP) states that South Africa is fertile ground for entrepreneurship and puts measures in place to support the youth in entrepreneurial activities (NDP, 2011) and the state has set aside R6.5 billion for small, medium and micro enterprises (SMME’s) (South African Government, 2015).

Thulo (2015) puts the manufacturing industry in South Africa as the second biggest opportunity for entrepreneurs. This is because the government wants to grow exports in the manufacturing industry and offers rebates and tax incentives for entrepreneurs who develop components for export. Davies (cited in Cloete, 2016) highlighted that there have been many policies which have been put in place by the Department of Trade and Industry to balance the upstream and downstream industries within steel manufacturing and that the downstream industry is currently receiving great support where rebates can be issued in 10 days.

Currently, the local steel industry is experiencing shortages in supply from the South African mills which is exasperating the increase in imports as the local mills can’t keep up with demand (Stewarts & Lloyds, 2017). This provides opportunity for new entrants in mini mills as identified by D’Costa (2013) who explains that the rapid changes in technology around the world provide an entry point for new players into an existing market. Mini mills with the latest technology, is one such industry that is making inroads and entrepreneurs are seizing this opportunity on a global level. The steel production industry also offers opportunities for new entrants as value added services and products are sought along the entire supply chain, both upstream and downstream (Helo, 2008).

The steel industry in South Africa is however, highly competitive. It has also recently been found that some players are deliberately preventing new players from entering the market (Khumalo, et al, 2012 cited in Roberts, et al, 2014; Roberts, Simbanegavi, & Vilakazi, 2014), as is evident by the ten cases of anti-competitive behaviour reported in the steel value chain from 2005 to 2011, involving both large manufacturers and SME manufacturers. These manufacturers were mostly players in primary steel production or players that produce steel products for other industries (Kupka & Thomas, 2014). Banda, Robb, Roberts and Vilakazi

(2015) posit that the anti-competitive behaviour of the upstream sector also negatively affects those involved in downstream activities, and this stunts economic growth.

Entrepreneurs wishing to enter the steel industry in South Africa, may also be faced with challenges relating to the large capital expenditure that may be required. The cost of a substantial manufacturing facility in the steel industry is in the range of R100 million to R120 million (Merchantec, 2014). Access to capital from financial institutions is not forthcoming as these institutions have become risk adverse towards to the steel industry (Ramukumba, 2014). This paper seeks to explore the barriers to entry that are preventing new entrants in the steel distribution industry with a particular focus on capital expenditure as the main barrier to entry. It is postulated that new players in the steel distribution sector may be beneficial to the industry to keep costs to a minimum by increasing competition and having smaller overheads (D'Costa, 2013). It is also believed that new entrants will balance out the job losses that occur from what is evidently a shrinking industry currently, as small and medium enterprises (SMME's) are believed to create employment and contribute to economic growth (National Planning Commission).

### **1.3 Research Objectives and Research Questions**

The main aim of this research is to understand how much the capital expenditure required to establish a steel distribution business poses as a barrier to entry for new business in the sub-sector and what policy interventions could ease this barrier for entrepreneurs and small enterprise development, in order to encourage entry into the value chain of the industry and contribute towards GDP growth and creating employment opportunities.

The research objectives are to:

- Understand the benefits to the South African steel industry of having more players in the distribution sub-sector
- Explore how the capital expenditure required for a start-up business in the steel distribution industry creates a barrier to entry
- Investigate what the government can do in terms of policy intervention to make it easier for entrepreneurs to enter the steel industry

The research questions developed to answer the research objectives and the supporting literature for each of these is highlighted in Table 1.1 below.

**Table 1.1.1: Research Objectives, Questions and Supporting Literature**

<b>Research Objectives</b>	<b>Research Question Pertaining to the Research Objective</b>	<b>Supporting Literature</b>
<p><b>OBJECTIVE 1:</b> To understand the benefits to the South African steel industry of having more players in the distribution sub-sector</p>	<p>What will be the benefits to the South African steel industry from getting additional entrants in its distribution sub-sector?</p>	<p>D’Costa, 2013; Dednam et al., 2017; Department of Small Business Development, 2017; Glaeser, Kerr &amp; Kerr, 2015; Helo, 2008; Jelilov &amp; Onder, 2016; Joint Steel Task Team, 2015; Kongolo, 2010; Krugman, Diaz-Alejandro &amp; Lawrence, 1984; Memili, Fang, Chrisman &amp; Massis, 2015; National Planning Commission, n.d; Rogerson, 2014; Shelembe, 2017; Stewarts &amp; Lloyds, 2017; Talebi, Mehrjerdi &amp; Akbari, 2016</p>
<p><b>OBJECTIVE 2:</b> To explore how the capital expenditure required for a start-up business in the steel distribution industry creates a barrier to entry</p>	<p>How much does the high level of capital expenditure needed to establish a steel distribution business pose as a barrier to entry into the sub- sector?</p>	<p>Beck and Demirguc-Kunt, 2006; Glaeser et al., 2015; Ramukumba, 2014</p>
<p><b>OBJECTIVE 3:</b> To investigate what the government can do in terms of policy intervention to make it easier for entrepreneurs to enter the steel industry</p>	<p>What policy interventions would make it easier for new entrepreneurs to enter the steel industry?</p>	<p>Cloete, 2016; Dednam et al., 2017; Joint Steel Task Team, 2015; Thulo, 2015</p>

#### **1.4 Significance of the Research**

This research will add to the body of knowledge that exists for economic development in the manufacturing industry of South Africa by exploring the impact of capital expenditure as a

barrier to entry for small and medium enterprise (SMME) into the steel industry and identifying the role that the public sector can play in breaking down these barriers for economic growth. The results of the research will be of value to the government who would understand the viability of putting in measures to reduce barriers to entry into the sector. There are also society wide welfare benefits from having increased players and therefore increased competition as steel overall has huge multiplier effects in the wider economy.

## **1.5 Research Assumptions**

- The South African economy will see positive net benefits by having additional players in the steel distribution sector.
- Capital expenditure in the establishment of a steel distribution business is exorbitant and a barrier to entry.
- Government has an interest in seeing increased competition in the steel sector and therefore will implement interventions that drive this competition.

## **1.6 Chapter Organisation**

This research is divided into five chapters.

Chapter 1 provides an introduction and background to the steel industry in South Africa and the current challenges that the industry is experiencing. These problems are then linked to the research area and problem. The research objectives and questions are presented and the significance of the research is stated. The chapter concludes with outlining the research assumptions.

Chapter 2 provides a review of literature around the steel industry, and the barriers to entry into the steel industry in South Africa. Enterprise development and the role of the public sector is also discussed.

Chapter 3 covers the research design and methodology. It discusses how data was collected and the research tools used. The population and sampling is explained and the procedure for data analysis and interpretation outlined. Limitations of the study are also presented.

Chapter 4 presents and discusses the findings of the primary research together with the literature.

Conclusions to the research are stated in Chapter 5 and recommendations for the stakeholders are given.

## **Chapter 2: Literature Review**

### **2.1 Introduction**

This section provides a discussion of current literature pertaining to the research topic. The nature of economic development in South Africa is discussed, with particular reference to the importance of the steel industry and the role of entrepreneurship. Opportunities and barriers to entry for new entrants in the steel industry are then presented. The chapter concludes with a summary of possible policy interventions to encourage new entrants and promote the steel industry as a source of economic development in the country.

### **2.2 Economic Development in South Africa**

South Africa has been plagued for many years by a high rate of unemployment and inequality, coupled with low growth (Kanbur, 2015), despite nearly 20 years of support in local economic development (Nel & Rogerson, 2016). The most recent figures for the first quarter of 2017, have also shown that the country's gross domestic product (GDP) declined by 0.7%, with the manufacturing sector having contracted by ~~3.7~~ 7% (Stats SA, 2017).

Over the years, the South African Government has placed priority in economic development and growth for the country. They have implemented a number of strategic plans to redress imbalances in the economy, with the National Development Plan (NDP) being at the core. The NDP shows a vision to eliminate poverty and reduce inequality by 2030 through stimulating the people of the country to grow an inclusive economy, building and growing capabilities, improving the capacity of the state, stimulating leadership and encouraging partnerships throughout society (National Planning Commission, n.d). The National Development Plan (NDP) was launched in 2012/13, incorporating the Industrial Policy Action Plan (IPAP) of the Department of Trade and Industry (DTI) and the New Growth Path (NGP) from the Economic Development Ministry, as a future economic and socio-economic development strategy for the country (Zarenda, 2013).

One of the key development strategies laid out by the NDP is to mandate the local governments to redress socio-economic and economic development. However, it has been criticised that there is an over focus on pro-poor economic development, resulting in a lack of efforts to promote market interventions and form partnerships with the private sector (Nel & Rogerson, 2016). South Africa's Finance Minister, Malusi Gigaba, reiterated this statement in a recent press conference where he was reported to say that radical changes in economic development

are required because there has not been sufficient attention paid to the real economy and industrialising it through creating entrepreneurs and industrialists (Shelembe, 2017).

## **2.3 Overview of the Steel Industry in South Africa**

### **2.3.1 The Regulatory Framework of the Steel Industry in South Africa**

The global recession of 2008 resulted in a large decline of production in the manufacturing sector of South Africa, with a resultant loss of many jobs. As this sector contributed greatly to the employment of low-skilled labour, this was cause for great concern for the country and stimulated the development of the country's first Industrial Policy Action Plan (IPAP) which aimed to promote growth in the manufacturing sector by ensuring government's procurement of produced goods and services was from local manufactures (Rogerson, 2014). Local economic development initiatives also recognised the importance of supporting small business development as with the restructuring and downsizing of large manufacturers, small businesses have become more vital to economic growth for the country (Kongolo, 2010).

The steel industry is important for the NDP's plans as the key growth drivers identified, all require steel inputs. The NDP's goals to increase GDP growth to 5.4% per annum and reduce unemployment, will require infrastructure development such as road and rail networks, electricity and housing. To realise the goals of increasing exports for the country, will require a growth in manufacturing sector and most of that will require steel inputs. This is particularly true of the automotive sector which has a high potential for export growth (Joint Steel Task Team, 2015).

Although steel demand in sub-Saharan Africa has been stagnant for the past few years and has shown a decline of 10% in South Africa since 2007, steel demand in Africa is currently increasing which is attributable to the growth in emerging economies (Dednam et al., 2017). A positive correlation between GDP and steel intensity for developing countries is evident and therefore with a growth in the economy of South Africa, the South African steel demand is also likely to grow and reach a steady 2% annual growth rate with an estimated demand for 5.8 MTPA by 2020 and possibly 13 MTPA by 2030 (Joint Steel Task Team, 2015).

### **2.3.2 Market Players, Market Shares and Stylised Facts on Steel Production in South Africa**

The World Steel Association (2017:3) asserts that “Steel as a product is so versatile and fundamental to our lives that it is considered essential to economic growth. In South Africa, the steel industry is also considered to be a key strategic industry for the country. It not only represents 1.5% of the country’s GDP, but it also provides 190,000 jobs to the people of the country (Joint Steel Task Team, 2015). The Government places priority on the industry due to its potential for job creation and export revenue (Dednam, Venter, Brummer and Oosthuizen, 2017).

In addition to making up nearly 20% of the entire country’s manufacturing production (SA Treasury, 2015) and being a major source of employment for the people of South Africa (Cloete, 2016), the steel industry supports other major industry sectors. These include the automotive, mining, construction, energy, and infrastructure industries which together make up 15% of the total GDP of the country (O’Flaherty, 2015). Mhango (2016) stated that, “...every 1000 tonnes of steel produced locally adds R9.2-million to the GDP, provides three jobs directly and three jobs indirectly economy-wide. It enables domestic procurement spend of R5.3-million, of which SMME spend of R0.5-million beneficiates R5.2-million of value and contributes R0.13-million in taxes”.

In 2015 the steel industry in South Africa accounted for around 12% of the country’s exports with 7% being from manufacturing and 5% from iron ore exports (Real Economy Bulletin, 2016). A loss of these exports would not only affect the economy in terms of GDP but would impact greatly on foreign exchange (South African Government News Agency, 2015). In addition, contributions from the industry towards tax in 2014 were reported at R2billion in company tax, R6 billion for personal income tax, and R5 billion in VAT (Real Economy Bulletin, 2016).

### **2.3.3 The Potential for Entrepreneurs to Grow the Steel Industry in South Africa**

The South African Government has acknowledged that small businesses are critical for the economic growth of the country (Kongolo, 2010). In addition, it has been observed that economic growth in South Africa is reliant on the downsizing of large manufacturers and supporting small business development (Kongolo, 2010). Small and medium enterprises (SME) in South Africa contribute to between 52 and 57% of GDP, make up 91% of formal business entities in the country, and provide 61% of available jobs (Abor, 2010).

The NDP positions small and medium enterprises (SMME's) and co-operatives as the solution to unemployment and economic growth. The NDP's vision for 2030 is that there will be an explosion of entrepreneurship and SMME growth as a result of regulatory reform and support, to the extent that these SMME's will create 90% of new jobs and heighten the growth of exports. The growth of exports will be essential to achieving this growth and employment creation (National Planning Commission, n.d). This vision is not unique to South Africa as many theorists have developed models that show how entrepreneurship can lead to economic growth (Glaeser, Kerr and Kerr, 2015) and there is much literature which attests to this fact (Jelilov & Onder, 2016; Memili, Fang, Chrisman & Massis, 2015; Talebi, Mehrjerdi & Akbari, 2016).

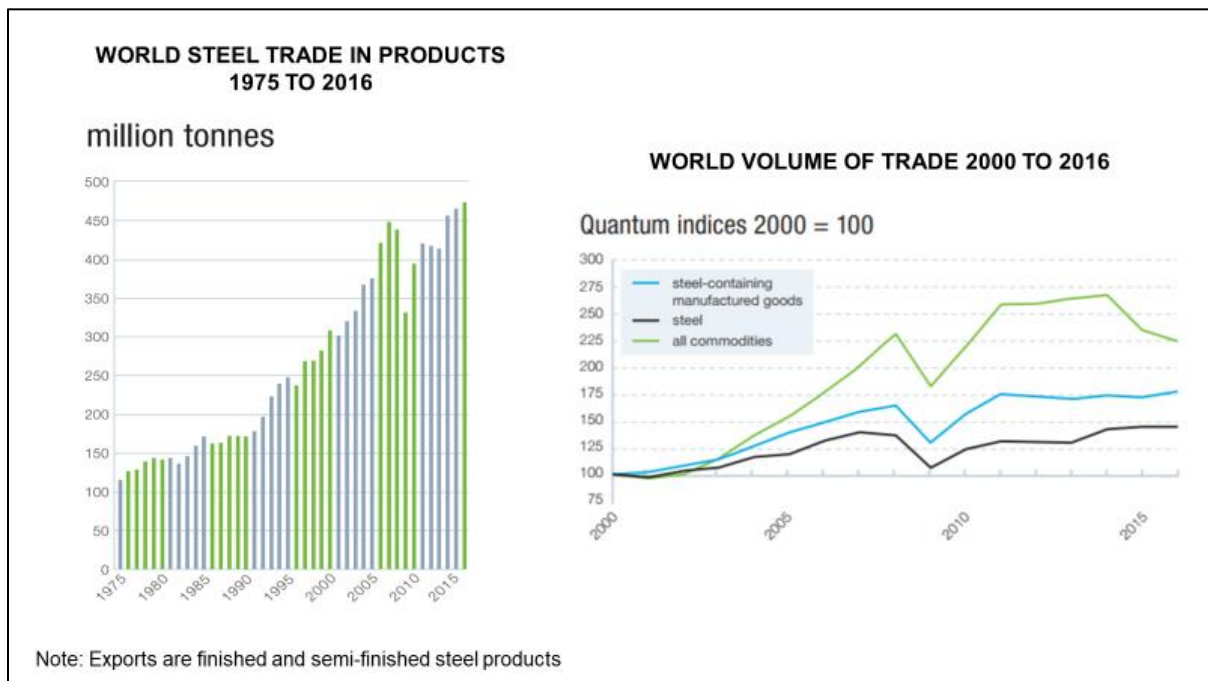
South Africa has invested heavily in various initiatives to support and grow the SMME sector. The most recent initiative is the Integrated Small Business Development Strategy for 2005 to 2014, which incorporates the objectives of previous policies and frameworks and focuses on three pillars, namely: increasing the supply of financial and non-financial support; creating demand for SMME products/services; and reducing regulatory constraints (Ramukumba, 2014). In addition, the Ministry of Small Business Development was established in 2014 and given the mandate to "support the radical transformation of the economy through the promotion and development of sustainable and competitive entrepreneurs, small businesses and co-operatives, that contribute to job creation and economic growth" (Department of Small Business Development, 2017:1). Coupled with this is efforts by the Department of Trade and Industry (DTI) which established an institutional framework to support SMMEs and later developed the National Youth Economic Empowerment Strategy and Implementation Framework (NYEESIF) for 2009-2019 which aims to promote the technical abilities of the youth to become entrepreneurs (Gwija, Chuks & Chux, and 2014).

Entrepreneurship has a large role to play in the growth of the South African economy and NDP Vision for 2030. A strong manufacturing sector is key to achieving increased exports and creating employment in the country and the steel industry is seen as central to the growth of the entire manufacturing industry. It is posited therefore that the development of SMME's within the steel industry will incorporate the key areas of the NDP to promote economic growth and employment through supporting entrepreneurial activities.

## 2.4 Opportunities for New Entrants in the Steel Industry

Increasing volumes of steel production have been seen around the world over the last 50 years with 1,600 million tonnes being produced in 2016 (compared to the less than 500 million tonnes produced in 1967) (World Steel Association, 2017). Coupled with globalisation and the specialisation of manufacturing, significant growth in global steel trade occurred between 2000 and 2015, with indirect steel trade growing by more than 80% and direct steel trade increasing by 30% during the period (Dednam et al., 2017).

Although competition in the global steel industry is intense, steel has become more universally affordable and the volumes of trade of steel and steel products continues to show an upward trend (World Steel Association, 2017) (Figure 2.1). This upward growth trend represents an opportunity for the South African steel industry to capitalise on the increased demand for steel and steel products.



**Figure 2.1: World Steel Trade Trends**

**SOURCE: (World Steel Association, 2017:25)**

In South Africa, the primary steel industry, while trying to overcome the challenges they are currently experiencing, are trying to find innovative technologies to enhance production and some have started restructuring exercises (Brand South Africa, 2014). The South African steel industry also has the capacity to generate and multiply job opportunities (Dednam et al., 2017) through upstream and downstream activities. Helo (2008:7) reports that the steel production industry is constantly seeking ways to add value and expand in different areas of the supply

chain, both upstream and downstream which has high potential to add value anywhere including “raw materials, transportation, logistics, production trading and distribution”.

#### **2.4.1 Mini Mills**

Currently, the local steel industry is experiencing shortages in supply from the South African mills which is exasperating the increase in imports as the local mills can't keep up with demand (Stewarts & Lloyds, 2017). This provides opportunity for new entrants in mini mills as identified by D'Costa (2013) who explains that the rapid changes in technology around the world provide an entry point for new players into an existing market. Mini mills with the latest technology is one such industry that is making inroads and entrepreneurs are seizing this opportunity on a global level.

Although the steel industry has focused on relocation and consolidation to reduce raw material costs, such as investing in lower cost steel producing regions to counter the efforts of low cost producers, Helo (2008) points out that one of the biggest challenges then becomes the logistics of integration, in that the manufacturing plant needs to be close to the raw material supply and also close to the consumer market. According to (D'Costa, 2013), mini mills have the advantage that they are not restricted by location and can be located anywhere close to scrap metal. This provides more flexibility in the industry and if the labour costs in the area where the mini mill is located, are also reduced, an entrepreneur may benefit by setting up a small steel production plant which the bigger players in the industry don't have the advantage of doing. This opportunity has already been recognised throughout Africa and has resulted in many entrepreneurs setting up micro-mills with induction furnaces which they use to produce popular steel products and supply at lower prices (Dednam et al., 2017).

#### **2.4.2 Technology**

Innovations have also opened the doors for entrepreneurs in the international steel industry where a number of small players have entered the markets with innovative technologies or processes and increased competition within the industry. This has resulted in less pricing regulation and allowed the market to lead (D'Costa, 2013). Krugman, Diaz-Alejandro, and Lawrence, (1984) indicated that additional competition in a saturated market could actually be beneficial for the industry by promoting the good performers and weeding out the poorer performers, as well as preventing a monopoly from occurring.

Helo (2008) discusses the importance of EDI (Electronic Data Interchange) capability and e-commerce for the industry as a means of adding value and eliminating inefficiencies so as to reduce costs and improve lead times.

### **2.4.3 Storage and Transportation**

The storage and transportation of supplies for the steel industry is a major consideration and the distribution network is vital for the industry and plays a large role in the supply chain. It is not viable for steel manufacturers to use a central warehouse as a distribution centre as distance to manufacturing and distance to consumer need to be considered. It is more viable to have a tiered distribution network which is streamlined so that distribution costs are lessened and steel products can reach the market more quickly. Speed of delivery, availability of product, and costs of transport, storage and handling has become paramount to meet customer demands. Streamlining the distribution through various storage and distribution warehouses will add value and improve customer service (Helo, 2008). This is a potential area where entrepreneurs may find opportunity to become part of the distribution network with the supply chain.

### **2.4.4 Environmental Sustainability**

Part of the NDP's vision for 2030 is to transition to a low-carbon economy without hindering environmental sustainability (National Planning Commission, n.d). The steel industry in South Africa supports this vision and innovative sectors of the economy which promote it (Joint Steel Task Team, 2015). As such, much has already been done in the steel industry to promote environmental initiatives, such the recycling of steel cans, the use of alternative energy source, and the promotion of green buildings through providing green products as inputs into construction, among others. There is great scope new entrants into the industry who are able to provide further innovations for environmental sustainability.

Energy is a basic requirement for the development and sustainability of a society and steel is needed in the recovery, production, distribution and storage of energy (Dednam et al., 2017). The South African steel industry has already made inroads into the development of innovative sources of renewable energy such as tailored products for wind towers and solar installations, creating a need for locally constructed wind towers and saving 16% of installation costs (Joint Steel Task team, 2015).

Steel cans for food storage have been shown to reduce energy consumption as refrigeration of the food is not needed. The steel cans are also recyclable which reduces waste. However, there

is potential for the development of lighter cans or to make the steel cans re-usable, which presents an opportunity for innovation (Dednam et al., 2017).

Dednam et al. (2017) argues that the global population continues to grow and with this, rapid urbanisation is occurring, which requires additional infrastructure and buildings. Steel products will continue to be required for building these structures. The NDP makes specific reference to the promotion of green buildings and construction practises, as well as investment in the provision of efficient transport systems and transport monitoring (National Planning Commission, n.d). This implies a need for innovative environmentally friendly products and systems for infrastructure development in South Africa and Dednam et al. (2017) agree that with the demand for environmentally friendly products and solutions on the increase, steel manufacturers are able to innovate and tap into markets that want recyclable and material efficient solutions to build energy-efficient and low-carbon or carbon-neutral buildings. This presents an opportunity for additional players in providing innovative solutions to the marketplace.

An opportunity has also been identified by the Southern Africa Stainless Steel Development Association (Sassda) for the steel industry. They are attempting to drive demand for stainless steel products by demonstrating the advantages of using corrugated stainless-steel piping for municipal water delivery systems which has become an international trend due to the reduction in leakages and extended life cycle of the pipes (James, 2017). Tarboton (cited in James, 2017:para 15) states that, “Within the next three years, the outlook is very promising for members looking to supply finished products to countries such as Madagascar—which currently has no potable water purification system – as well as the rural parts of Tanzania, Zambia, Kenya and Ghana”.

Transportation, both in terms of freight and mobility requires additional networks and infrastructure to meet the modern day demands. With the global economy, efficiency in the transport of goods and people has become a priority. Freight requirements have doubled in the past 30 years, and in South Africa, this has translated into the need for additional infrastructure including roads and railways, bridges, ports, stations and airports (Bell, 2016; Dednam et al., 2017). Currently, nearly 15% of the global steel production is used in transport infrastructure development (Dednam et al., 2017) and in South Africa, the demand for steel products and rolling stock for transport infrastructure development, continues to rise (Bell, 2016). Entrepreneurs may have an opportunity to enter the market in anticipation of servicing these industries.

Coupled with the increased need for mobility, the automotive industry is faced with the challenges of producing vehicles that are friendlier to the environment. Steel products are still used in the manufacturing of these vehicles, but new grades of Advanced High-Strength Steels (AHSS) are sought as these make the vehicles lighter and ultimately reduces the amount of CO<sub>2</sub> emissions from the vehicle. With these changes, 3 to 4.5 tonnes of greenhouse gas emissions are eradicated over the lifetime of the vehicle (Dednam et al., 2017).

## **2.5 Entrepreneurship and Finance Capital**

A major obstacle for entrepreneurs are credit constraints. They often lack the financial resources needed for business start-up costs, and adequate cash-flow for operating expenses or innovation (Block, Colombo, Cumming & Vismara, 2018; Paniagua & Sapena, 2015). The sustainability and performance of an entrepreneurs' business is therefore at risk without adequate financial resources and in addition, the entrepreneur is limited in their ability to innovate (Peris-Ortiz & Sahut, 2015). Specific obstacles for entrepreneurs in the South Africa steel industry are outlined in section 2.6.2.

An entrepreneurs access to external funding is affected by limited or no collateral, inadequate internal cash flows, inconsistent information and agency problems (Hall & Lerner, 2010 cited in Block et al., 2018). Traditional sources of credit have also become more stringent in recent years, forcing entrepreneurs to seek alternative sources of capital (Peris-Ortiz & Sahut, 2015).

According to Block et al. (2018:240), "the difficulties firms encounter in raising seed and start-up capital play an increasingly important role in the policy agenda of local, national, and international governmental institutions, as is documented by the measures included in the Horizon 2020 and COSME projects funded by the European Commission". This has opened the doors for new sources of funding to emerge in both developed and emerging economies, such as, crowdfunding, accelerators, family offices, peer-to-peer business lending, and equity-like mezzanine financing, amongst others (Table 2.1), and governments are embracing these alternative funding options as a solution to the difficulties entrepreneurs face in accessing capital. However, Block et al. (2018) asserts that these new trends entrepreneurial finance are only emerging and that there is a need for more academic literature from both a theoretical perspective and empirical enquiry.

**Table 2.1: An Overview and Comparison of New Players in Entrepreneurial Finance**

New player	Debt or equity	Investment goal	Investment approach		Investment target
			Active or passive	Non-financial support	
Accelerators (and incubators)	Depends on type of accelerator/ incubator	Financial, strategic, political (depends on type of accelerator/incubator)	Active	Management support, training, network access	Early stage start-up
Angel networks	Equity	Financial	Active	Management support, network access	Early stage start-up
Crowd					
- Debt-based	Debt	Financial	Passive	None	Early stage start-up or project
- Donation-based	–	Social	Passive	None	Social venture or project
- Reward-based	–	Product-related	Passive, Sometimes active	Sometimes product testing	Early stage start-up or project
- Equity-based	Equity	Financial	Passive	None	Early stage start-up or project
Corporate venture capital (CVC)	Equity	Financial, technological, and strategic	Active	Management support, technology support	Early and later stage start-up
Family offices	Equity	Financial	Mostly passive	Little	Later stage start-up
Governmental venture capital (GVC)	Debt or equity	Financial and governmental	Mostly passive	Little	Early and later stage start-up
IP-based investment funds	–	Financial	Passive	None	Patents
IP-backed debt funding	Debt	Financial	Passive		IP-based start-ups and established mid-sized firms
Mini-bonds	Debt	Financial	Passive		Established mid-sized firms
Social venture funds or social venture capital	Debt and equity	Financial and social	Active	Management support, network access	Social ventures
University-managed or university-based funds	Mostly equity	Financial and university-related	Active	Management support, network access	Academic and student start-ups
Venture debt lenders or funds	Debt	Financial	Passive	None	Later stage start-up

SOURCE: (Block et al., 2018:242)

## 2.6 Barriers to Entry in the Steel Industry in South Africa

### 2.6.1 Anti-competitive Behaviour

Literature highlights the main barrier to entry for South African entrepreneurs as being that of anti-competitive behaviour in the industry. Despite the efforts by the South African

Competition Commission to reduce or eradicate anti-competition behaviour, there have been recent findings that some players in the steel industry still dominate the market and deliberately prevent new players from entering the market. Roberts, Simbanegavi, and Vilakazi (2014) reported on some steel industry players having been prosecuted within the last 10 years and some as recently as five years ago, for cartel operations. It was found that price fixing and cartel overcharge was in line with or higher than the 15 to 25% indicated by industry benchmarks (Khumalo, et al, 2012 cited in Roberts, et al, 2014). These cartel activities not only place a barrier for competition in the steel industry but affect the potential for players throughout the supply chain of the industry and stunt economic growth (Banda, Robb, Roberts & Vilakazi, 2015).

### **2.6.2 Barriers to Entry for SMEs**

Literature highlights a number of factors that pose as barriers to entry for SME development, and thereby discourage entrepreneurship. Glaeser et al. (2015) mention access to capital, lack of skills and family influences as being barriers to entry for entrepreneurs in the steel industry. A lack of managerial skills, equipment and technology, regulatory issues, and access to international markets have also been noted as barriers (Anheier and Seibel, 1987; Steel and Webster, 1991; Aryeetey et al, 1994; Gockel and Akoena, 2002 cited in Abor & Quartey, 2010). In some cases, the entry of new SME's can be hampered by entry regulations such as the cost of registering a new business or property right protection policies. These regulations may also result in lower productivity levels for the business (Klapper et al. cited in Beck and Demirguc-Kunt, 2006).

One of the most common reasons for SME failure has been reported as the lack of managerial abilities to effectively manage resources (Ramukumba, 2014).

Adequate credit and capital are necessary for business survival but South African banks are risk averse and avoid the risk involved in dealing with loans for small businesses (Ramukumba, 2014). The lack of capital and financing is one of the main barriers for the development of SME's. Beck and Demirguc-Kunt (2006) explain that, whereas large firms tend to use their equity to finance investments with bank finance and even development finance, smaller businesses tend to lack the collateral for bank finance.

Despite adequate capital being tantamount to business survival, small businesses are often forced to seek alternative sources of non-formal investment finance such as from family and friends, or moneylenders. This results in smaller loans with higher transaction and risk

premiums for the SME's (Beck & Demirguc-Kunt, 2006). In many cases, SME's are only able to survive with their creditors or suppliers providing them with payment terms of 60 days (Ramukumba, 2014).

## **2.7 Policy Interventions for New Entrants in the Steel Industry**

Thulo (2015) puts the manufacturing industry in South Africa as the second biggest opportunity for entrepreneurs. This is because the government wants to grow exports in the manufacturing industry and offers rebates and tax incentives for entrepreneurs who develop components for export. However, Dednam et al. (2017) cautions that, in order to put plans in place to stimulate the growth of the steel industry in South Africa, the impact of the current realities around the industry for the government, the industry and the labour force, need to be clearly understood by all stakeholders (Dednam et al., 2017).

It has been identified that there is growth potential for both domestic and export supply in downstream industries (Dednam, 2017) and Davies (cited in Cloete, 2016) highlighted that there have been many policies which have been put in place by the Department of Trade and Industry to balance the upstream and downstream industries within steel manufacturing and that the downstream industry is currently receiving great support where rebates can be issued in 10 days.

Government support and interventions in the steel industry have fast tracked the growth of the industry in countries like China, Turkey and India. Rather than market-based growth, government policy stimulated high capacity growth by ensuring low input costs, subsidies, low-interest loans and grants for the industry. However, these interventions were also due to large government control and ownership within the industry (Dednam et al., 2017).

According to the Joint Steel Task Team (2015), government policy interventions which resulted in the rapid growth of the steel industry in the China to the point where it now produces 50% of the world's steel, involved an investment of over \$50 billion in 2013. These interventions included government infusions of equity and debt-to-equity swaps where debts were converted into shares in the industry; government sponsored preferential loans and directed credit for Chinese steel companies; an undervalued currency; land use discounts for steel manufacturing plants; mergers between private steel operators and government owned companies; and preferential tax programmes, energy subsidies and reduced VAT. (The Joint Steel Task Team (2015:9-11).

The Joint Steel Task Team (2015:9-11) for South Africa have investigated various policy interventions in the Steel Industry globally and have identified a number of policy interventions that they propose will be effective for the South African steel industry. These include:

- Trade remedies: Approximately 110 new trade remedies have been introduced globally between 2003 and 2015 which include trade investigations, anti-dumping investigations and raised import duties
- Government infrastructure spend: Encouraging the use of locally manufactured steel products through government infrastructure spend will create necessary volumes of demand for local steel producers to continue to operate efficiently
- Fair pricing for steel versus Import Price Parity (IPP): A form of regulated pricing for the steel industry which is deemed fair to cover operating costs, provide for asset replacements and ensure sustainable returns, would encourage efficiency in the industry and ensure profitable returns
- Monitoring of imports: As with the monitoring of tyre imports with the rubber industry, the monitoring of steel imports should occur together with the proposed import tariffs, and this information should be made available to the steel industry
- Urgent advancement of Government's beneficiation strategy: 50% of the steel industry's costs are raw materials, including electricity and natural gas. Determining certain raw materials as strategic and continuing to support beneficiation in the iron and steel value chain is vital
- Banning of steel scrap exports: This is important as scrap steel is an important input for the steel industry and exports of scrap steel are escalating the prices for this scrap steel
- Carbon Tax: The current proposed carbon tax for steel production is deemed unrealistic for the industry and will not encourage sustainability of the industry as there is no alternative technology which would enable sufficient reduction in carbon emissions
- Urgent rollout of Government's infrastructure programmes: The government has proposed a number of strategic infrastructure projects and has allocated large sums of money to these projects. However, industry sectors such as the steel industry which contributes a large proportion of inputs into infrastructure projects, has not yet realised the expected benefits and returns from these projects
- Transparency of current SOE (State Owned Entity) capital programmes: SOE capital programmes currently do not prescribe any local content for steel but this would be

beneficial to the industry if local steel content was prescribed at a negotiated price. (The Joint Steel Task Team (2015)).

## **2.8 Conclusion**

This chapter has provided a discussion of current literature around the steel industry and how measures can be put in place within the industry, to encourage economic development and reduce unemployment. The National Development Plan places emphasis on the manufacturing sector and on entrepreneurship as solutions for economic growth and sustainability. Opportunities for the development of SMME's within the steel industry are apparent and feed into other goals of the NDP. There are also a number of policy interventions that will make it easier for new entrants into the industry and encourage economic development.

## **Chapter 3: Research Methodology**

### **3.1 Introduction**

This chapter provides an overview of the methodology used for the research. Firstly, the selected research approach and strategy is discussed, highlighting the reasoning for the research to be conducted in a qualitative manner. Likewise, the choice of research design is then explained and this is followed by an account of the data collection process and the research instrument used to collect the data. The chapter includes a depiction of the population and the technique used for sampling. A sample framework is provided and is followed by a description of how research criteria for validity and reliability are addressed. The data analysis procedure is also outlined and the chapter concludes with a statement of limitations to the research.

### **3.2 Research Approach and Strategy**

It is important to consider the research approach and strategy before looking at the research methods employed. Hussey and Hussey (1997) state that a research methodology identifies the theoretical approach to the investigation process including the selected strategies for data collection and analysis, whereas research methods only describe the specific means by which data are collected and analysed.

A research approach is generally either inductive or deductive. This explains the thinking process or the way of reasoning by evaluating arguments (Goel, Gold, Kapur & Houle, 1997). Deductive reasoning occurs where the thinking process starts with general knowledge and becomes more specific through a series of logical arguments, whereas inductive reasoning involves getting to general conclusions through a series of observations (Ary, Jacobs, Sorensen & Walker, 2013). This research followed an inductive approach, or a bottom up approach, beginning with the observations found in current literature that indicate there are opportunities in the steel manufacturing supply chain. Deductive reasoning was used however, when looking at supply chain theory and identifying various elements of a supply chain for entrepreneurial activity (Social Research methods, 2013).

The research strategy refers to the general means by which research is conducted in order to gather information which will provide answers the research questions (Kumar, 2011). The research strategy was qualitative using a phenomenological approach. Phenomenology refers to gathering an understanding of the participant's experiences and exploring the meaning of the data gathered to analyse and interpret the phenomena (Petty, Thomson, & Stew, 2012). The

research aimed to address questions which would help to develop an understanding of how people in the steel industry see things and what this means for them (Willig, 2013). Qualitative research is deemed appropriate for this research as the research was intended to explore the participants' perceptions and develop an understanding of how they see entrepreneurship working in the supply chain.

### **3.3 Research Design, Data Collection Methods and Research Instruments**

#### **3.3.1 Research Design**

According to Bryman (2012), there are five generic research designs, namely cross-sectional, longitudinal, case study, comparative, and experimental. A cross-sectional design is used when trying to understand the prevalence of an issue or problem at a point in time (Creswell, 2014). Longitudinal designs are employed when data is gathered over a long period of time to see if there have been changes during the period. Case studies investigate a phenomenon within a specific setting such as within a particular organisation. Comparative and experimental designs are used to test hypothesis and prove or disprove relationships (Neuman & Robson, 2012). A cross-sectional research design was employed for this research as it involved examining the phenomenon at a specific point in time, over a few weeks of interviews (Sekaran & Bougie, 2013). Due to the limited time available to conduct the research, it was not possible to conduct interviews over a longer period of time.

#### **3.3.2 Data Collection Methods**

Data was collected using semi-structured in-depth interviews. This form of data collection for qualitative research is recommended by Smith (2015) as it provides flexibility for the researcher to explore topics of interest but still maintains some order in that a semi-structured questionnaire or list of questions is used to help the researcher guide the interview through topics to be discussed. Since the research involved exploring a phenomenon where little is known, the flexibility that this method provides was ideal to uncover and understand the situation.

#### **3.3.3 Research Instruments**

Since the data was to be collected using semi-structured interviews, a semi-structured questionnaire (Appendix A) was used as the research instrument to guide the interviewer. The

semi-structured questionnaire was designed by using concepts identified in the literature, both of the steel industry and in regards to supply chain and entrepreneurship. The advantage of semi-structured questionnaires is that the researcher can use probing to gather more detailed information that is of interest to them and the design of the semi-structured questionnaire is done in an iterative manner where the researcher can come back to concepts a number of times as they let the participant lead the conversation and do not have pre-conceived ideas of what should emerge from the research (Willig, 2013).

### **3.4 Sampling**

There are various methods of sampling that can be used to select a small group within a population to conduct research with, as the cost and time of conducting research needs to be considered and it is not usually viable to interview the whole population (Acharya, Prakash, Saxena & Nigam, 2013).

The population for this research was any steel company within the steel industry that the researcher worked in. Data was collected from senior personnel within steel companies who were believed to be professionals that had the necessary knowledge to provide relevant insights.

There are two main types of sampling, namely probability and non-probability sampling. The main difference between them is that with probability sampling, the probability of selecting any unit of a population is known, and with non-probability sampling it is not known (Bryman, 2012). A non-probability sampling technique was used to select participants to the research.

A sampling strategy in qualitative research is not imperative as valuable information to explain a phenomenon can come from a limited number of individuals. Therefore, a sample in qualitative research is normally guided by the researchers' judgement and data is collected until the researcher determines that the required level of saturation has been reached (Kumar, 2011). As individuals were targeted to participate according to their perceived level of knowledge to be able to share relevant insights, the researcher made use of his judgement to select potential participants. The usage of the researchers' judgement to target specific individuals to participate is a purposeful non-probability sampling technique (Robinson, 2014).

Convenience sampling was also used as the researcher only approached steel executives that were available and willing to do the interviews. It was believed that some individuals from other steel companies would not avail themselves to be interviewed due to the current situation in the industry and the threat of competition. It can be argued therefore that there is an element

of bias in the data and that the results are not generalisable to the entire population. Since the research is exploratory in nature however, and there are a number of steel companies included in the sample, it is believed that any element of bias was minimal.

The researcher is in a senior role in one of the steel companies and had access to the potential participants. A sample framework was developed from which to recruit participants to the research. The sample included individuals in senior roles within the companies, spread across various job designations and various job functions as indicated in table 3.1 and table 3.2 respectively.

**Table 3.1: Sample Framework by Job Designation**

<b>Job Designation</b>	<b>Number of Participants</b>
Technical Director	1
Managing Directors	3
Business Development	1
Operations Directors	2
Chief Financial Officers	2
Sales Manager/ Marketing Manager	2

**Table 3.2: Sample Framework by Job Seniority**

<b>Job Function</b>	<b>Number of Participants</b>
Executive/Managing Director	9
Management	2

### **3.5 Research Criteria**

In order for research to be considered useful and valuable, it must consider research criteria. There are many forms of research criteria outlined by scholars, including validity, reliability and objectivity of the data (Anney, 2014; Babbie, 2014; Kumar, 2011; Saunders & Lewis, 2012), credibility (Anney, 2014; Dalal & Priya, 2016), dependability (Anney, 2014 Dalal & Priya, 2016), confirmability (Anney, 2014; Dalal & Priya, 2016), transferability, trustworthiness and authenticity (Anney, 2014; Elo, Kääriäinen, Kanste, Pölkki, Utriainen, & Kyngäs, 2014). There is one way of measuring research criteria for qualitative research, but it is generally considered good practice to address research criteria which can provide validity and reliability to the research.

According to Saunders and Lewis (2012), validity is concerned with the outcome of the research being truthful and that the research measures what it intends to measure. The research is considered reliable if it can be anticipated that if the research was carried out again, that the findings will be consistent (Babbie, 2014).

Credibility is also sometimes referred to as believability as it is determined by the researchers' explanation of the research process and their rationale for conducting each phase of the process in the way that they did. This allows for any reader to sketch out the process that was carried out throughout the research process (Dalal & Priya, 2016). To enhance credibility, the researcher documented all steps taken, in the form of a research diary and reflected on their own personal understanding of the phenomenon to limit any bias. Dalal and Priya (2016) also recommend confirming with participants and using different sources of data to triangulate the findings. In this research, the researcher probed and confirmed answers with the participants, by repeating these back to the participants to ensure that there was a full understanding of what the participants were sharing. In addition, participants were selected from various job designations, various job roles and various companies, to understand the differences and commonalities amongst them and create a form of triangulation.

Confirmability of the data was enhanced through the use of a semi-structured questionnaire as a research instrument as this was used to guide the researcher during the interviews and ensure that similar topics were discussed with all the participants. This assisted in maintaining a level of consistency in the type of data that was collected, as recommended by Kumar, 2011) so that any repeat of the research using the same research instrument should yield similar results;

The design and testing of the research instrument was also important in ensuring reliability of the data (Kumar, 2011). The semi-structured questionnaire was piloted prior to data collection, so as to check for ambiguities of the questions, testing of the participant's understanding of the questions, and that the participant's answers provided relevant information to answer the research questions.

To ensure that there was rapport between the researcher and the participants (Sekaran and Bougie, 2013), the researcher ensured that the participants understood their role in the research and that their identities would remain anonymous. Initially, the participants were sent an invitation to participate (Appendix B) which included an information sheet (Appendix C) outlining the purpose of the research and their role in it. Also, prior to the start of the interview, the participants were asked to sign an informed consent form indicating that they were aware of the objectives of the research and that their participation was completely voluntary and

confidential (Appendix D). This enhanced the dependability of the participant's answers as it encouraged the participants to share truthful answers, instead of guarded answers.

Another means of confirmability that was used was the audio-recording and thereafter transcribing of the interviews. The transcripts provided the researcher with a complete and accurate record of the interviews, which were used for data analysis.

### **3.6 Data Analysis Methods**

According to Elo et al (2014), the analysis of qualitative research analysis involves three main steps, namely preparing the data; organising the data; and reporting of the research findings. Common methods of analysis for qualitative research data are through thematic or content analysis. These methods involve coding the data and interpreting patterns in the data which can be grouped into themes for reporting (Clarke & Braun, 2014).

Thematic analysis differs from content analysis in that thematic analysis involves using the participants' words to create codes and content analysis has an element of judgement where the researcher bases the grouping of the codes into categories that are relevant to the research questions (Cho & Lee, 2014).

A combination of both thematic and content analysis was used whereby the initial coding involved developing codes from the participants' responses, using their words. To reduce the codes and identify themes, the research questions were considered. A Microsoft excel spreadsheet was used to help with organising the data as it lent itself to cutting and pasting the data in order to group the findings. A column of the spreadsheet was allocated to capture the codes and each participant was allocated a column of the spreadsheet for their verbatim comments to be captured against the relevant code. The codes were also grouped with the relevant research question they were providing data for.

The process of analysing the data was iterative. Firstly, the transcripts were read through and the meaning of what was being said, was considered. Each transcript was then read through again line by line and each comment made by the participant was coded and the code inserted into the spreadsheet together with the corresponding comment in the same row as the code and in the column allocated for that participant. All the codes which pertained to a particular research question, were grouped together with that question. In essence, the research questions then became the main themes of the data and the codes within each theme provided in-depth data for that research question (Example in Table 3.3).

**Table 3.3: Example of Analysis Spreadsheet**

<b>Theme: Importance of Steel Industry to the Economy of South Africa</b>			
<b>Code</b>	<b>Participant 1</b>	<b>Participant 2</b>	<b>Participant 3</b>
Steel is a fundamental building block of infrastructure		I think steel ... is one of the fundamental building blocks of infrastructure so steel is critical to the infrastructure of South Africa	
Key input into/backbone of the manufacturing	Well it's a basic input into a wide range of manufacturing industries both for consumer and the infrastructural products.	Many forms of manufacturing have steel related components and then so it's a critical factor of manufacturing.	I think it has always been one of the back bones of local manufacturing to the local economy
Manufacturing economy develops a skill set for the country	I think the manufacturing economy develops a skill set in an economy which goes beyond the basic		

### **3.7 Ethical Considerations**

Ethics is an important consideration for any research that is undertaken and is often mandated by national law. Students who conduct research are also usually required to follow ethical procedures as laid out by the institution they are studying with, as they protect the student, the institution and the participants or organisations involved in the research (Myers, 2013). The fundamental principle of research ethics is moral behaviour throughout the research process to ensure that participants are respected and protected (Payne & Payne, 2004 cited in Myers, 2013). Prior to conducting this research, ethical clearance was obtained from the University of Cape Town. The research was then undertaken in line with the ethical guidelines provided by the university.

The researcher took various measures to ensure that the participants were informed of the purpose of the research and their rights to anonymity and confidentiality, as well as their right to withdraw from the research at any point. Participants were provided with an information sheet outlining the purpose of the research and their role in it when they were invited to participate (Appendix C). These were reiterated verbally at the start of the interviews. The participants were also requested to sign a consent form indicating that they understood all these elements and that their participation was voluntary (Appendix D). There was also no incentivising of the participants.

In order to protect the identity of participants in this research report, each participant was allocated a pseudonym (a participant number) which was used during the analysis and reporting of the data. In addition, the raw data has been saved with password protection on the researchers' computer.

### **3.8 Limitations**

Limitations to research are any circumstances that cannot be controlled by the researcher and can therefore undermine the research (Creswell, 2014 cited in Pule, 2015). Hence, it is important for the researcher to consider and acknowledge any limitations to their research.

For this research, the researcher is a novice and acknowledges that their level of experience in conducting research may have limited the research methodology. However, supervisor guidance was provided to the researcher.

The nature of qualitative research is that the sample is small. The findings of the research are therefore not considered generalisable to the entire population. In addition, due to the sample for the research being selected from steel companies within the steel industry that the researcher worked in, an element of bias could have resulted as the broader global population of steel companies was not included. The findings are therefore not globally applicable.

The researcher has a senior role within a steel company and acknowledges the fact that he could have introduced an element of bias into the interviews. However, in order to mitigate this risk, he remained conscious of this during the interviews and was careful not to share his personal views with the participants or influence them through his body language. In addition, the use of the research instrument provided the researcher with a tool to help him focus on the relevant areas of discussion.

A further limitation that was identified was that the research was conducted over a short period of time and it is based on a new area of study. With the procurement regulation in South Africa

having changed a few times in the last four to five years, the ability of larger firms to redraft their supply chain policies to include new entrants, and through the value chains increase job creation, might require further testing. This study was exploratory and the findings will require further testing.

## **Chapter 4: Research Findings and Discussion**

### **4.1 Introduction**

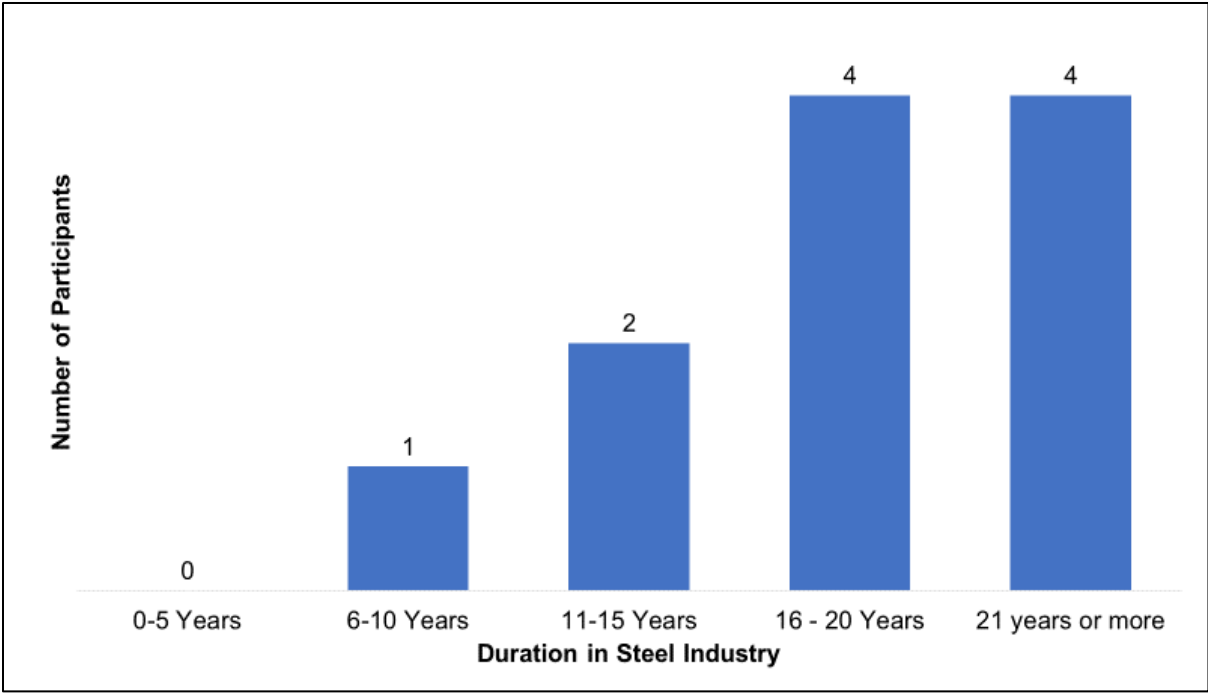
This research set out to understand how much the capital expenditure required to establish a steel distribution business poses as a barrier to entry for new businesses in the sub-sector and what policy interventions could ease this barriers for entrepreneurs and small enterprise development, in order to encourage entry into the value chain of the industry and contribute towards GDP growth and creating employment opportunities.

The findings from the qualitative research are presented in this chapter. Participant verbatim comments have been used to support the findings presented. It must be noted however, that these verbatim comments have been grammatically altered for ease of reading but the content of said has not been changed. The chapter includes a discussion of the results together with existing literature and informs the conclusions and recommendations offered in Chapter 5.

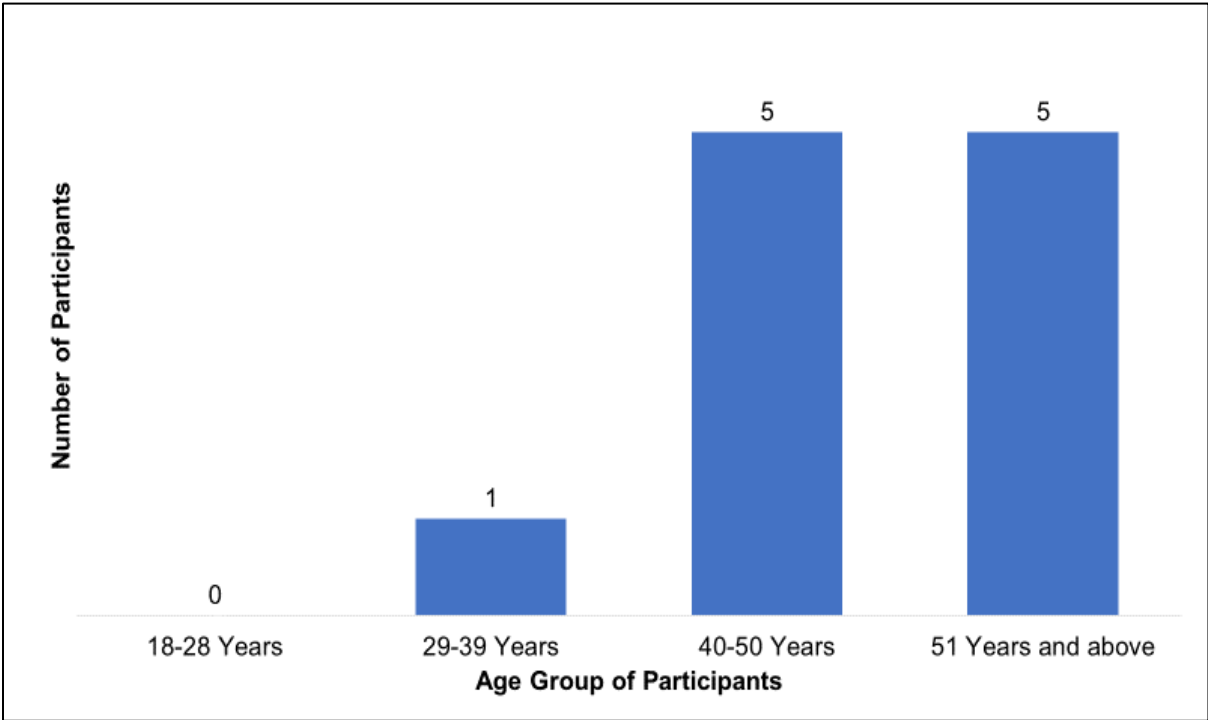
### **4.2 The Participants**

Eleven senior personnel from a number of steel companies in South Africa participated in the research. The participants were all considered to be knowledgeable about the steel industry in South Africa and performed various job roles or functions (See Appendix E for more participant details). Most of them had been in the industry for more than 10 years with four of the 11 having more than 20 years' experience in the industry (Figure 4.1).

The participants were mostly males due to the nature of the industry being male dominated. However, one female also participated in the research. Only one participant was below the age of 40 years (Figure 4.2).

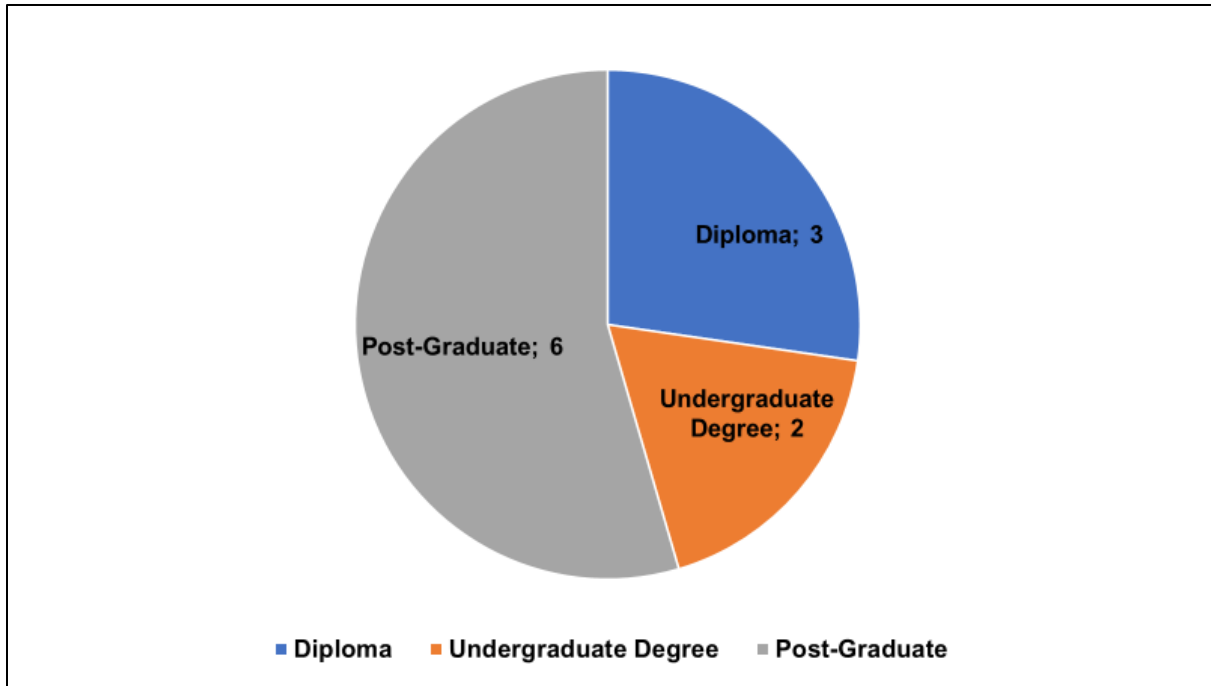


**Figure 4.1: Participants’ Duration Working in the Steel Industry**



**Figure 4.2: Age Group of Participants**

All the participants divulged that they had achieved a post-matric education level with three having a diploma, two having an undergraduate degree, and six having a post graduate degree (Figure 4.3).



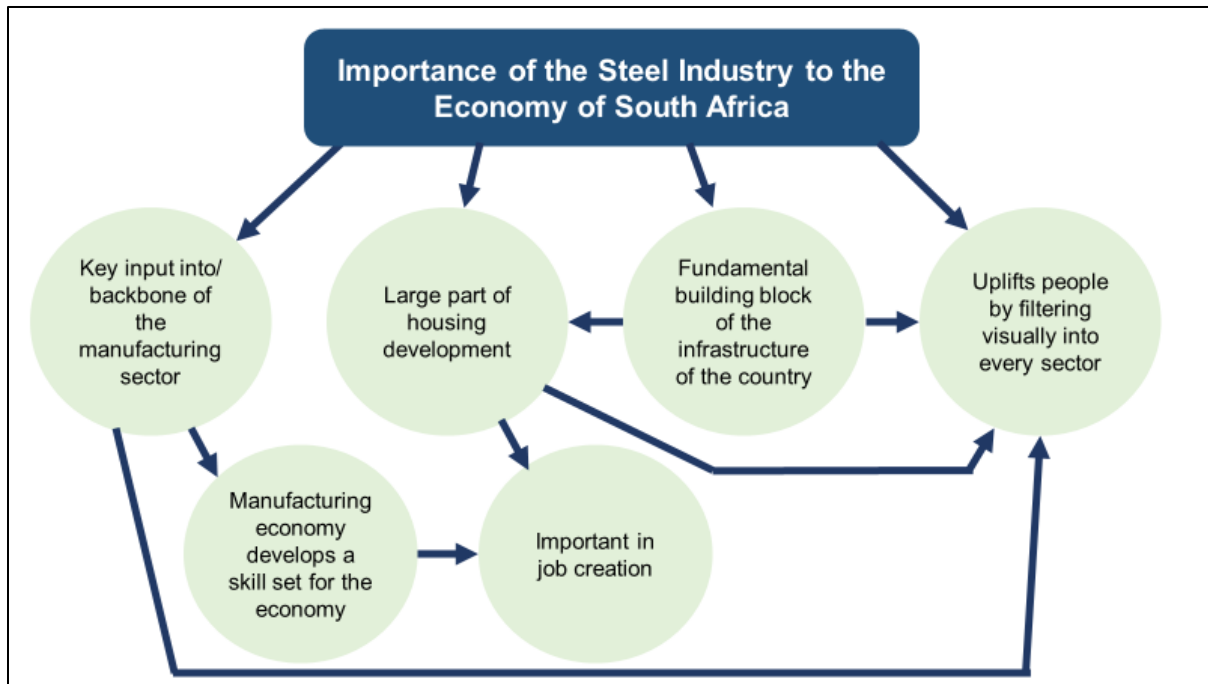
**Figure 4.3: Highest Level of Education Achieved by the Participants**

### 4.3 The Importance of the Steel Industry to the Economy of South Africa

Steel is a fundamental part of our lives as it is a highly versatile product (The World Steel Association, 2017). The participants considered the steel industry to be “*critical to the economy of South Africa*” (Participant 2, 25 years, Group Chief Executive Officer) and indicated how the interlinked effect of the industry affects the economy (Figure 4.4). Steel was mentioned to be used in numerous industries including manufacturing, housing, mining, energy, transport, and infrastructure. It is also used in the production of numerous consumer goods, and can be visually seen in many products.

*“It is the backbone of any industry or any country. Bridge building, mining, power-stations anything that you can think of that requires infrastructure is connected to the steel industry”* (Participant 5, 12 Years, Technical Director)

*“Many forms of manufacturing have steel related components and so it is a critical factor of manufacturing. Mining again, and there is scarcely a sector other than the service industry that is not touched by steel. Even then, the service industry requires restaurants and other sorts of services which use high-end steels, such as aluminium or stainless steel. So, you name it, it is everywhere and everything. Roads, rail, you name it. You cannot think of a single thing or some form that does not need some type of steel”* (Participant 2, 25 years, Group Chief Executive Officer)



**Figure 4.4: Importance of the Steel Industry to the Economy of South Africa**

**SOURCE: Author**

Cloete (2016) states that the local steel industry is a major source of employment in South Africa and considered to be critical to sustainable economic development. The research found that the participants agreed with this sentiment and Participant 4 (6 years, *Head of Sales & Marketing*) stated that, “[The steel industry] is a big contributor to the local economy and labour, so I think it is very important for the industry”.

The participants indicated that individuals also have to learn a special skill set to work in the industry or other related industries, which makes them more employable. The housing and infrastructure industries which use steel products also require a source of labour, hence the steel industry contributes to job creation. According to Dednam et al. (2017), the Government also places priority on the industry due to its potential for job creation and export revenue.

*“I think the manufacturing economy develops a skill set in an economy which goes beyond the basic...pure manufacturing area; so you develop sports services, you have strong institutions in mathematics and science, and the country is able to innovate. For me, it underpins a lot of how a country can be great” (Participant 1, 4 years, Head of Business Development)*

*“I think it is very important in terms of manufacturing creating jobs” (Participant 3, 5 years, Director: Operations)*

According to O’Flaherty (2015), the steel industry contributes to 15% of the GDP of the country and provides input into a number of other industries, including automotive, mining, construction, energy, and infrastructure industries. This results in 190,000 jobs for the people of the country (Joint Steel Task Team, 2015). The industry is therefore considered to be essential for economic growth (The World Steel Association, 2017).

#### 4.4 Scope for Additional Entrants in Steel Industry Supply Chain

Initial reactions by roughly half the participants, to the question of whether they believe there is scope for new entrants in the steel supply chain, were not very positive. However, on further probing into areas of the supply chain, the majority of participants were able to identify some scope for new entrants.

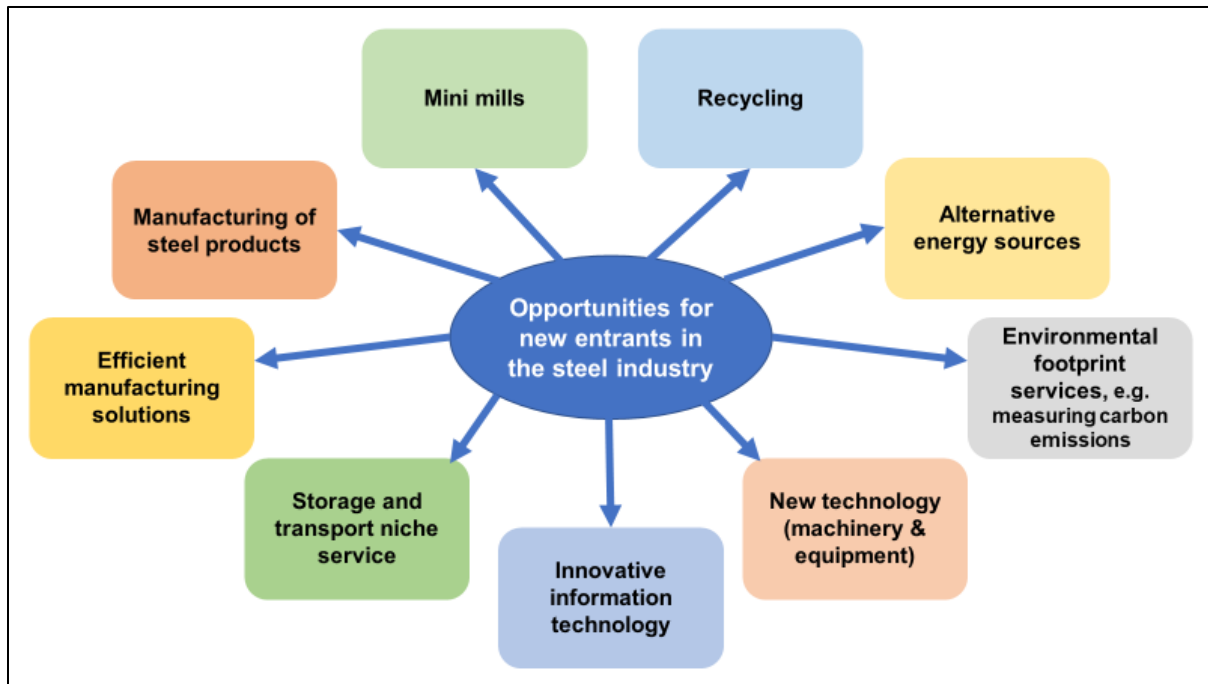
The perceptions that there was no scope for additional players in the steel industry supply chain centred on the fact that the existing players in the industry are struggling to survive as the market is already overtraded. The participants were of the view that the market is very competitive and saturated by many players.

*“-[Existing players] have rationalised, probably as much as they can, and they are still battling to give their shareholders return on their investment” (Participant 1, 4 years, Head of Business Development)*

Despite the intense competition in the steel industry, both locally and globally, the World Steel Organisation (2017) reports that the volumes of steel trade are showing an upward trend. In addition, steel has become more universally affordable. A few participants of the research however, indicated that there are high costs involved in the steel industry and although large players get volume discounts, they believe smaller players or new entrants may not be able to get these. This sentiment could possibly have originated a few years ago where Van Rensburg (2015) reported that the South African steel industry was in decline due to a global oversupply of steel.

*“...we have low volume, high costs and inefficiency” (Participant 6, 10 years, Group Financial Director)*

The majority of participants agreed that there is scope for new entrants in the steel industry, in various areas (Figure 4.5). Participant 2 (25 years, Group Chief Executive Officer) said, “As countries develop, they grow, and they need steel products. So, there is absolutely scope in Africa, particularly in South Africa ... It has still got a lot of road to run compared to the first world countries”.



**Figure 4.5: Opportunities for New Entrants in the Steel Industry**

**SOURCE: Author**

The opportunity for new entrants which was mentioned by most of the participants was for mini mills. Stewarts & Lloyds (2017) reported that there are currently shortages in supply from the South African mills who can't keep up with demand. This is forcing more imports to occur which is exasperating the situation in the industry. Participant 8 (*1year, Chief Financial Officer*) describes the primary steel industry in South Africa as being a “*monopoly*” where there are only “*...four to five guys that we buy steel from in South Africa*”. He says because of this, “*...there is space for other steel makers, primary steel makers*”. Participant 9 (*7 years, Director: Operations*) shared that he was aware of some of the bigger steel players starting to introduce their own mini mills for “*...more specific products, not for general steel manufacturing. It is either light structural sections or very specific*”, which indicates that others in the industry have also observed this as an opportunity.

Other participants mention different kinds of mini mills as opportunities, including, “*Mini mills that compliment current products that cannot currently be made in SA*” (*Participant 7, 11 years, Local Sales Manager*), the melting and recycling of steel which is currently being done outside the country and imported back into the country, and innovative new products that are currently not being made.

*“That is what I was talking about with melting and making steel. The stuff that we have here, the recycling of the things that we have here ... I am not 100% sure but, I think a lot*

*of it leaves the country, goes somewhere, gets melted, comes back here and we pay a premium” (Participant 5, 12 years, Technical Director)*

*“When you have, let us say, the capacity to make that thin gauge, then that also brings an opportunity to the country; there are certain products that were not previously made, that can now be made” (Participant 7, 11 years, Local Sales Manager)*

*“...a mini mill kind of situation, I think there is definitely scope for that as far as I am concerned” (Participant 10, 3 years, Managing Director)*

According to D’Costa (2013), entrepreneurs globally are entering the steel industry by setting up mini mills, as the latest technology for mini mills is making it easier for new players to enter the existing market. One participant also explains that setting up a mini mill does not have to be capital intensive if one uses second hand equipment and in this way, it is also less risky for the entrepreneur. He says, *“You do not have to spend millions of dollars, you can spend a few hundred thousand and buy something that is not so fancy but does the job, and then you do not have the risk of having to pay off this huge investment. So there is no doubt, it is doable” (Participant 2, 25 years, Group Chief Executive Officer)*. In addition, the South African Government has set aside R6.5 billion for SMME’s (South African Government, 2015) and will provide support to the youth in entrepreneurial activities (NDP, 2011).

Technological advances and innovations were also found to be areas which provide opportunities for new entrants in the Steel industry. The participants mentioned that there is new machinery and equipment which provide *“better methods of transforming metal and shape metal into other forms or structures” (Participant 5, 12 years, Technical Director)*. Entrepreneurs could also introduce a new range of products which they may see being imported, or even start exporting a new range of products. Since the government wants to grow exports in the manufacturing industry, they are offering rebates and tax incentives for entrepreneurs who develop components for export (Thulo, 2015), highlighting this opportunity for entrepreneurs.

*“...like the introduction of a new Stainless range because that brings up a wide range...*

*If there is a demand for it, it will probably start with seeing imports of that” (Participant 7, 11 years, Local Sales Manager)*

Information technology was mentioned briefly by one participant as an opportunity for new entrants to assist with *“making it possible to be very accurate in terms of understanding your costings and where you need to be” (Participant 2, 25 years, Group Chief Executive Officer)*. Another area of opportunity for entrepreneurs, is around innovation in environmental sustainability. The participants indicated that although they know that they need to consider

their environmental impact and that they need to abide by environmental regulations, they find it an onerous task to measure carbon emissions and put action plans in place to reduce their carbon footprint. This gives entrepreneurs the chance to provide a service which will conduct these activities for the larger steel companies.

*“Well I think there are huge issues for the big established players in terms of environmental footprint ...they do not really have the money, or the need, to handle or put into effect, the changes they need to make, in terms of controlling their emissions” (Participant 2, 25 years, Group Chief Executive Officer)*

*“...obviously all the cars on the roads. We do not really have systems to check [carbon emissions], although it is an issue. There could be an opportunity there, creating testing stations that could check these cars” (Participant 5, 12 years, Technical Director)*

*“...even the dust extractions and fumes extractions around electric furnaces, there has been huge developments there” (Participant 10, 3 years, Managing Director)*

Coupled with minimising their environmental footprint, the steel industry is seeking alternative sources of energy which provides a further opportunity for entrepreneurs.

*“I think there is certain scope for new engines coming in, using some bio-mass powering or along those lines, to create a cheap source of energy, and using it can tick a lot of boxes” (Participant 2, 25 years, Group Chief Executive Officer)*

*“In terms of the manufacturing side I think the benefit of solar, although it is still very expensive” (Participant 3, 5 years, Director: Operations)*

*“In terms of energy, definitely, I think we all know the state of our country when it comes to energy. We are all looking for alternatives” (Participant 7, 11 years, Local Sales Manager)*

*“...if you are taking scrap, like with mini mills, you need to melt it. To melt it you need electricity. There is no other form of energy” (Participant 8, 1 year, Chief Financial Officer)*

Opportunities for new entrants in the distribution sub-sector of the steel industry were not forthcoming from the participants. Only two participants felt that there may be some opportunity in distribution but they were cautious with their responses, indicating that it would be very difficult to succeed as a new player in distribution because the sector is already well over capacity. However, they did indicate that one could succeed if they were able to offer some kind of a niche service or develop a better service than the existing players.

*“It exists, probably in my opinion, ...well overcapacity because of the slowing economy so at the moment it is very difficult for new entrants to succeed unless they have a particular edge or niche that gives him some protection” (25 years, Group Chief Executive Officer)*

*“I think to a lesser degree. The distribution sector of the steel industry will more often change and evolve for those who give better service and for those who continue to do better than what they were doing (Participant 6, 10 years, Group Financial Director)*

According to the Trade and Industry Deputy Minister, “The steel industry holds enormous potential for investments, deepening of manufacturing capabilities and job creation” (South African Government News Agency, 2015:1). The participants also believe that economic development will fuel the need for more players in the industry. Participant 2 (25 years, Group Chief Executive Officer) said, “...it is purely dependent on growth. If we look at more developed countries, the growth per capita consumption is really a factor of economic development”.

#### **4.5 The Benefits to the South African Steel Industry from Additional Entrants in the Distribution Sub-sector**

The participants were asked what they believed the benefits were to the South African Steel Industry, from having additional entrants in the distribution sub-sector. As the participants were not confident that there would be room for additional players in the distribution sub-sector, it is not surprising that there were few responses as to the benefits additional players could bring to the industry. The benefits that were mentioned included:

- Easy accessibility of material;
- Increasing competition;
- Providing a specialisation; and
- Creating more choices for customers.

According to Helo (2008), the distribution network in the steel industry is vital as it plays a large role in the supply chain. Coupled with this, the storage and transportation of supplies is key. A tiered distribution network works best as the speed of delivery, availability of product, and costs of transport, storage and handling has become paramount to meet customer demands. Current players in steel distribution are already well represented in all major towns and regions where there is a manufacturing base. Participant 1 (4 years, Head of Business Development) expressed that “...whether it is Limpopo, Mpumalanga, or Kwa-Zulu Natal, there is availability of steel inputs”. However, this participant also acknowledged that with better communications technology, customers can be serviced more quickly and without the need for a warehouse.

*“These days you do not actually have to have a warehouse. You can run a vehicle. So, I think that better communications technology enables customers to be serviced with only a couple of days notification” (Participant 1, 4 years, Head of Business Development)*

According to Participant 6 (10 years, Group Financial Director), the South African steel industry players are, “...not that cost effective compared to China...” and therefore rationalises that “...arguably to some degree localisation is important. Why? We are uncompetitive”. This shows how an increase of competition in the industry could be beneficial to the industry. Competition can be increased with more players in the distribution sector, which could involve some players specialising in a niche area. In addition, increased players will mean that customers benefit through having additional choices, players will improve their service levels and pricing will become more competitive.

*“I think it creates more options for customers, the more choice there is. Therefore, the better the service and unit cost for the customer, the more competitive they are ...There are more opportunities now, which will filter through to help the manufacturer or end-user of the steel products, if there is more competition. This is a big benefit to the end-user, with better service. They are better able to get their costs down” (Participant 2, 25 years, Group Chief Executive Officer)*

#### **4.6 Barriers to Entry for New Entrants in the Steel Industry**

Although the participants indicated that increased competition in the industry was beneficial for the industry, Banda et al. (2015) highlighted that anti-competitive behaviour in the form of cartels in the steel industry, have been found in recent years and this stunts economic growth as they affect the potential for players throughout the supply chain of the industry. However, there was no reference from any of the participants about anti-competitive behaviour taking place in the industry or being a barrier to entry.

Literature also discusses various other barriers to entry for entrepreneurs in the steel industry, including difficulty in accessing capital, a lack of skills and family influences (Glaser et al., 2015). Entry regulations such as the cost of registering a new company or property right protection policies, were discussed by Klapper et al (cited in Beck and Demirguc-Kunt, 2006). Other researchers highlight a lack of managerial skills, equipment and technology, regulatory issues, and access to international markets as barriers to entry (Anheier and Seibel, 1987; Steel and Webster, 1991; Aryeetey et al, 1994; Gockel and Akoena, 2002 cited in Abor & Quartey, 2010). However, the participants to the research only identified two barriers to entry into the steel. These were expertise and capital.

Expertise, as a barrier to entry, was only mentioned by three of the participants who indicated that there is a lack of skills and expertise in the steel industry, and that some skills have been lost.

*“I think maybe one of the barriers is in terms of the skills in the steel industry which has been allowed to slip in terms of steel rated skills. Some skills have been lost” (Participant 2, 25 years, Group Chief Executive Officer)*

Access to capital was identified by all the participants, as a barrier to entry into the steel industry. Participant 2 (25 years, Group Chief Executive Officer) said, *“I think capital is the biggest. It is capital intensive, so that is ninety percent of the problem”*. Capital therefore, is a significant barrier to entry for entrepreneurs in the steel industry although it was also acknowledged that it depends on what kind of distribution one would like to do or how they would like to service the industry.

The participants indicated that there are many costs to consider. Participant 11 (22 years, Managing Director) explained that, *“... if you work up the main distributor chain, with value add and so on, your barriers to entry become very high on capital because [there is a need for] distributing equipment like trucks, forklifts and so on, plus value add equipment like cut-to size lines, lasers, and those type of things, plus the warehouse space, because it is high bulk. Steel needs high operational space and so your property costs are high in relation to the product, the margin and so on”*. Nearly all the participants provided a list of various costs that need to be considered as they all require capital expenditure.

Although capital was seen as a large barrier to entry by many, and several items were mentioned that one would require large sums of capital for, some participants indicated that one could significantly reduce the challenge of capital as a barrier to entry. These participants were more positive about the opportunities for new entrants, indicating that, *“Markets I believe, are there” (Participant 2, 25 years, Group Chief Executive Officer)*.

The capital needed for new entrants in the steel industry were said to be dependent on what the new entrant aimed to do in the value chain. Activities that involve large stock holding, or specialist equipment, were indicated to be ones that required large sums of fixed and working capital. However, finding a niche product or service or operating a unique distribution service, was deemed to have much less of a capital requirement.

*“It depends on what type of distribution you want to do ... or how you want to service the industry” (Participant 6, 10 years, Group Financial Director)*

*“Capex on a steel distribution business, is not significant. It is mainly working capital and stock holding. Equipment is basic if you are going in to steel services. You have plasma*

*cutters and you maybe have a cut to length type of machine, and stuff like that. If you are doing flat products, you can do cut to length. Yes, Capex can be a huge barrier but if you just supply large products, then I do not think Capex is the real barrier. It depends on what sort of products, or part of the market you want to cover with your business. If you are importing cold rolled products then it means it has to be cut to length, and if you have to supply into the automotive industry, then Capex is the huge barrier to entry. If you are importing round bar from Europe or China, the stock holding and working capital are basically all” (Participant 10, 3 years, Managing Director)*

The participants also provided some ideas of what new entrants could do that would not be capital intensive. Their ideas included starting something on a small scale, such as distribution with a small van or bakkie, offering distribution services to a major distributor where the larger player would provide the stock holding, or even offering services where a deposit could be requested to purchase raw materials.

*“It takes quite a long time to build up, so you could do it with a pick-up truck/pick-up bakkie and conduct a trading business; buying and selling, and providing logistics and quick-quick logistics functions, and overtime. You build it up until you move into stock holding” (Participant 2, 25 years, Group Chief Executive Officer)*

*“...they do not have to spend capex necessarily in a low margin high volume type of market” (Participant 10, 3 years, Managing Director)*

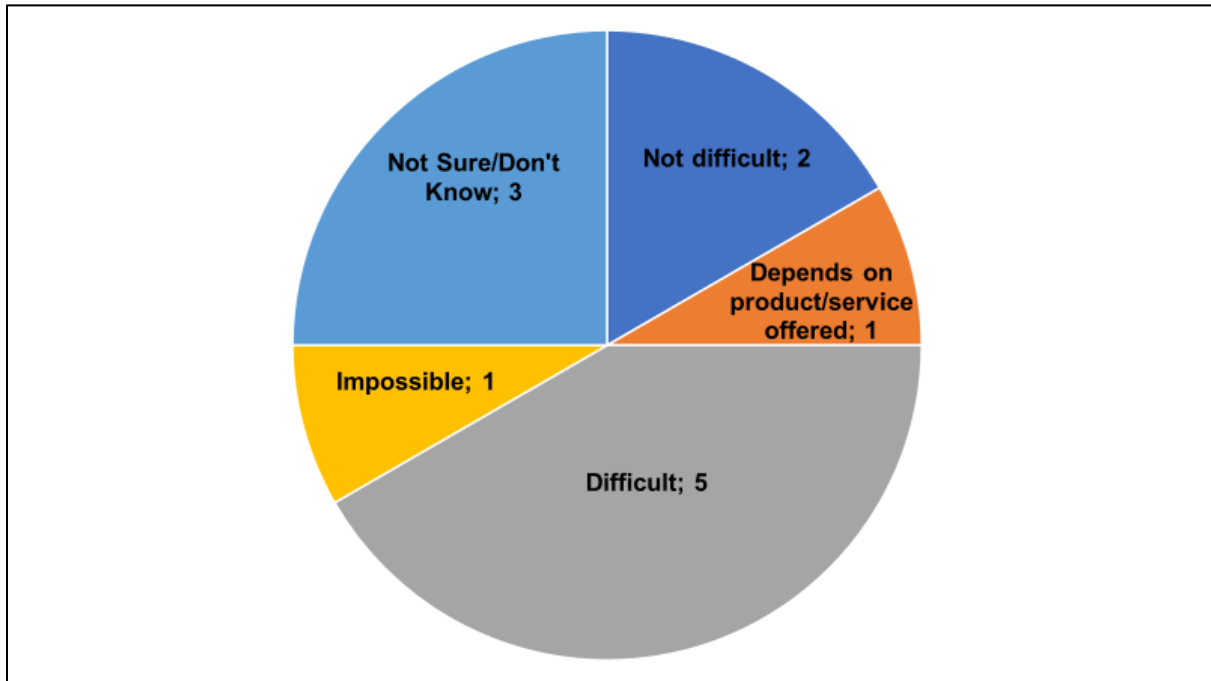
*“It depends on the scale of entrance. A small entrant has very little barriers to entry. You need a small warehouse or you can back to back a lot of business. So, if you are a trader by knowing the market, your only barrier to entry is knowledge, “market knowledge” and from then on you can get trade opportunities from specific end users or projects backed by any other major distributor” (Participant 11, 22 years, Managing Director)*

*“If you are going into the steel industry, you do not necessarily have to hold stock. I mean, if you are going to get a contract with somebody to build a factory, you can ... get a deposit whereby customers will pay enough so that you can go and buy material and put it up. So, it is not as if you need to stock sheets to cut for customers, you can buy them on demand. I do not think stock is an issue because if you get some accounts going you can pay after 30 days nowadays, the popular one is 60 days, and you could get a deposit if you want to do a building or something like that” (Participant 5, 12 years, Technical Director)*

#### **4.6.1 Access to Finance for New Players**

Although three participants indicated that they were not sure or didn't know how difficult it would be to access finance, the majority of the other participants were of the opinion that it is

limited or difficult to access finance. On the extreme ends, one participant indicated that it is “currently impossible” and two said it is it was easy to access finance (Figure 4.6).



**Figure 4.6: Perceptions of Difficulty in Accessing Finance**

The perceptions of the participants that indicated it is not difficult to access finance, were that, “finance is there if the demand is there” (Participant 7, 11 years, Local Sales Manager) and that there are “... enough programmes out there to encourage ... new entrants” (Participant 1, 4 years, Head of Business Development). There was no mention by these participants, of accessing finance from financial institutions. Rather, they were referring to state funded incentive programmes, particularly for entrepreneurs. This is likely because their perceptions are in line with those of Ramukumba (2014) who states that South African banks avoid the risk involved in dealing with loans for small businesses (Ramukumba, 2014).

*“I think entrepreneurs can access funds through the IDC; Jobs Fund. I mean, all the different incentive programmes, I think funds are there” (Participant 1, 4 years, Head of Business Development)*

The majority of participants who indicated that access to finance is not so easy, discussed accessing finance through banking institutions. Banking institutions are reportedly not in favour of financing for the steel industry as the industry is viewed very negatively and of high risk to these financial institutions. This is because of the current ‘stagnant’ state of the economy as well as the downturn of the industry which occurred in 2009 and which has resulted in many steel operators making losses, or even closing down.

*“I think because of the current market conditions, the potential to get finance is very limited” (Participant 3, 5 years, Director: Operations)*

*“I think the appetite is low, the state of the steel industry and engineering sector in South Africa in total. There has been a lot of closures and loss-making operations” (Participant 10, 3 years, Managing Director)*

*“I think given the state of the economy right now, and the risks that we have just gone through in 2009, banks have become a lot less prone now with the downturn in this primary economy of construction, mining and so on...The steel industry is perceived as a high-risk industry to the banks and other sources of capital. Low margin and high risk are not very attractive” (Participant 11, 22 years, Managing Director)*

In addition, accessing finance through banking institutions requires a solid business plan that is feasible for the financial institution to take the risk of financing. With the current economic climate and the state of the industry, it is believed that one would need to show a track record or have contracts in place, to prove the viability of the operation to the financial institution. This is problematic for new entrants or small business, as indicated by Beck and Demirguc-Kunt (2006) who said that whereas large firms tend to use their equity to acquire finance, smaller businesses tend to lack the collateral for accessing finance.

*“I think it will be relatively difficult. You need to sell your business plan and then you need to show, almost like a track record of contracts. If you do not have some form of track records to show, you must have contracts. It is almost like a chicken and egg situation. If you do not have contracts, it is fairly difficult to work around it” (Participant 10, 3 years, Managing Director)*

According to Beck and Demirguc-Kunt (2006), due to the difficulty small business have in accessing finance, they are often forced to seek alternative sources of non-formal investment finance such as from family and friends, or moneylenders. In addition, many SME's are only able to survive with their creditors or suppliers providing them with payment terms of 60 days (Ramukumba, 2014).

#### **4.7 Policy Interventions for Entrepreneurs**

The Department of Trade and Industry has already put a number of policy interventions in place to balance the upstream and downstream industries within steel manufacturing (Davies cited in Cloete, 2016). They offer rebates and tax incentives for entrepreneurs in the manufacturing sector, who develop components for export (Thulo, 2015), and the downstream steel industry receives great support, including rebates which can be issued in 10 days (Davies

cited in Cloete, 2016). This research found however, that the perceptions are that South Africa is not currently protecting their own industry like other countries do.

*“Most other countries in the world have protected their own industries except South Africa” (Participant 2, 25 years, Group Chief Executive Officer)*

*“Primary market, primary producers should be protected” (Participant 8, 1 year, Chief Financial Officer)*

The success of government support and interventions can be seen clearly in China, Turkey and India where government policy stimulated high capacity growth by ensuring low input costs, subsidies, low-interest loans and grants for the industry (Dednam et al., 2017). The \$50 billion investment in policy interventions in China in 2013, have resulted in 50% of the world's steel being produced in China. These interventions included government infusions of equity and debt-to-equity swaps where debts were converted into shares in the industry; government sponsored preferential loans and directed credit for Chinese steel companies; an undervalued currency; land use discounts for steel manufacturing plants; mergers between private steel operators and government owned companies; and preferential tax programmes, energy subsidies and reduced VAT (Joint Steel Task Team, 2015).

A number of policy interventions were suggested by the participants, to make it easier for entrepreneurs to enter the South African steel industry. These are discussed below.

#### **4.7.1 Level Playing Field**

It was suggested that in order for the South African Steel industry to compete effectively against imports, and particularly imports from China, the local industry must have the same support and advantages as the players in other countries. Participant 7 (11 years, Local Sales Manager) said, *“I feel that we know we are able to compete.... it is not a matter of saying, create an unfair advantage for the world. No, it is saying create a fair advantage, a competitive edge for South Africa as well”*. The Joint Steel Task Team (2015) also recommended Import Price Parity (IPP) as a means of intervention, whereby the local industry has a regulated pricing structure which fairly covers operating costs, asset replacements and sustainable returns.

#### **4.7.2 Tariffs and Duties**

There was much discussion from the participants in regards to policy interventions for imports and exports of steel and steel products. The local steel industry is unable to compete effectively with the low price of Chinese imports and current tariff structures are not beneficial to the industry as a whole. Participant 2 (25 years, Group Chief Executive Officer) stated that, *“The*

*problem is ...the industry is no longer protected. You are getting products being imported into South Africa for less than the price of the steel that goes into making them. South Africa is particularly bad with addressing that*". In addition, it was suggested that, *"The tariffs structure that has been implemented is actually helping Arcelor Mittal [a monopolistic business practise] and there is no way of dealing with it"* (Participant 10, 3 years, Managing Director). It was therefore recommended that the current tariff structure needs to be revisited and appropriate tariffs on imports should be introduced.

*"Well at the middle level clearly, if you have appropriate tariffs on imports"* (Participant 1, 4 years, Head of Business Development)

*"Safe guard as well as tariff protection as a start, on finished steel products. That is critical"* (Participant 2, 25 years, Group Chief Executive Officer)

*"...relook at the tariffs structure"* (Participant 10, 3 years, Managing Director)

#### **4.7.3 Incentives, Subsidies and Grants**

The Joint Steel Task Team (2015) suggests that since raw materials contribute to the largest portion of costs for the industry, it would be prudent for the government to determine strategic raw materials and support beneficiation in the iron and steel value chain. The participants to the research also indicated that new entrants in the Steel Industry would benefit greatly from subsidies or grants and that grants based on the cost of working capital or expenditure, have worked well in the past. The current volumetric discount structure however, is not helpful to smaller players in the market and could actually set them back if they cannot access the same discounts as the larger players.

*"It will have to be some sort of subsidy or grant which I do not know about. There will have to be some sort of subsidy for new entrants ... Grants will be a better avenue and can be based on the cost of working capital, or capital expenditure, like we have the scheme run by DTI ... that actually worked well for companies who wanted to establish businesses in the past"* (Participant 10, 3 years, Managing Director)

*"In terms of merchanting, the volumetric discount structure benefits the bigger buyers. I think it should be structured differently... It is a barrier because smaller guys cannot compete in the market with the costs, so they are working at lower margins"* (Participant 3, 5 years, Director: Operations)

It was also suggested that there should be incentives provided for manufacturers that make goods for export, particularly for the automotive market, as this will assist these manufacturers. According to Thulo (2015), the South African government wants to grow exports in the

manufacturing industry and offers rebates and tax incentives for entrepreneurs who develop components for export.

*“Protection of local industry on tariffs, export incentives, especially for the automotive market” (Participant 4, 6 years, Head of Sales & Marketing)*

#### **4.7.4 Create space for entrepreneurs or people to start producing the goods**

There are two main areas where policy interventions can help to protect the local market and create further opportunities for new entrants. Firstly, it is by encouraging more local content, and secondly, it is to minimise the imports of steel related products and encourage more manufacturing of these items, by local entrepreneurs.

*“Enforcement of local content. That is the big one” (Participant 4, 6 years, Head of Sales & Marketing)*

*“One of the most important policy interventions on a macro-economic scale, is for the government to look at imports of steel related products, not steel itself” (Participant 2, 25 years, Group Chief Executive Officer)*

*“In terms of products that are not in South Africa but there is a demand for those products. Let us look at something simple like cutlery. Every household has cutlery but in South Africa we do not make it. As far as I am concerned, all we need to do is ... make our own cutlery before we look anywhere else, so as to create our own jobs” (Participant 7, 11 years, Local Sales Manager)*

The Joint Steel Task Team (2015) takes this one step further, and recommends the banning of steel scrap exports as they believed “scrap steel is an important input for the steel industry and exports of scrap steel are escalating the prices for this scrap steel”. In addition, space can be created for new entrants in manufacturing of steel goods by encouraging the use of locally manufactured steel products through government infrastructure spend.

#### **4.7.5 Skills upliftment**

There was some concern from participants about encouraging entrepreneurship in the steel industry. They were concerned that there are not enough skilled individuals and those that are in the industry also don't have a good skill set, to be able to enter the industry with new or innovative products. It was suggested therefore that encouraging individuals in the industry to upskill themselves through providing incentives and training opportunities, would be an effective intervention by the state.

*“...the government needs to have a hard look at developing the skills necessary for entrepreneurship for people in the steel sector” (Participant 2, 25 years, Group Chief Executive Officer)*

*“I think the complexity is, you have to learn to walk before you can even run. So, our policy intervention that might work is to try and take those with skills and get them to advance further, and in the process freeing up space that they have left behind, so incentivise people to up-skill themselves when they already have a certain skill set” (Participant 6, 10 years, Group Financial Director)*

#### **4.7.6 Improve Investor Confidence**

A further policy intervention to focus on improving investor confidence, was suggested by one participant. To reduce political uncertainty, the first step will be to ensure that there is positive movement in developing the infrastructure that has been planned. This will go a long way to improving investor confidence.

*“Our political uncertainty currently, the government is very far away from changing that because there is no investor confidence, not really locally and not abroad. I think that is the main thing, the main thing is improving business confidence and starting with all the infrastructure developments that have been planned to be implemented in a great way, to get people to seriously think about investment” (Participant 9, 7 years, Director: Operations)*

This kind of intervention was also addressed by the Joint Steel Task Team (2015) who said that the government has proposed a number of strategic infrastructure projects and has allocated large sums of money to these projects.

However, industry sectors such as the steel industry which contributes a large proportion of inputs into infrastructure projects, has not yet realised the expected benefits and returns from these projects and an urgent rollout of these infrastructure programmes is needed.

#### **4.8 Conclusion**

The research found that the Steel Industry in South is currently very competitive, especially in light of the fact that imports from China are cheaper than locally produced products and this is putting strain on the local manufacturers. However, the industry is also seen to be vital for the economy of South Africa and anything that can be done to help the industry remain sustainable, is welcomed. As such, the scope for new entrants in the industry falls mainly around innovation and niche areas.



## **Chapter 5: Conclusions and Recommendations**

### **5.1 Introduction**

This research set out to understand capital expenditure as a barrier to entry for new businesses in the distribution sub-sector of the steel industry and what policy interventions could ease these barriers for entrepreneurs and small enterprise development, in order to encourage entry into the value chain of the industry and contribute towards GDP growth and creating employment opportunities. This final chapter provides conclusions to the research by summarising the key findings and offers recommendations based on these findings.

### **5.2 Key Findings**

The steel industry plays a major role in economy of South Africa. Besides contributing to a large portion of the country's GDP, the industry provides employment for a large portion of the population. Steel is also used in various other industries, such as manufacturing, housing, mining, energy, transport, and infrastructure and even in the production of many consumer goods.

Despite the current struggles the industry is experiencing with cheap imports from other countries and a highly competitive environment, the research found that there is scope for new entrants into the industry which could encourage economic development and have numerous other positive effects. The scope for new entrants however, is limited to providing value added goods and services because trying to compete head on with current industry players comes with many barriers to entry.

Entrepreneurs who are able to find a niche in the market or who are able to innovate with new products or services, have great potential to enter the industry, particularly in light of the fact that volumes of steel trade are showing an upward trend. It was found that the scope for new entrants in the industry were for mini mills, manufacturing of new steel products, recycling, services related to reducing the carbon footprint, efficient manufacturing solutions, new technology and innovative information systems. The distribution sub-sector however, was seen to be saturated and highly competitive. The only scope for new entrants in the distribution sub-sector would be for a niche distribution service or the distribution of niche steel products.

New entrants in the steel distribution sub-sector could result in a number of positive outcomes. Not only will the increased competition force current players to improve their services, but customers would benefit from a wider choice, from ease of access to materials, and from new

products and services for which a gap currently exists. The economy of South Africa will also benefit as new players provide additional employment for the people of the country and the new products may service new markets, including export markets.

The biggest barrier for new entrants in the steel industry distribution sub-sector is not access to capital, it is the fact that there are many players already in a small and diminishing market. Although access to capital is a barrier in itself, it is largely a barrier currently because of the unattractiveness of the steel market to financial institutions due to its limited profit potential and lower comparable returns on capital invested. Other barriers include a lack of skills, anti-competitive behaviour and family influences, although to a much lesser extent. The steel industry is seen as a capital-intensive industry where the start-up capital required is inaccessible to most. However, for entrepreneurs that want to enter the industry where they are not competing head on with current players, there are a number of means that capital outlay can be reduced, such as acquiring second hand machinery, starting on a very small scale or sourcing a deposit for new job which can be used to purchase raw materials needed.

Although there are a number of state funded incentive programmes available where entrepreneurs in general are able to source financial assistance, gaining access to capital for new entrants specifically in the steel industry, was found to be a significant barrier to entry. South African financial institutions are risk adverse both to financing small business start-ups as well as to financing anything related to the steel industry. The latter is due to a history of poor performance in the industry. For these institutions to even consider granting finance, would require one to have a large amount of collateral to put down.

Current perceptions in the South Africa steel industry are that the government is not currently protecting the local industry like other countries are doing by ensuring low input costs, subsidies, low-interest loans and grants for the industry. Chinese imports are seen to be unfairly subsidised by the Chinese government, local content is not being protected adequately in South Africa, volumetric discounts are not fairly distributed for smaller players and tariff protection from imports is not adequate. It was therefore suggested that policy interventions to level the playing field for the South African industry to compete globally, are needed.

### **5.3 Policy Intervention Recommendations**

China, Turkey and India have had great success in promoting their steel industry by infusing capital into the industry through the purchase of shares in steel companies, mergers between private and state-owned entities, preferential loans for steel companies and a number of grants

and incentives, including land use discounts and tax incentives. Likewise, there are a number of interventions that the South African government can implement or enforce, which will protect the local steel industry and encourage growth of the industry through new entrants in the value chain.

Currently, the steel industry in South Africa perceives that the Chinese imports of steel into South Africa are unfairly subsidised. To level the playing field so that the South African steel industry has the same advantages as the Chinese steel industry, policy intervention could include subsidies, grants and incentives, particularly on raw material inputs. This would assist the industry to reduce their operating costs and thereby produce products to be more in line with the prices of steel imports. As has been done in other countries, this could be achieved through the government gaining ownership in the industry sector through the purchasing of shares to inject capital into current operations. Furthermore, the current volume-metrics discount structures offered by the large South African mills should be abolished or offered to all players so that new entrants and smaller players in the steel distribution sub-sector can benefit from reduced input costs.

There is growth potential for the domestic steel manufacturing industry and it would be beneficial to the country's economy if the government supports the production, processing, manufacturing and exporting of steel products. This would involve close monitoring of imports of steel based products including the enforcement of appropriate tariffs and duties on imported products and reduced tariffs and duties for exports. The government can also support entrepreneurs through the enforcement of local content designation of steel procurement for large state infrastructure projects and to encourage 'Proudly South African' products to be exported to other countries.

Policy interventions needed for the South African steel industry also include the need for the upskilling of labourers as the skills set in the country is currently low and largely in the hands of an old and retiring work force. Improving skills will contribute to creating space for entrepreneurship in the industry, but in addition, it will allow skilled workers to venture out on their own and new workers to enter the industry as labourers. However, the improvement of overall investor confidence is another factor that is vital to the continuing sustainability of the industry and the improvement of the economy as the current economic climate is not favourable for new entrants.

As environmental sustainability is becoming more important and there is a commitment from the government to reduce South Africa's carbon footprint, a policy focus on the green economy and protection of the environment, should encourage innovations in entrepreneurship. The

management of waste material, recycling, efficiencies in production, can all be achieved with further players in the value chain that can offer solutions to the existing large steel bodies by specialising and contributing towards environmental compliance.

#### **5.4 Conclusion**

There is great scope for additional entrants in the steel industry in South Africa. New players could contribute towards economic development by creating employment, increasing healthy competition and promoting exports of South African product. However, entrepreneurs face a number of barriers to entry into the industry as it is already rife with competition and market conditions have not been favourable. Access to finance capital has become more challenging as financial institutions find the industry unattractive for investments. Various policy interventions can increase the attractiveness of the industry for investments, help ease the barriers for entrants, as well as assist current players to become more profitable.

Figure 5.1 provides a summary of the current issues facing the steel industry and the implications this has for the industry. The industry is not currently being protected adequately from imports and is forced to compete with unfair competition. A levelling of the playing field is required with a stimulation of high capacity growth and lower input costs and tariffs. Recommendations for policy interventions that will be effective in addressing these issues involve the state taking more control of the industry and protecting the industry through revised tariff structures, the promotion of exports and a volumetric-discount structure from mills to distributors that supports the smaller businesses.

<b>Effective policy interventions for the South African steel industry</b>		
<b>Conclusions (Learnings)</b>	<b>Implications (What it means)</b>	<b>Recommendations (The next step)</b>
The Government does not monitor imports of steel rotted products and enforcement of local content	There is growth potential for the domestic steel manufacturing industry and it would be beneficial to the country's economy if the Government supports the production, processing, manufacturing and exporting of steel rotted products	The Government to support exporting of steel rotted product and proudly South African manufactured steel products
Steel products from China are unfairly subsidised	Rather than market-based growth, Government policy should stimulate high capacity growth to ensure that low input costs, subsidies, low-interest loans and grants for the industry are realised	The Government to have total control of steel imports and gain ownership within the steel industry sector
The steel industry does not have proper tariff protection, including safeguarding of steel imports	The steel industry is currently experiencing an unfair tariff's structure for cross border trade	The establishment of a new and appropriate tariff structure that is competitive, is vital for the industry
The steel market is not appropriately protected	The South African steel industry is currently not protected which has an impact on the creation of space for entrepreneurs or people to start producing steel	If well implemented this will have a huge impact on employment and then grow into the distribution sector which will then add volumes onto the primary producers
There is no proper volumetrics, discount structure	When it comes to merchanting, the volumetrics, discount structure only benefits the bigger buyers	The volumetrics, discount structure should be structured differently

**Figure 5.1: Effective Policy Interventions for the South African Steel Industry**

**SOURCE: Author**

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## APPENDIX A: Semi-Structured Questionnaire

Participant Name: \_\_\_\_\_

Company Name: \_\_\_\_\_ Current Position: \_\_\_\_\_

Duration in current position: \_\_\_\_\_ Job Role: \_\_\_\_\_

### **SECTION A: PARTICIPANT BIOGRAPHICAL INFORMATION**

1. What is your gender?

Male	
Female	
Other/Refusal	

2. What is your age group?

Under 18 years	
18 – 28 years	
29 – 39 years	
40 – 50 years	
51 years and above	

3. What is your highest educational level reached?

Matric	
Certificate	
Diploma	

Under-Grad Degree	
Post-Graduate Degree	
None of the above	

4. How long have you been working in the steel industry?

0-5 years	
6-10 years	
11-15 years	
16-20 years	
21 years and more	

**SECTION B: INTERVIEW QUESTIONS**

1. How important do you think the steel industry is to the economy of South Africa?
2. With the current problems facing the steel industry in terms of the supply of Chinese steel imports, many jobs have been lost in the industry. Do you think there is scope for additional entrants in the steel industry?

***PROBE FOR ENTRANTS IN:***

- Distribution channels including storage and transport
  - Mini-mills
  - Technology innovations
  - Environmental sustainability (e.g. energy innovations, manufacturing innovations, etc.)
3. What will be the benefits to the South African steel industry from getting additional entrants in its distribution sub-sector?
  4. What do you think are the main barriers to entry for new entrants in the steel industry?

***If not mentioned, PROBE capital expenditure:***

- 4.1. How much does the high level of capital expenditure needed to establish a steel distribution business pose as a barrier to entry into the sub-sector?
- 4.2. How difficult is it to gain access finance?
5. What policy interventions would make it easier for new entrepreneurs to enter the steel industry?
6. Do you have any other comments or suggestions about the steel industry?



## **APPENDIX B: Invitation to Participate and Information Sheet**

15 SEPTEMBER 2017

Dear XXXX

I am a student undertaking a Masters of Commerce (MCOM) degree at the University of Cape Town – Graduate School of Business. As part of my course I am required to complete a mini research dissertation. The title of my dissertation is: **“An assessment of capital expenditure required to establish a steel distribution business, as a barrier to entry into the steel distribution industry.”**

The research requires that I interview individuals who are senior executives in the steel industry and I am requesting your assistance in this regard. Prior to undertaking this study, I need your consent to approach you and I hope to interview you as someone who is a senior executive in the sector and is highly knowledgeable about the sector.

I can assure you that the study will not disrupt your business activity in any way and any data collected will remain confidential. I have gained ethical approval for the study from the University of Cape Town and my research is supervised by Dr Badri Zolfaghari and Dr Abdul Latif Alhassan **both from the Graduate School of Business at the University of Cape Town.**

Yours sincerely,

Lithalethu Gqoboka

Contact email: lithalethu.gqoboka@gmail.com

Number: 0829217802

## **APPENDIX C: Participant Information Sheet**

**STUDY TITLE: An assessment of capital expenditure required to establish a steel distribution business, as a barrier to entry into the steel distribution industry**

I would like to invite you to take part in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you. Please take time to read why the research is being done. Ask questions if anything you read is not clear or if you would like more information. Take time to decide whether or not to take part.

**WHAT IS THE PURPOSE OF THE STUDY?**

The researcher aims to interview individuals who are senior executives in the South African steel industry. The main aim of this research is to understand how much the capital expenditure required to establish a steel distribution business poses as a barrier to entry for new business in the sub-sector and what policy interventions could ease this barrier for entrepreneurs and small enterprise development, in order to encourage entry into the value chain of the industry and contribute towards GDP growth and creating employment opportunities.

The research objectives are to:

- Understand the benefits to the South African steel industry of having more players in the distribution sub-sector
- Explore how the capital expenditure required for a start-up business in the steel distribution industry creates a barrier to entry
- Investigate what the government can do in terms of policy intervention to make it easier for entrepreneurs to enter the steel industry

#### **WHY HAVE I BEEN INVITED?**

The researcher believes you will be able to provide the most useful/relevant and valuable information required to conduct this study because you are a senior and seasoned executive in the South African steel industry.

#### **DO I HAVE TO TAKE PART?**

Participation is voluntary. It is up to you to decide. I will describe the study and go through the information sheet, which I will give to you. I will then ask you to sign a consent form to show you agree to take part. You are free to withdraw at any time during the interview.

#### **WHAT WILL HAPPEN IF I DECIDE TO PARTICIPATE?**

You will be interviewed by the researcher at a convenient location for you, and the interview will last for a maximum 45 minutes. The researcher will ask questions and gather data that will be analysed in order to answer the research objectives. Your responses will be audio-taped and the researcher will take notes during this interview session. Your consent will be needed for you to participate in this interview.

#### **ARE THERE ANY EXPENSES OR PAYMENTS?**

Participation in this research is voluntary and there will be no gifts or compensation.

### **WHAT WILL I HAVE TO DO?**

You will answer questions asked by the researcher in a 45-minute interview.

### **WHAT ARE THE POSSIBLE DISADVANTAGES AND RISKS OF TAKING PART?**

There are no major risks involved in taking part in this study. Your privacy and confidentiality of information will be guaranteed.

### **WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?**

The researcher cannot promise that the study will help you but the information gathered from the study will help to answer questions on barriers to entry into the steel industry.

### **WHAT IF THERE IS A PROBLEM?**

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do his best to answer your questions (Litha Gqoboka 0829217802).

### **WILL MY TAKING PART IN THIS STUDY BE KEPT CONFIDENTIAL?**

All information which is collected about you during the course of this research will be kept strictly confidential. Data will be collected through a face-to-face interview and this data will be kept in a secure environment. Hard paper and recorded data will be stored in a locked cabinet, accessed only by the researcher. Electronic data will be stored on a password protected computer known only by the researcher. The data will not be used for future studies. However, it will be retained for a minimum of 3 years and thereafter; it will be disposed of securely.

### **WHAT WILL HAPPEN IF I DON'T CARRY ON WITH THE STUDY?**

If you withdraw from the study all the information and data collected from you, to date, will be destroyed and your name removed from all the study files.

### **WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?**

The results of the research study will be reported in a dissertation report that will be submitted to the University of Cape Town in partial fulfilment of the degree of Master of Commerce (MCOM). However, you will not be identified in any report or publication unless you have given your consent.

### **WHO IS ORGANISING OR SPONSORING THIS RESEARCH?**

This research is privately sponsored by the researcher.

### **FURTHER INFORMATION AND CONTACT DETAILS:**

For any specific information about this research project, you can contact the researcher by phone on: 0829217802 or by email: litha lethu.gqoboka@gmail.com

## APPENDIX D: Research Participant Consent Form

**Title of Project:** An assessment of capital expenditure required to establish a steel distribution business, as a barrier to entry into the steel distribution industry”

**Name of Researcher:** Lithalethu Gqoboka

**Name of Supervisor:** Dr Badri Zolfaghari & Dr Abdul Latif Alhassan

*(Delete as appropriate)*

➤ I confirm that I have read and understood the information sheet for the above study and what my contribution will be	<b>Yes</b>	<b>No</b>	
➤ I have been given the opportunity to ask questions (face-to-face, via telephone and e-mail)	<b>Yes</b>	<b>No</b>	
➤ I agree to take part in the interview	<b>Yes</b>	<b>No</b>	<b>NA</b>
➤ I agree to the interview being voice recorded	<b>Yes</b>	<b>No</b>	<b>NA</b>
➤ I agree to digital images being taken during the research exercises	<b>Yes</b>	<b>No</b>	<b>NA</b>
➤ I understand that my participation is voluntary and that I can withdraw from the research at any time without giving any reason	<b>Yes</b>	<b>No</b>	
➤ I agree to take part in the above study	<b>Yes</b>	<b>No</b>	

**Name of participant:**

Signature:

Date:

Name of researcher: Lithalethu Gqoboka

Researcher's e-mail address: [lithalethu.gqoboka@gmail.com](mailto:lithalethu.gqoboka@gmail.com)

## APPENDIX E: Participant Details

Participant Number	Gender	Age Group (Years)	Highest level of education	Duration in Steel Industry	Current Position	Tenure in current Position	Job Role
1	Male	51+	MBA	16-20 years	Head of Business Development	4 years	Group Sales
2	Male	51+	Post Grad	21+ years	Group Chief Executive Officer	25 years	Strategy & Business Leadership
3	Male	29-39	Under Grad	11-15 years	Director: Operations	5 years	Production & Operations Leadership
4	Male	40-50	Under Grad	16-20 years	Head of Sales & Marketing	6 years	Sales & Marketing Leadership
5	Male	51+	Diploma	16-20 years	Technical Director	12 years	Production, Sales & Technical Leadership
6	Male	40-50	Post Grad	6-10 years	Group Financial Director	10 years	Head of Finance, Risk, HR & IT
7	Female	40-50	Diploma	16-20 years	Local Sales Manager	11 years	Head of all Local (South African) Sales
8	Male	40-50	Diploma	11-15 years	Chief Financial Officer	1 year	Head of Finance
9	Male	40-50	Post Grad	21+ years	Director: Operations	7 years	Sales, Production & Operations Head
10	Male	51+	Post Grad	21+ years	Managing Director	3 years	Sales, Production & Operations Head
11	Male	51+	MBA	21+ years	Managing Director	22 years	Sales, Production & Operations Head

