LIST OF ACRONYMS AND ABBREVIATIONS

AA	Accounting Authority
AGSA	Auditor General South Africa
AO	Accounting Officer
APICS	American Production and Inventory Control Society
AVE	Average value Extracted
BAC	Bid adjudication committee
B-BBEE	Broad-Based Black Economic Empowerment
BEE	Black Economic Empowerment
BEC	Bid evaluation committee
BSC	Bid specification committee
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CFPR	Collaborative planning, forecasting and replenishment
CFT	Cross Functional Team
CIDBA	Construction Industry Development Board
CIPS	Chartered Institute of Purchasing and Supply Chain
CPO	Chief Procurement Officer
CRM	Customer Relationship Management
CR	Composite Reliability
CSD	Centralised supplier database
CSM	Customer Service Management
CSCMP	Council of supply chain management professionals
CSO	Chief Supply Chain Officer
DSS	Decision Support System
DTI	Department of Trade and Industry
ED	Enterprise Development
EME	Emerging Medium Enterprise
EOI	Expression of Interest
ERP	Enterprise Resource Planning

ESD	Enterprise Supplier Development
GDP	Gross Domestic Product
GCC	General Conditions of Contract
ICT	Information communication technology
ISM	Institute of Supply Management
IT	Information technology
JBCC	Joint building contract committee
NEC	New engineering contract
NT	National Treasury
NTP	Net Profit After Tax
MRP	Materials Replenishment Planning
MBT	Market-Based Theory
LC	Local content
PBT	Practice-Based Theory
PFMA	Public Finance Management Act
PP	Preferential Procurement
PLS	Partial Least Squares
PPPFA	Preferential Procurement Policy Framework Act
PRASA	Passenger Rail Agency of South Africa
PRC	Presidential Review Committee
QSE	Qualifying Small Enterprise
RBV	Resource-Based View
RFI	Request for information
RFP	Request for proposal
RFQ	Request for quote
ROI	Return on investment
SBD	Standard Bidding Documents
SCI	Supply Chain Integration
SCM	Supply chain management
SCOR	Supply Chain Operations Reference

SD	Supplier Development
SLA	Service Level Agreement
SOE	State-Owned Entities
SOEPF	State-owned Entities Procurement Forum
SRM	Supplier Relationship Management
TCT	Transaction Cost Theory
www	World Wide Web

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CHAPTER 1:
INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

Supply chain management (SCM) has gained significant recognition as a key contributor to successful implementation of service delivery programmes in Government (Sanders, 2012:39; Bratić, 2011:2; Newsday, 2011). There is also an increased focus in Government to deliver value to the citizenry and customers (Sukati, Hamid, Baharun & Tat, 2012:166). The South African Government provides its service delivery programmes through various entities, referred to as State-Owned Entities (SOEs), that are responsible for developing strategic sectors such as energy, transport, telecommunication, logistics, and manufacturing (PRC, 2013:13). This responsibility requires enormous financial investment, thus making the SOEs the largest buyer in the economy. According to the National Treasury (2012:16) and Fourie (2014:34), by 2020, the South African Government will have invested approximately R3,2 trillion in essential services such as water, transport, electricity and housing, and other large-scale projects. The SOEs implement the service delivery projects through the public SCM system.

With this magnitude of purchasing power, SOEs through their SCM, have a significant role to play in increasing their contribution to South Africa's gross domestic product (GDP), reduction of operational costs, improved quality and a range of socioeconomic goals (Accenture, 2010:1). To achieve these goals, the SCM Managers in the various SOEs must ensure that in developing their SCM strategies, these strategies are aligned with the SOEs' corporate strategies, as well as the Government's policies and regulations governing SCM (Baier, Hartmann & Moser, 2008:40; Pienaar & Vogt, 2012:35; Nkonge & Ngugi, 2014).

Since 1994, the South African Government has invested great efforts in developing SCM policies, regulations and guidelines, which have since undergone several reforms. In 2004, Government introduced an integrated SCM model which was aimed at addressing the challenges and gaps originating from the original procurement policies and practices (Mkhize, 2004:3). The integrated SCM model applies to all Government departments and its entities, thus making it compulsory for SOEs to

comply with the Government's integrated SCM system, as well as the relevant Government policies and regulations, when sourcing for service delivery projects (National Treasury, 2015:7).

According to George (2010:147), SOE compliance with SCM policies and regulations will positively contribute towards Government's socioeconomic objectives, transformation goals, development goals and excellent service delivery. Therefore, SOEs must ensure that their SCM practices are aligned with the SCM policies and regulations, so that each activity in the SCM supports the strategic goals of the organisation. The term 'SCM practices', according to Ibrahim and Hamid (2014:187), refers to a complete set of actions aimed towards the improvement of SCM performance. This means that SCM practices that are aligned with corporate strategy, supply chain strategy, and SCM policies and regulations will positively contribute to the SCM performance of the organisation. In effect, the SCM performance in an SOE is measured through the compliance to policies and regulations, cost reduction, on-time delivery, risk management and quality.

Despite the strategic importance of SCM in SOEs, a substantial misalignment is found between their supply chain strategy, SCM policies and regulations and SCM practices. This misalignment negatively impacts the SCM performance, consequently resulting in control weaknesses, poor compliance, poor policy implementation and missed transformation targets (Boateng, 2009:1; Liebenberg, 2012:2; The Presidency, 2012:39). The misalignment has also caused major delays in the implementation of service delivery projects and poor performance within the SOE environment (Basheka, 2010:135). As indicated by Fisher (1997:106), strategy misalignment in an organisation is the main cause of all problems in SCM. Mitra and Bhardwaj (2010:50) further cautioned that the misalignment between organisational strategies can lead to poor SCM practices, and consequently, poor performance of SOEs, thereby impacting service delivery.

Due to poor service deliver, there have been more service delivery protests, reports of corruption, fraudulent activities, collusion, fronting, bribery and the maladministration of public money. There is therefore pressure on Government and SOEs alike to improve their operational efficiencies and service delivery (National Treasury, 2015a:15). The study, therefore, examines the alignment of SCM practices with SCM policies and regulations to enhance the performance in SOEs. The study

also aims to propose a framework for the effective the implementation of SCM in SOEs in South Africa.

1.2 CONCEPTUALISATION OF THE STUDY

This section discusses the background to the study and provides an overview of SCM definitions, followed by a discussion of the implementation of SCM strategies, compliance to SCM policies and regulations, SCM practices, SCM performance indicators, as well as SCM challenges in SOEs.

1.2.1 Definitions of Supply Chain Management

There are various definitions of SCM in literature. According to Mentzer, De Wet, Keebler, Min, Nix, Smith and Zachariah (2004:549), SCM is:

> *the systematic, strategic coordination of the traditional business function and the tactics across these business functions within a particular company and across business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individuals' companies and the supply chain.*

Davis and Heineke (2005:104) assert that SCM is a long-term relationship between a firm, its suppliers and customers, to ensure the timely delivery of goods and services, competitively priced. Fazbakhsh, Spehnl and Razzazi (2009:27) defined SCM as a collection of suppliers, manufacturers, distributors and retailers, along with all their interrelationships. Monczka, Handfield, Giunipero, Patterson and Waters (2012:10) defined SCM as "managing a two-way movement and coordination of goods, services, information and money from raw materials through end-users".

The Council of SCM Professionals (2013) stated that SCM:

> *encompasses the planning and management of all activities involved in sourcing and procurement, conversion and all Logistics Management activities. Importantly SCM also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers and customers.*

Considering the definitions presented above, it is evident that there are diverse views in literature on SCM. This could be due to the authors' institutional backgrounds, which include purchasing, logistics, distribution, transport, and marketing. These diverse views led to SCM being practised differently across organisations, industries and sectors, both in the public and private sectors alike (Stock & Boyer, 2009:691; Mentzer *et al.*, 2004:549).

The following sections provide a brief overview of the implementation of supply chain strategy, Government policies and regulations, SCM practices and SCM performance in SOEs.

1.2.2 An overview of state-owned entities in South Africa

The term 'state-owned entities' (SOEs) is a generic term used to denote all types of commercial and non-commercial Government entities in a country. In South Africa, SOEs span several industries, including utilities, transportation, and technology. There are currently about 715 SOEs in South Africa (Accenture, 2010:1; PRC, 2013:53). The Public Finance Management Act (PFMA, Act 1 of 1999) lists approximately 299 SOEs classified under the following schedules:

- Schedule 1: Constitutional,
- Schedule 2: Major Public Entities,
- Schedule 3A: National Public entities,
- Schedule 3B: National Government Business Enterprises,
- Schedule 3C: Provincial Public Entities and
- Schedule 3D: Provincial Government Business Enterprises (PFMA, 1999).

The schedule classification is used extensively by the South African Government, primarily for financial management and for the purposes of the Public Financial Management Act of 1999 (PFMA). The role of SOEs is aimed at ensuring that basic services are offered on behalf of the state in an efficient and effective manner (Wendy Ovens and Associates, 2013:3).

This mega role requires of SOEs to take a strategic approach with regards to SCM. Additionally, SOEs need to leverage their purchasing power, and move away from traditional procurement by adopting a more strategic approach to SCM.

1.2.3 Supply chain strategies in SOEs in South Africa

Strategic SCM focuses on aligning SCM strategies with the SOE mandate and corporate strategy and objectives, while ensuring that every single activity in SCM contributes to achieving the objectives of the SOEs and Government imperatives. Therefore, the corporate objectives in SOEs should be understood within the context of the SOE mandate, whereas the SCM objectives and strategies should be understood within the context of fulfilling the socioeconomic objectives. Supply chain strategies are not a 'one size fits all' but vary from one business environment to another (Ambe, 2012).

The right supply chain strategy requires the integration of several supply networks linked through the organisational structure, a common back-office infrastructure, and common ways of working (Uniliver, 2010:2). Mitra and Bhardwa (2010:50) asserted that the misalignment of the supply chain strategy can lead to poor SCM performance, and consequently, business failure.

Globally, the majority of SOEs often have significant gaps between their highest level of corporate strategy and their supply chain strategy. KPMG's (2012) global survey revealed that several SCM functions still do not operate at a strategic level within the context of their wider organisations. They are neither recognised, nor are they performing as a true partner in the business. As indicated by Cousins (2005:421), such misalignment derails service delivery and transformational agendas, and consequently the SCM and organisational performance (Green Paper, 1997:39). For SCM strategies to positively impact SCM performance, the strategy must be aligned with the Government SCM policies and regulations and be implemented within the ambit of such laws.

1.2.4 SCM policies and regulations in SOEs in South Africa

The public sector SCM in South Africa is highly regulated, as this is perceived as a way of enhancing transparency, accountability, economy and integrity in the use of public money (Owuoth & Mwangangi, 2015:2). Compliance with SCM policies and regulations is obligatory, as it strengthens control measures and reduces corruption and maladministration. There are more than 80 pieces of legislations affecting SCM (National Treasury, 2015:10). Government SCM in South Africa is embedded in

Section 217 of the Constitution, is required to be fair, equitable, transparent, competitive and cost-effective. This Constitutional requirement is reverberated in section 51 (1) (a) of the PFMA, which states that an accounting authority for, amongst others, a national or provincial department or public entity "must ensure that their institution or entity has, and maintains an appropriate procurement and provisioning system, which is fair, equitable, transparent, competitive and cost-effective".

As public procurement constitutes a major economic activity for all SOEs, regulations are a sensitive component of a country's legal framework, and an essential supplement to public finance legislation. In addition to the legislative framework for Government SCM, the National Treasury releases SCM guidelines for accounting officers, and from time to time issues practice notes and circulars that guide the implementation of SCM in all spheres of Government. Ambe and Badenhorst-Weiss (2012) assert that "National Treasury regulations reinforce the provisions of the PFMA, finalise the decentralisation of the SCM function to the accounting officer, and formalise the integration of various functions into a single SCM function".

The Auditor General's reports on SCM indicate that there are low levels of compliance with the SCM legal framework, in government and its entities. This has resulted in a substantial gap between the Government's SCM practices and those intended in its policy strategy document (National Treasury, 2015:10). In addition, the SCM legislations and circulars are met with great resistance by SOEs. This resistance is caused by their lack of flexibility, and due to SOEs needing fast track their projects to generate revenue. These legislations and circulars do not inspire procurement negotiations with suppliers, and neither do they allow for innovation, due to these complexities, they have created an administrative nightmare and red tapes (Van Weele, 2016:391).

The following policies and regulations were considered for this study, the Constitution, Public Finance Management Act (PFMA), Preferential Procurement Policy Framework Act (PPPFA), Construction Industry Development Board (CIDB) and Broad-based Black Economic Empowerment Act (BBBEEA). These laws are the crucial drivers of SCM practices in SOEs.

1.2.5 SCM practices in SOEs in South Africa

As the business hub of Government, SOEs consider some of the more widely advocated SCM practices (National Treasury, 2015:7). As indicated by various scholars, such as Karimi and Rafiee (2013), Inda, Hamid, Tat and Said (2012), Chin, Hamidi, Rasli and Baharun (2012), Gharakhani, Mavi and Hamidi (2012), and Koh, Demirbag, Baryraktar, Tatoglu and Zaim (2007), some of the key SCM practices reviewed in this study include customer relationships, strategic sourcing, enterprise and supplier development, the strategic supplier relationship and contract management, cross-functional teams, workforce and structure, information technology and supply chain integration.

The first SCM practice to be discussed is customer relationship management (CRM). Every activity of SCM revolves around customers, their needs and customer satisfaction (Karimi & Rafiee, 2013; Durga, Venkata & Rao, 2012). CRM in SOEs is managed both internally and externally. The SCM department sources goods and services on behalf of other departments and requires other departments to participate in various SCM activities. One of the SCM activities which requires the participation of other crucial departments is cross-functional teams, which may include specialists from user departments and buyers, who are put together in teams to develop specific sourcing and commodity strategies and plans (Van Weele, 2016:365).

As prescribed by the National Treasury, the SOEs' cross-functional teams should include a Bid Specification Committee, Bid Evaluation Committee and Bid Adjudication Committee. These committees are appointed on an annual basis to deal with transactions above R500 000.00. The workforce and structure refer to the team responsible for the implementation of an SCM model and structure. Competent, objective and impartial individuals are crucial to successful SCM (National Treasury, 2015:51; Bowersox, Closs and Cooper**,**2007:54; Mentzer, 2004:549).

Cross-functional teams are a part of the strategic sourcing approach. Strategic sourcing can be defined as satisfying business needs from markets through the proactive and planned analysis of supply markets, and the selection of suppliers, with the objective of delivering solutions to meet pre-determined and agreed-upon business needs (CIPS, 2014:1).

The strategic sourcing process assists managers to optimise their supplier base, leverage bulk purchases to achieve economies of scale, obtain value for money, and subsequently, reduce costs. Except for a few SOEs, such as Eskom, Telkom and Transnet, strategic sourcing in SOEs in South Africa is still at an immature stage (Africa Vukani, 2012; Accenture, 2010).

Strategic sourcing can be used to execute BBBEE programmes such as enterprise and supplier development (ESD). ESD within the context of the B- BBEE scorecard is defined as a programme of developing small and medium enterprises, called beneficiaries, by investing time, money and capital to contribute to the development, sustainability, financial independence and operational independence of those beneficiaries. SOEs have an obligation to develop suppliers and participate in enterprise development (Accenture, 2010:3). The development of suppliers and enterprises require a strategic approach.

The strategic supplier relationship and contract management are designed to leverage the strategic and operational capabilities of individual participating organisations to assist them in achieving significant ongoing benefits (Li, Ragu-Nathan & Subba Rao, 2006:109). Strategic supplier relationship and contract management are the means employed by purchasing organisations to forge a productive partnership with suppliers.

In the realm of SCM, information technology (IT) is regarded as a major enabler for achieving effective SCM (Gharakhani *et al.*, 2012:5941). The implementation of effective IT systems allows organisations to increase the communication and coordination of various value-adding activities with their partners, as well as between functions within their operations.

Supply chain integration (SCI) is described as an attempt to elevate the linkages within each component of the chain, in order to facilitate improve decision-making, and to get all the pieces of the chain to interact in a more efficient way, thereby creating supply chain visibility and identifying bottlenecks (Tan, Lyman & Wisner, 2002; Min & Mentzer, 2004:549).

According to Flynn *et al.* (2010a), SCI aims to achieve the effective and efficient flow of information, products and services, resources and cash, to provide maximum value to the customer at low cost and high speed. According to Boon-itt and Wong

(2011:254), SCI involves collaboration across functional departments, suppliers and customers to arrive at mutually acceptable outcomes. Table 1.1 provides a summary of all the SCM practices.

Table 1.1: Author (s) and their contribution to SCM practices in an SOE environment

SCM practices	Author (s)
Customer relationship	Inda *et al.* (2012), Chin *et al.* (2012), Karimi and Rafiee (2013)
Strategic sourcing	Narasimhan and Das (2001), Donlon (1996)
Enterprise and supplier development	Pooe (2016), Codes of good practice (2016)
Strategic supplier relationships	Li *et al.* (2006), Accenture (2010), Robb, Xie and Arthnari (2008), Jabbour *et al.* (2011), Karimi and Rafiee (2014)
Cross-functional teams	Pagell (2004), Trent and Monzka (2012), Foerstl, Hartmann, Winstra and Moser (2013)
Workforce and structure	Guinipero, Handfield and Eltantawy. (2006), Foerstl et al. (2013), National Treasury (2015)
Information Technology	Giménez and Lourenco (2008), Cook and Heiser (2009), Karimi and Rafiee (2014), Mikalef, Patelia, Batenburg and Wetering (2014)
Supply Chain Integration	Tan *et al.* (2002), Min and Mentzer (2004) Rhamadani (2008), Halley and Beaulieu (2010), Flynn *et al.* (2010a).

Source: Own compilation

Table 1.1 provided an overview of a range of SCM practices as identified by various authors. The following section looks at the performance indicators of SCM in SOEs.

1.2.6 SCM performance in SOEs in South Africa

In SOEs, the SCM performance can be evaluated at two levels. The first level involves the achievement of their strategic objectives, and the second level involves the contribution of the SOEs to the state's developmental and transformational agendas (PRC, 2013b:139). The first level of evaluation speaks to the alignment of SCM strategies with the strategic objectives and the corporate strategy of the SOE. It evaluates how well the SOE's SCM complies to the SCM policies and regulations as well as the SOE's own SCM policy. It also evaluates the quality of goods and services, total costs incurred, on-time delivery of the goods and services, and risk management.

These five elements are referred to as key performance indicators. Success in these five different indicators is translated into successful supply chain performance. SCM performance measures therefore serve as an indicator of how well the supply chain (SC) system is functioning. Measuring SCM performance can facilitate a greater understanding of SCM and improve its performance (Taghipour, Bagheri, Khodarezaei & Farid, 2015:15).

The SCM performance evaluation system represents a formal systematic approach to monitor and evaluate SCM performance within an organisation. A supply chain performance measurement and management system ought to directly support the corporate goals and objectives. A well-developed performance management system helps management to distinguish between good or bad SCM practices and results (Monzka *et al.*, 2012:656). SOEs use tools such as supply chain operations, the Reference (SCOR) model, and balanced score cards to measure and monitor the SCM performance.

The implementation of supply chain strategy, SCM policies and regulations, and SCM practices and implementation in SOEs can bring about numerous challenges, as discussed in the next section.

1.2.7 Challenges in SCM in SOEs in South Africa

SOEs are expected to run their operations like ‘businesses’, generate revenue and be self-sustainable in the future. This creates a conflict between the SOEs’ commercial interests and the country’s socioeconomic policies (Thai, 2009:5; Callender & Matthews, 2009:10). When procuring for their service delivery projects, SOEs are expected to comply with policies and regulations governing the SCM system of the country, and at the same time to derive value for money and cost-effectiveness.

The SOEs encounter several SCM challenges in the implementation of a fully functional and seamless public sector SCM model (Liebenberg, 2012:2), as reflected in Table 1.2 .

As the table reveals, there are several challenges affecting the implementation of SCM in SOEs. Despite the progress that has been made thus far concerning the economic transformation, as seen in various SOEs, serious weaknesses still persist in SCM (Mwangangi & Owuoth, 2015:3).

Table 1.2: SCM challenges facing SOEs

Challenge	Author (s)
Fragmentation of laws	National Treasury (2015), Jones (2007), Mofokeng (2012), Tukuta and Saruchera (2015)
Non-compliance with SCM regulations, policies and processes	Matthee (2006), Van Zyl (2006), Ambe and Badenhorst-Weiss (2012), Kiage (2013), Uromi (2014), National Treasury (2015)
Poor implementation of contract management	Accenture (2010)
Misalignment of strategic sourcing and SCM policies and regulations	Liebenberg (2012), Accenture (2010)
Inadequate planning and the linking of demand to the budget	Tsei-tseimou(2016), Wanyama (2010), Ambe and Badenhorst-Weiss (2012), Hunja (2009), Uromi (2014)
Fraud, corruption and high rise of irregular and fruitless expenditure	Tsei-tseimou (2016), National Treasury (2015), Uromi (2014), Mahmood (2010)
Inadequate monitoring and evaluation of SCM performance	Tsei-tseimou (2016), National Treasury (2015)
Ineffectiveness of the black economic empowerment (BEE) policy	Ambe and Badenhorst-Weiss (2012), National Treasury (2015), Africa Vukani (2012)
Lack of sufficiently skilled SCM workforce	Ambe and Badenhorst-Weiss (2012), Mobu (2011), National Treasury (2015)

Source: Own compilation

As listed in the table above, the challenges in SCM include fragmentation of laws in SOEs, poor compliance with SCM regulations, policies and processes, poor contract management, the misalignment of strategic sourcing with SCM policies and regulations, inadequate planning and linking of demand to the budget, fraud and corruption, inadequate monitoring and evaluation of SCM, ineffectiveness of BEE policies and the lack of a sufficiently skilled workforce (National Treasury, 2015:11). These challenges in SCM have a significant impact on the implementation of SCM in SOEs, and therefore on the SCM performance in SOEs.

1.3 PROBLEM STATEMENT

The importance of SCM for public sector organisations cannot be overemphasised, as it has a significant impact on service delivery (Roodhooft & Abbeele, 2006; World Bank, 2004; Mwangangi and Owuoth, 2015:2). In an SOE environment, SCM is critical

for the delivery of services and the contribution it makes towards the socioeconomic objectives in South Africa (Mofokeng, 2012). Tshamaano (2012) asserts SCM plays a significant role in the enhancement of South Africa's economy and is central to Government service delivery.

For SCM to contribute positively towards Government imperatives, there needs to be an alignment between Government SCM policies and regulations and the SCM practices (PRC, 2013a:31). As indicated by Liebenberg (2012:2) and the National Treasury (2015a:10) there is a substantial gap between the SOEs' supply chain strategy and practices and those envisioned in Government SCM policies and regulations, thereby resulting in a misalignment. This misalignment has resulted in a backlog in SOEs' transformation targets, service delivery and the general performance of the SOEs (PRC, 2013:30). The misalignment has also led to failures in governance, and poor compliance with Government policies and regulations (PRC, 2013:31).

According to National Treasury (2015:15), poor compliance with SCM policies and regulations leads to fraudulent activities such as tender irregularities, corruption, fruitless expenditure, the misuse of taxpayers' money, unauthorised expenditures, and the general poor performance of SOEs. Since the introduction of SCM in the South African Government in 2004, several studies by scholars, such as Migiro and Ambe (2008), Van Zyl (2006), Ambe and Badenhorst-Weiss (2012), Tshamaano (2012), Naidoo (2016), and Maleka (2016), have been conducted. However, none of these studies were conducted within an SOE environment. The few studies that were conducted on the alignment of SCM practices and policies, focused on the private sector, therefore indicating that there was a knowledge gap.

This study therefore aims to examine the alignment of SCM practices with policies and regulations to enhance performance in SOEs. The study also aims to propose a framework for the effective implementation of SCM in SOEs in South Africa.

In line with the problem stated above, the main research question for this study can be stated as follows:

To what extent are the SCM practices aligned with policies and regulations to enhance SOE performance?

To answer the main research question, the following **secondary research questions** need to be answered:

1. What are the success factors for the implementation of supply chain strategy in SOEs in South Africa?
2. To what extent are SCM practices implemented in SOEs in South Africa?
3. To what extent do SOEs in South Africa comply with SCM policies and regulations?
4. What are the key performance indicators for SCM in SOEs in South Africa?
5. What are the challenges impacting the implementation of SCM in SOEs in South Africa?
6. What is the impact of the relationship between supply chain strategy, policies and regulations, and SCM practices on SCM performance in SOEs in South Africa?

1.4 RESEARCH OBJECTIVES

The main purpose of the study was to examine the alignment of SCM practices with SCM policies and regulations to enhance the performance in SOEs.

To achieve the main objective, the following **secondary research objectives** need to be achieved:

1. To assess the success factors for implementing SCM strategy in SOEs in South Africa.
2. To assess the implementation of SCM practices in SOEs in South Africa.
3. To assess the extent of the compliance of SOEs to SCM policies and regulations.
4. To assess key SCM performance indicators in SOEs.
5. To assess the challenges impacting the implementation of SCM in SOEs.
6. To determine the impact of the relationship between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs in South Africa.
7. To develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices to enhance SCM performance.

To answer the secondary research objectives, the following hypotheses, as listed in Table 1.3, were formulated:

Table 1.3: Hypotheses

No	Null hypothesis	No	Positive hypothesis
Ho1:	There is no positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs.	H1	There is a positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices, and SCM performance in SOEs.
Ho2:	There is no positive and significant relationship between SCM policies and regulations with supply chain strategy in SOEs.	H2	There is a positive and significant relationship between SCM policies and regulations, and supply chain strategy in SOEs.
Ho3:	There is no positive and significant relationship between SCM policies and regulations with SCM practices.	H3	There is a positive and significant relationship between SCM policies and regulations, and SCM practices.
Ho4:	Supply chain strategy and SCM practices do not predict SCM performance.	H4	Supply chain strategy and SCM practices predict SCM performance.
Ho5:	Supply chain strategy and SCM policies and regulations do not predict SCM performance.	H5	Supply chain strategy and SCM policies and regulations predict SCM performance.

Source: Own compilation

1.5 RESEARCH DESIGN AND METHODOLOGY

This section of the chapter discusses the research design and methodology employed in the study. The research design can be defined as the master plan that specifies the methods and procedures for collecting and analysing the needed information (Zikmund, Babin, Carr & Griffin, 2012:66). The following sections discuss the process that was followed in the empirical study:

1.5.1 Research design

A research design is “a master plan that specifies the methods and procedures for collecting and analysing the needed information” (Zikmund *et al.*, 2012:66). There are three types of research design, namely, quantitative, qualitative and mixed-method designs (Saunders, Lewis & Thornhill, 2012:170). A quantitative research design was selected for this study.

Quantitative research is described as a research approach that entails the collection of numerical data, regards the relationship between theory and research as deductive, prefers a natural science approach in general, and adopts an objectivist conception of social reality (Zikmund *et al.*, 2012:134). Quantitative design also clearly illustrate the structure of the object under study, spells out its apparent behaviour, and the attitude to pre-arranged objects (Aluko, 2006:198).

Quantitative methods are ideal for measuring obvious behaviour, and they effectively measure descriptive aspects. Moreover, they allow for effective comparison and replication, and the objective assessment of reliability and validity, whilst at the same time, providing statistical evidence. Although quantitative methods fail to determine the deeper underlying explanations and meanings of a social phenomenon, they adequately measure the variables under study, and their pertinence through a thorough explanation (Aluko, 2006:198).

1.5.2 Research strategy

The research strategy is defined as a plan that the researcher uses to answer the research question (Saunders *et al.,* 2012:173). The various types of research strategies include the following: experiment, survey, case study, action research, grounded theory, ethnography, and archival research. A survey was selected as the appropriate research strategy for this study.

Survey research is meant to assist the researcher in answering the questions why, when, what and where, and the responses are used to describe situations and other phenomena (Clow & James, 2014:162). The use of the survey method was justified by the fact that the sample size was large, with 300 supply chain managers participating in the study, and taking into consideration that the population was geographically scattered. Saunders *et al.* (2012:177) endorsed the survey as an effective strategy for the efficient collection of standardised data from a larger population.

1.5.3 Target population

A population is the collection of people, objects or individuals who are potential participants in the research study (Saunders *et al.,* 2012)

The population for this research study comprised of senior SOEs SCM practitioners in Gauteng, who are members of the State-Owned Entities Procurement Forum (SOEPF). According to PFMA, there are 299 SOEs in South Africa, of which 63 SOEs are affiliated with SOEPF. There are 3 005 SCM practitioners in the SOEs that are affiliated with SOEPF. The SOEPF was chosen because it is the only procurement forum recognised by the South African Government.

1.5.4 Sampling frame

The term 'sampling frame' refers to a list of members of the population who will be used for creating of sample, and it may include individuals and or participating organisations (Cooper & Schindler, 2011:188; Zikmund *et al.,* 2012:391). In this study, 300 supply chain and procurement managers who are affiliated with SOEPF, constituted this study's sampling frame.

1.5.2 Sampling size

Sample size is a function of change in the population parameters under study, and the estimation of the quantity needed by the researcher (McDaniel & Gates, 2010:335). Generally, larger samples result in more precise and robust statistical findings, whilst smaller samples result in less precise and more unreliable findings (Saunders *et al.,* 2012:209). The determination of the final sample size involves judgement, especially when employing convenience sampling and random sampling. In this study, simple random probability was employed to obtain a sample size of 300 supply chain/procurement managers who are registered members on the SOEPF database.

1.6 SAMPLING METHOD

Sampling is defined as the process of choosing representative of the elements of the population, to enable the researcher to draw certain conclusions about the population (Saunders *et al,* 2012). Hair *et al.* (2014:113) identified two types of sampling methods, namely, probability and nonprobability sampling. For this study a random sampling method was used. Thus, the 3 005 persons with the title of Supply Chain Manager, Senior Manager Supply Chain, Executive Manager Supply Chain, Head of SCM and Chief Procurement Officer (CPO) on the SOEPF database were selected using simple random sampling method (Aaker, Kumar & Day, 2011:764).

1.6.1 Data collection technique

A structured questionnaire was designed, based on various instruments which were used in other studies (operationalisation and item measurement section). Majority of the questions in the research questionnaire were evaluated using a 5-point Likert scale questions ranging from 1= “strongly disagree” to 5 = “strongly agree”. The scale was premised from the view that each statement on the questionnaire has equal weight (McDaniel & Gates, 2010:335). The questionnaire was divided into five sections, consisting of the following: items that represented the four constructs, namely, (1) supply chain strategy, (2) SCM policies and regulations, (3) SCM practices, and (4) SCM performance. It also incorporated the demographic profiles of the participants. The questionnaires were converted into a format suitable for use on SurveyMonkey, a free internet-based survey platform. Follow-ups were sent via emails to achieve a higher response rate.

1.6.2 Data analysis

The data analysis process involves consideration and interpretation of collected data through the coding and grouping of concepts and themes for the researcher to be able to identify crucial themes in the data (Quinlan, 2011:425). This section focused on the statistical procedures applied in the study. The collected raw data was coded and thereafter cleaned using MS Excel spread sheets thereafter captured into the SPSS for further analysis.

1.6.2.1 Statistical approach

The responses obtained for demographic profiles were analysed using frequency distribution, using graphical methods such as pie charts and bar charts. After the construction, a frequency distribution and numerical measures were used to determine the central location and variability of the interval data. Descriptive analysis was conducted using the SPSS software. The crucial variables, namely, supply chain strategy, SCM practices, SCM policies and regulations, SCM performance and SCM challenges were analysed using the mean, standard deviation, skewness and kurtosis. To determine the relationship between the dependent (SCM performance) and independent variables (supply chain strategy, SCM practices, SCM policies and regulations) a Pearson correlation coefficient analysis was applied. This was done to ensure that there is minimal collinearity. Hierarchical regression was used to

determine the relationships between the independent and dependent variables, and the Partial Least Square Structural Equation Modelling was discussed.

1.6.2.2 Structural modelling

To validate the relationships between independent and dependent variables, a Partial Least Squares (PLS) analysis was applied. The Smart PLS structural model is a combination of path analysis, regression analysis, and principal component analysis techniques to evaluate theory simultaneously (Vinzi, Trinchera & Amato, 2010:47). The evaluation of the model followed a two-step approach. The first stage evaluated the measurement model by investigating the reliability and the convergent and discriminant validity of the constructs. The second stage involved evaluating the structural model by testing the significance of the relationship between the model constructs.

1.6.2.3 Hypotheses testing and validation

Research hypotheses were tested using a path analysis and to indicate the path coefficient and significance levels of the posited linear relationships between the research constructs. A multiple regression analysis and the SEM (Structural Equation Modelling) were also carried using SPSS 21 to compare the strength of the test results of the hypotheses.

1.6.2.4 Reliability and validity of the measurement instrument

Reliability is described as the extent to which the measuring instrument is able to achieve what it was designed for (Iacobucci & Churchill, 2010:258). The Cronbach's Alpha, the composite reliability (CR) and average value extracted (AVE) were used for measuring the reliability. The results were interpreted and supported with the literature. The data was analysed descriptively using SPSS version 21.0 and the results were presented in the form of graphs and tables. The Smart PLS 2.0 M3 was used for Structural Equation Modelling (SEM).

Validity is described as the extent to which the measuring instrument can be trusted to produce true reflection of the differences between objects on the characteristics being measured (Cant, Gebber-Nel, Nel, & Kotze, 2003:235). Validity can be categorised into two namely: convergent and discriminant validity. In this study, convergent validity was measured using correlation, AVE values and factor loadings.

Discriminant validity was measured using the Shared Variance and the Inter-Construct Correlation Matrix.

1.7 RATIONALE FOR THE STUDY

This study is deemed to be significant to SOEs in South Africa in the following ways:

- Supply chain management challenges have been identified by various reports on South African SOEs, which indicate that this study can contribute towards improving the situation.
- This study highlighted the strategic role that SCM plays in SOEs.
- A conceptual framework was developed which SOEs can use to improve inefficiencies in SCM.

1.8 SCOPE OF THE STUDY

The focus of this study was on the supply chain strategy, SCM practices, SCM policies and regulations, and the SCM performance in SOEs. According to the PFMA (1999), it is estimated that there are 299 SOEs in South Africa. These SOEs are classified under Schedules 2, 3A, 3B, 3C and 3D (see Section 1.5.2). Due to the scope and complexity of SOEs' SCM and the important role that they play in the economy, it was decided that this study would focus on SOEs that are registered with SOEPF. This means that the study was done from the business enterprise perspective. Because of the nature of public SCM, several challenges in SCM will originate from the policies and legislations governing SCM.

This research was interested in:

- measuring the relationship between supply chain strategy (independent variable), supply chain policies and regulations (independent variable), and supply chain practices (independent variable), and supply chain performance (dependent variable);
- measuring the extent to which SCM strategy, SCM policies and regulations, and SCM practices can predict SCM performance;

1.9 CHAPTER OUTLINE

This study comprises of seven chapters.

CHAPTER 1: Introduction to the study. This chapter provides the background and overview of the study. The chapter provides a brief introduction of key concepts in SCM, definitions and summary of the SCM practices. The problem statement is formulated followed by the primary as well as secondary objectives of the study. The chapter paints a picture of how the study will be carried out.

CHAPTER 2: Supply Chain Management perspectives. This chapter provides the landscape of SCM in general business environment. More definitions of SCM are explored, and the SCM enablers and key processes are discussed. The chapter also reflect on SCM key performance areas. In addition, the chapter will examine the critical role played by SCM in businesses and its contribution to the competitive advantage.

CHAPTER 3: SCM in South African SOEs. This chapter discusses SCM practices in SOEs in South Africa. The chapter further provides an in-depth description and definition of SCM in a public sector environment and the SCM role in SOEs. The chapter also discusses the key legislations governing SCM and their impact. The chapter explores the topic on evolution of SCM in the public sector and its development from administrative level to one that is strategic. The chapter also discuss the challenges facing SOEs as far as the implementation of the SCM legislation is concerned.

CHAPTER 4: Instruments for aligning SCM practices. This chapter develops a conceptual framework for the implementation of supply chain strategy, SCM policy and regulations, and SCM practices to enhance SCM performance, and consequently, service delivery.

CHAPTER 5: Research methodology. This chapter discusses the research methodology that will be applied to this study. It further explains the research design, research strategy, research paradigm, sampling techniques, and population. The data collection and analysis methods used in the study are discussed.

CHAPTER 6: Data analysis and interpretation of results. This chapter looks critically and in detail at the transcribed research data. Themes from the raw data are

coded into main themes and subthemes and classified for further analysis and interpretation.

CHAPTER 7: Conclusions and recommendations. This chapter will provide a summary of the study and make recommendations supported by literature, primary and secondary data collected throughout the study. The chapter will revisit the research objectives to determine whether they were achieved. The recommendations from the study and the main objective of the study, namely, to develop a framework for SOEs' SCM, are also presented.

CHAPTER 2:
SUPPLY CHAIN MANAGEMENT PERSPECTIVES

2.1 INTRODUCTION

Chapter 1 provided an orientation for the study and briefly provided an overview of SCM in both the private and public-sector environment, both globally and in South Africa. In addition, the concept of SCM was briefly discussed, and various definitions of SCM were explored. This was followed by an overview of SCM in SOEs, SCM practices and challenges in SOEs in South Africa, and an analysis of the policies and regulations affecting SCM in SOEs. The chapter also provided the scope of the study, outlined the problem statement, and the primary and secondary objectives and research methodology to be followed.

The overview presented in Chapter 1 made it evident that SCM plays a crucial role in an organisation's competitive advantage. The discussion on the alignment of SCM practices with SCM policies and regulations revealed the importance of strategic alignment in an organisation and in SOEs. It is assumed that the alignment of SCM practices with policies and regulations will contribute to the performance of SCM in SOEs, and consequently, improve service delivery. The chapter concluded with an outline of all the subsequent sections of the thesis.

Chapter 2 presents a broader overview on the concept of SCM in a business environment and further explores the definitions in much more detail. The chapter deals with crucial business principles that drive supply chain and the competitive advantage. The chapter begins by providing a broad overview of SCM in the business context and the various definition and further delve into strategic objectives of SCM, the strategic role of SCM in an organisation; the historical development of SCM, and the management of supply chain performance excellence. The chapter discusses how SCM principles can contribute towards the competitive advantage of the organisation. The drivers of SCM performance are discussed as well as the techniques to link SCM with an organisation's strategy. The chapter concludes with a summary of the elements discussed in this chapter.

2.2 OVERVIEW OF SUPPLY CHAIN MANAGEMENT

Business organisations in the 20th century, regardless of their geographic locations, are operating in a global space. Products made in one corner of the world can navigate a complex web of international trade regulations and domestic operations, to end up in another corner of the world quickly and seamlessly (Drake, 2012:1). International trade and relations between trading countries have made it possible for business organisations to create enormous global supply chain networks consisting of manufacturers, wholesalers, retailers, distributors and consumers all over the world. Business organisations therefore have a huge responsibility to manage and maintain the relationships with their supply chain partners. Businesses, since they are all operating in one global environment, no longer compete against each other but compete supply chain-to-supply chain (Lambert & Cooper, 2000: 65; Näslund & Williamson, 2010:11; Azmi, Hamid, Hussain & Ibtishamiah, 2017:73).

The more companies compete on a global basis and have supply chains that span the globe, the more their competitive position in the global market depends on the SCM of the company. Effective and efficient SCM can provide a sustainable competitive advantage that will secure a business organisation's space in the global market (Whipple & Roh, 2010:338; Coyle, Bardi & Langley, 2009:16; Drake, 2012:1). An effective SCM has become a potentially valuable way of securing a competitive advantage through the improvement of organisational performance (Bratić, 2011:9). Bratić (2011:9) further identifies the following elements of competitive advantage: price and cost, quality, delivery dependability, product innovation, and time-to-market. The author further advises that of these five elements, price, quality and time-to-market are stronger indicators of competitive advantage and can improve the business's competitive position in the market. However, this is provided that the strategic importance of SCM is considered, because for SCM to effectively contribute to the competitive advantage of an organisation, it requires a strategic alignment between the organisation and its SCM strategies.

Although Section 1.2.1 provided a brief overview of SCM definitions, the following section provides a discussion of a larger variety of SCM definitions and crucial elements.

2.2.1 Supply chain management defined

The concept of SCM has been steadily evolving for the past 30 years (Näslund & Williamson, 2010:11, Drake, 2012:2). For decades, SCM was discussed under the umbrella of traditional business functions, such as purchasing and supply, logistics and transportation, operations management, marketing, organisational theory, management information systems, and strategic management (Chen & Paulraj, 2004:181). According to Bertrand and Fransoo (2002:16), and Drake (2012:2), disciplines such as finance, economics, accounting, psychology, sociology, human resources, and organisational behaviour have had a significant influence on the development of SCM. Much knowledge about SCM still resides in each one of the disciplines, with each one providing distinctive perspectives on what SCM is comprised of (Burgess, Singh & Koroglu, 2006:20). Ideally, a more holistic SCM philosophy is one that takes into consideration the viewpoints from various disciplines (Jain, Dangayach, Agarwal & Banerjee, 2010:11). Consequently, numerous definitions of SCM are found in literature, amongst professional associations, and in the industry (Elrod, Murray & Bande, 2013:39).

SCM represents and reflects a holistic approach to the operation of the organisation, and it relates to the entire procurement cycle, not just at the end. The maturity of SCM is evident in the way it has been 'defined' through the years. The definitions depict a move from a transactional to a strategic approach to SCM (Monzka *et al.,* 2012:13).

Table 2.1 provides definitions of SCM from various perspectives in literature.

Table 2.1: Selected definitions of SCM reported in literature

Author (s)	Definitions
Oliver and Webber (1982)	"SCM is the process of planning, the implementation of and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. SCM spans all movement and storage of raw materials, work in process inventory and finished goods from the point of origin to point of consumption"
Tan, Kannan and Handfield (1998)	"SCM encompasses materials/supply management from the supply of basic raw materials to final product. SCM focuses on how firms utilise their suppliers' processes, technology and capability to enhance competitive advantage"
Chopra and Meindl (2013)	"SCM comprises all stages involved, directly or indirectly in fulfilling a customer request"

Author (s)	Definitions
Bowersox, Closs and Cooper (2002)	"SCM comprises firms collaborating to leverage strategic positioning and to improve operational efficiency. A supply chain strategy is a channel arrangement based on the knowledge dependency and relationship management. Supply chain operations require managerial processes that span across functional areas within individual firms and link trading partners and customers across organisational boundaries"
Christopher (2006)	"SCM is the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain "
Sweeney (2007)	"SCM as the systemic, strategic coordination of the traditional business function and tactics across these business functions within a particular company and across business within the supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain "
Simchi-Levi, Kaminsky and Simchi-Levi (2008:34)	"SCM is a set of approaches utilised to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantity, to the right locations, and at the right time, to minimise system wide costs whilst satisfying service level requirements'
Wisner, Tan and Leong (2016)	SCM is "the integration of trading partners' crucial business processes from initial raw material extraction to the final or end-customer, including all intermediate processing, transportation and storage activities and final sale to the end product customer"
Council of SCM Professionals (2013)	"SCM is the planning and management of all activities involved in sourcing and procurement, conversion and all Logistics Management activities. Importantly it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers and customers"
Sanders (2013)	"SCM is the design and management of flows of products, information, and money throughout the supply chain. It involves the coordination and management of activities in the supply chain"
Prater and Whitehead (2013)	"SCM is the cost-effective organisation of the flow and storage of materials, in process inventory, finished goods, and related information from point of consumption to satisfy customer needs'. Common amongst these three definitions is that SCM comprises all those activities, processes and relationships included in the flow of materials through the supply chain"
Global Supply Forum (2013)	"SCM is the integration of crucial business processes from the end-user through original suppliers that provides products, services and information that add value for customers and other stakeholders"

Source: Own compilation

From the definitions provided in Table 2.1, it can be concluded that SCM is an integrated strategic process involved in sourcing goods and services to meet

customers' needs. Common elements established from the definitions are, customer focus, value-adding processes, planning and management, integration and collaboration. SCM comprises all the parties involved, directly, or indirectly, in filling an order or a customer request. The supply chain therefore includes the manufacturers, suppliers, transporters, warehouses, retailers and customers.

In the 'chain' part of the supply chain metaphor, suppliers are referred to as upstream entities, and customers as downstream entities (McKeller, 2014:2, Prater & Whitehead, 2013:4). According to Christopher (2006:30) and Prater and Whiltehead (2013:4) SCM is the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at an effective cost.

As illustrated in Figure 2.1 the process begins with the supplier's supplier and ends with the customer's customer (Simchi-Levi *et al.,* 2009:1).

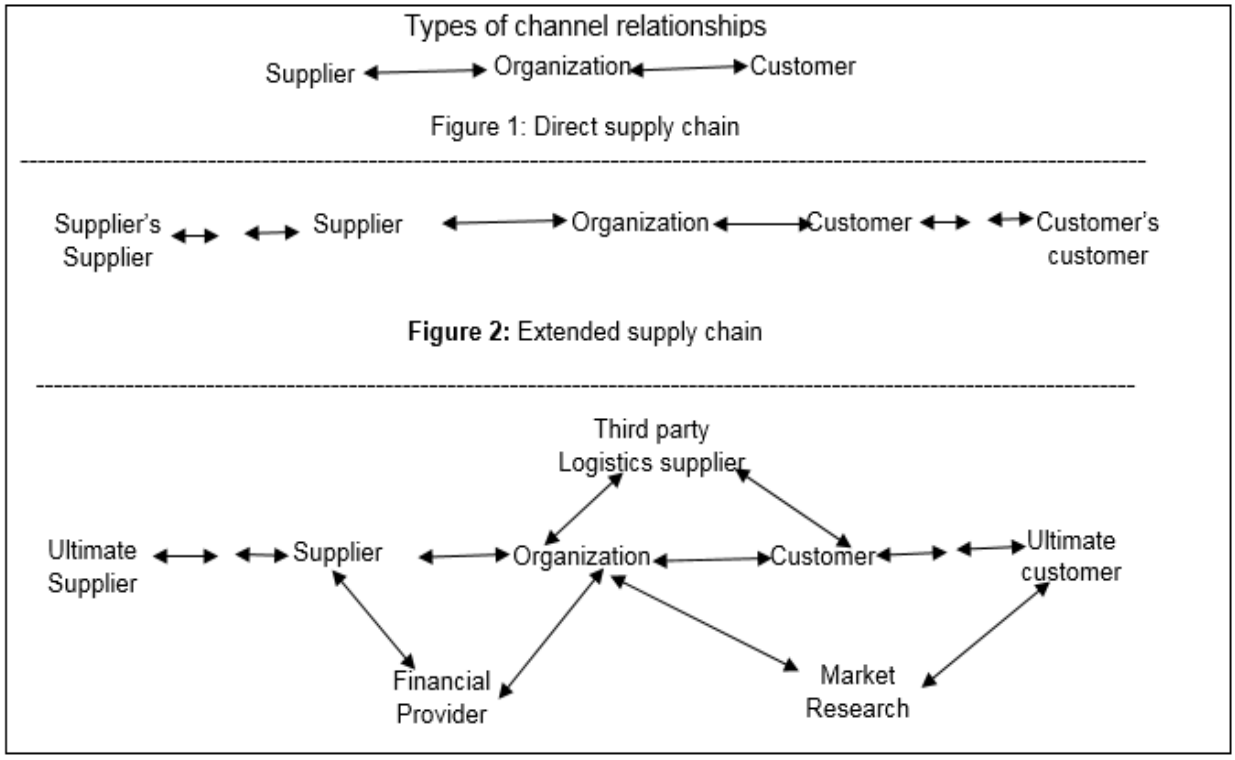

Figure 2.1: Ultimate supply chain

Source: Adapted from Mentzer *et al.* (2004:15)

The goal in SCM is to create value for the services and products provided to end-customers, which in turn, provide benefits to the firms in the supply chain network (Hugo *et al.,* 2011:11). Regardless of the definition or supply chain perspective used,

each should recognise that supply chains are composed of processes, rather than discrete, often poorly-aligned activities. A process comprises a set of interrelated activities or tasks designed to achieve a specific objective or outcome (Monczka *et al.,* 2012:9). Consistent amongst these definitions is the drive to improve operating efficiencies, quality and customer service amongst organisations (Wisner *et al.,* 2016:8).

It is also clear that the definitions emanate from the various fields in the business industry. It is therefore crucial to trace the history of SCM to determine the developmental growth up to this stage.

2.2.2 Historical development of supply chain management

This section provides the historical background and milestones in the development of SCM over the past century. The historical development of SCM provides an appreciation for the growth, development, and increased importance of the profession over the last 30 years. Each historical period has contributed something unique to the development of SCM, including the events that shaped today's emphasis on integrated SCM (Handfield *et al.*, 2011:26).

There are several different perspectives amongst SCM scholars when describing the route that SCM has taken from the past to the present moment. According to Giunipero, Handfield and Eltantawy (2006:823), the progressive changes in SCM were driven by the changing business environment; increased globalisation, technological advances, internet-based systems, and increased demands by upper management. As a result, the SCM function was compelled to realign themselves with the business strategies, and therefore add value to the supply chain. Burt, Dobler & Stirling (2011:9) maintain that the continuing development of SCM involves two major paradigm shifts: (1) from a focus on internal processes to value-adding benefits, and (2) from tactical to a strategic focus.

The following sections provide an overview of the history of SCM in different eras.

Arising: 1960 - 1970 era

After World War II there was a tremendous growth in materials management. This growth saw the inclusion of various functions under materials management, such as, materials planning and control, inventory planning and control, materials and

procurement research, purchasing, incoming traffic, receiving, incoming quality control, stores and materials movement. During this era there was more emphasis on multiple sourcing through competitive bid pricing, and as a result, price competition was the major factor in determining supply contracts. Organisations began to realise the impact of high inventory levels on manufacturing, storage and transportation costs. To this effect, materials management was an opportunity to reduce inventory costs (Wisner *et al.,* 2016:13).

Awakening: 1980s era

The concept of SCM appears to have originated in the early 1980s. Oliver and Webber (1982) discussed the potential benefits of integrating the internal business functions of purchasing, manufacturing, sales and distribution (Rhodes, Warren & Carter, 2006:36). It was during this era that the term Supply Chain Management was proposed to link the logistics issues with strategic management. During the 1980s, several publications stressed the growing importance of Logistics Management in the business environment, and the function is seen to include purchasing, materials handling, manufacturing and distribution, with a focus on the reduction of inventory. This progressive growth in logistics resulted in confusion between the terms SCM and logistics, and as a result, these terms are used synonymously by some authors.

Globalisation: 1990s era

During this era there was intense competition globally. Global firms began capturing the world market share and emphasised different strategies. There was a boom in IT, and the ability to coordinate worldwide purchasing activities by using international data networks and World Wide Web (WWW) emerged. The focus was on manufacturing goods in the most cost-effective manner, and to maintain their competitive advantage, organisations began focusing on manufacturing the best quality products at a lower cost (Prater & Whitehead, 2013:10). To this end, organisations began adopting strategies such as just-in-time manufacturing, Kanban, lean manufacturing, total quality management, and others (Wisner *et al.*, 2016:13). This era witnessed the growth of SCM, where managers in organisations began to view SCM as a way to satisfy intense cost and other improvement pressures. This era of SCM studies was highlighted by the introduction of

Enterprise Resource Planning (ERP) systems. This era has continued to develop into the 21st century with the expansion of internet-based collaborative systems. This era of supply chain evolution is characterised by both increasing value added and cost reductions through integration.

2000 and beyond

In response to challenges presented by globalisation, growth in IT, and customer expectations, organisations were compelled to change the way their SCM functioned. During this era the emphasis has been on the integration of relationships with internal departments and with suppliers. Although it looked impossible at the beginning, integration was inevitable. Organisations had to become more integrated with suppliers, and SCM with other departments internally became necessary to satisfy customer needs. Supplier relationships shifted from the adversarial approach to a more cooperative approach with selected suppliers. Supplier management, supplier development, supplier design involvement, the use of full-service suppliers, total cost supplier selection, long-term supplier relationships, strategic cost-management, enterprise wide systems and integrated internet linkages, and shared databases are now seen as ways to create value within the supply chain.

The next section deals with the strategic role of SCM in a business organisation.

2.3 STRATEGIC ROLE OF SCM IN A BUSINESS ORGANISATION

The historical development of SCM has increased the rate of change and business complexity to the extent that the formulation of a strategic response has become a competitive necessity for business organisations. (Pienaar & Vogt, 2012:34). Therefore, organisations must adopt an appropriate organisational strategy to be able to compete at a supply chain level, (Sukati, Hamid, Baharun & Yusoff, 2012:226).

Strategic supply chain management can be regarded as the process that an organisation employs to articulate and execute strategy (De Villiers, Nieman & Niemann, 2017:280). Once a new strategy has been defined, the company is re-aligned to ensure that it can achieve the new strategic objectives. To maintain their competitive position in the market, they need to conduct periodic reviews of their strategies, and then they need to initiate the necessary changes to the strategy.

The following sections provide background information on organisational strategies and the levels of strategies. This is followed by a discussion of supply chain strategy and its crucial objectives.

2.3.1 Organisational strategy

The term ‘organisational strategy’ is used interchangeably with the term ‘corporate strategy’. A corporate strategy refers to the first layer of the organisation’s strategies. A corporate strategy is concerned with the purpose of the organisation and its scope to meet the expectations of its shareholders (Pienaar & Vogt, 2012:36). Rao and Krishna (2015:673) defined an organisational strategy as “the strategies deployed by the organisation to achieve its main objectives”. The corporate strategies are spelt out through the following intent statements: primary statements; vision statement, mission statement, core values and core competencies and supportive statement; corporate strategy, business strategy and functional strategies. Corporate strategies set the direction for all the lower levels of strategic decision-making in the organisation.

2.3.2 Business strategies

The second layer of the organisation’s strategies contains the business strategy, also referred to as the competitive strategy. Good competitive strategies drive the organisation’s performance. Business strategy is concerned with how business units within an organisation will go about fulfilling its objectives, and in the SOE environment, its mandate. According to Hellriegel *et al.* (2007:76), business strategy is “the interconnected set of commitments and actions intended to provide value to customers and gain a competitive advantage using the company’s core competencies in specific markets”. Pienaar and Vogt (2012:34) articulate that business strategy aims to construct the core competencies of an organisation, with specific goals or objectives in mind.

It has therefore been argued that it is only after an organisation has developed its objectives that functional strategies, including those of SCM can be developed (Murray, 2007:94). A business organisation can achieve a competitive advantage by performing strategically important activities more cheaply, or by showing more improvements than its competitors, for example, by offering customers a superior bundle of more desirable benefits than that of competitors at the same cost. According

to Lysons and Farrington (2012:41), competitive strategies are based on “some combination of quality, cost and time’. Furthermore, Michael Porter (1985) identified three generic strategies that can be used to provide a competitive advantage to the business strategy. This model (as illustrated in Figure 2.2) is termed a ‘generic model’ because it can be applied to all types of organisations (Hellriegel *et al.,* 2007:87).

Figure 2.2 provides an overview of Porters’ generic strategies and the various strategies contained in the model are briefly discussed below.

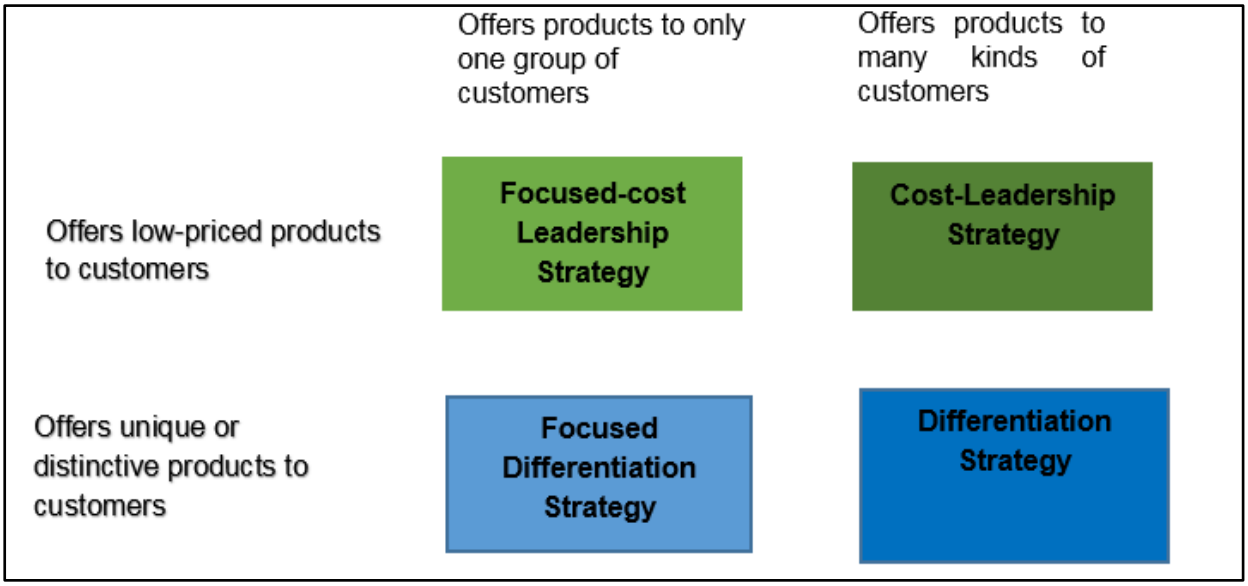

Figure 2.2: Porter’s generic strategies

Source: Adapted from Porter (1985) as cited in O’Sullivan (2012:4)

2.3.2.1 Cost of leadership

Cost of leadership “is the strategy an organisation follows when it wants to be the lowest-cost producer in its industry” (Robbins & DeCenzo, 2005:105). The sources of cost advantages usually include economies of scale, proprietary technology and preferential access to raw materials. For organisations competing in a price sensitive market, cost-leadership is the crucial strategic imperative. Cost of leadership requires a thorough understanding of their cost and cost drivers. From a supply chain perspective, the major implication of cost of leadership strategy is the emphasis on cost reduction.

2.3.2.1 Differentiation strategy

A differentiation strategy is applied by firms producing goods and services with the aim of being perceived as ‘different’ or ‘unique’ in the whole industry. The strategy is to take advantage of the gap in the market by offering unique products based on price. The attributes of the chosen products or services should be different from those of the competitors in the same industry. Differentiation comes in different forms, such as different design, brand image, number of features, and most often new technology. Differentiation strategies create customer loyalty, they contain barriers to new competitors entering the market, and they reduce the firm’s vulnerability to other competitive pressures, such as substitutes.

The challenges affecting differentiation strategies include illegal copies of the product and competitors offering lower prices for similar products. From a supply chain perspective, a differentiation strategy requires closer collaborative relationships between suppliers and the purchasing organisation. The suppliers are provided an opportunity for early involvement in the specification process, which improves efficiencies and the quality of products.

2.3.2.2 Focus strategy

A focus strategy targets a selected segment of the market, either by providing goods or services at a lower cost to that segment, or by providing a differentiated product or service for the needs of that segment. A focus strategy carefully identifies the niche market and constantly reviews customer demands. Focus strategies enable organisations to focus their business mix on a specific market segment. Moreover, focus strategies enhance customer loyalty and make it easier for organisations to get to know its client base. Pienaar and Vogt (2012:34) articulate that business strategy aims to construct core competencies for an organisation, with specific goals or objectives in mind. It has therefore been argued that it is only after an organisation has developed its objectives that functional strategies, including those of SCM can be developed (Murray, 2007:94).

2.3.3 Functional strategies

The final layer of the organisation’s strategies contains the functional strategies. Functional strategies are concerned with the formulation of strategies related to the

main area of the business's activities, namely, SCM, operations, marketing, human resources, finance, and other organisational functions. Functional strategies are mainly concerned with ensuring that functional specialisation areas are effectively utilised to deliver strategies, that activities within each functional area are integrated, and resources allocated to optimise the delivery of strategies. Finally, functional strategies ensure that the functional objectives are aligned with the higher levels of strategy.

All functional management should be involved in the process of strategy formulation at business and corporate levels in order to integrate the various levels of expertise, skills and knowledge. This will make it easier for the various functions to translate the business and corporate level strategies into operational activities (Cousins *et al.,* 2008:103).

2.3.3.1 Supply chain strategy

The supply chain strategy is conducted under the umbrella of functional strategy. Chopra and Meindl (2013:22) define a supply chain strategy as "relative to its competitors, [as] the set of customer needs that it seeks to satisfy through its products and services". Schnetzler, Sennheiser and Weideman (2004:692) describe a supply chain strategy as a balanced set of appropriate measures (means) that can be applied for the development and exploitation of logistic competitive capabilities. Furthermore, the authors posit that it contains the improvement potentials (ways) of applying SCM to achieve logistics and supply chain objectives. However, supply chain strategies vary from one business organisation to another, depending on the strategic goals of the organisation.

The right supply chain strategy requires the integration of several supply networks linked through the organisational structure, for example, a common back-office infrastructure, and common ways of working (Uniliver, 2010:2). The implementation of the appropriate supply chain strategy is widely believed to lead to improved SCM performance (Szu-Yuan, Hsu & Hwang, 2009:202). However, a good supply chain strategy must be aligned to the company's business strategy (Chaudhary, 2008:31), since a mismatch generally leads to significant problems in business operations (Lo & Power 2010:140).

The supply chain strategy defines how the supply chains should be configured and operated to ensure maximum competitiveness. A crucial feature of the strategy development process is the linkage, either directly or indirectly, between functional supply chain strategy development and other functional specialities (Monzka *et al.*, 2012:175).

Aligning the SCM with the business strategy allows the organisation to capture cross-enterprise opportunities that not only generate cost and capital efficiencies, but also assist to drive top-line opportunities. For example, if supply is unaware of the strategic intent of the firm it is likely to follow a misaligned approach, and this will result in the firm not achieving the full benefit from the strategy (Cousins, 2005:421).

2.3.3.2 Strategic objectives of supply chain management

The key objectives of business organisations are customer satisfaction and the maximisation of profits (Hugo *et al.*, 2011:5). Pienaar and Vogt (2012:34) maintain that SCM objectives must be informed by the competitive goals of the organisation. Therefore, they (Pienaar and Vogt, 2012) advise that the supply chain strategy should be translated into achievable objectives that are consistent with the business strategy. Lyson and Farrington (2013:55) further elaborate that SCM objectives must be balanced according to the corporate objectives as at the specific time. The scholars, Johnson, Leenders and Flynn (2011:26) provide a more encompassing point of view on the objectives of SCM, and they maintain that it includes the following:

- To improve the business's competitive position in the market. Given the strategic importance of SCM, for SCM to effectively contribute to the competitive advantage of an organisation, it requires a strategic alignment between the organisation and its SCM strategies. Ultimately what SCM seeks to achieve is a competitive position through greater profitability by adding value, creating efficiencies and the elimination of waste, thereby creating customer satisfaction (Stock & Boyer, 2009:703; Näslund & Williamson, 2010:11). Competitive advantage is the extent to which companies can create a defensible position over its competitors (McGinnis & Vallopra, 1999). An effective SCM has become a potentially valuable way of securing competitive advantage through the improvement of organisational performance (Bratić, 2011:9).

- To provide an uninterrupted flow of goods and services to support the business's operations. In most organisations, SCM is centralised in one department and therefore supports the other departmental needs. End-user departments are therefore dependent on SCM for procurement and inventory management, amongst other functions.
- To minimise inventory investment and loss of revenue. Inventory ties down money which could be invested elsewhere. SCM's objective is to find a balance between product availability and maintaining an acceptable level of stock to avoid excess and wastage.
- To maintain and improve the quality of goods and services received and provided by the organisation. Poor quality has an impact on the final product. Enhanced product quality improves customer service (Näslund & Williamson, 2010:12).
- SCM aims to maintain and develop the quality of purchased goods and services, as well as internal service delivery. The purchased goods and services are expected to be defect-free. Enhanced product quality improves customer service (Näslund & Williamson, 2010:12).
- To find or develop best-in-class suppliers. The success of SCM in the organisation is dependent on the supplier's performance and continuous improvement. SCM can achieve this through a supplier evaluation and performance management and review processes.
- To standardise, where appropriate, the inputs and the associated SCM processes. According to Pienaar and Vogt (2012:194) standardisation reduces the risks and lowers inventory costs, whilst maintaining service levels.
- To create value for the customer. A customer is the most crucial stakeholder in the SCM process. All processes and activities in SCM are aimed at creating an exceptional customer experience and value. SCM, therefore, is a consumer-driven function which recognises the importance of consumer needs and attempts to capture the subtleties of consumer value as a source of differentiation and supply chain competitiveness (Godsell & Harrison, 2002; Christopher, 2006; Womack & Jones, 2005). Customer satisfaction is a critical deliverable in SCM. However, the consumer satisfaction as related to supply chain effectiveness needs to be measured (Zokaei & Simons, 2006). According to Prater and Whitehead

(2013:121), the main components of customer satisfaction are: price, product quality and service quality. Each activity in the supply chain affects the customer experience, and consequently, their satisfaction.

- To reduce the total cost of ownership, thereby contributing to the company's bottom line (Burt *et al.,* 2011:9). To accomplish organisational SCM objectives at the lowest possible operating cost and as efficiently as possible. According to Näslund and Williamson (2010:12), costs are driven down through reduced redundancies, lower inventory levels, shorter lead times and lower demand uncertainties. The goal of SCM is to achieve greater profitability by adding value and creating efficiencies, thereby increasing customer satisfaction. According to Burt *et al.* (2011:9), SCM has a huge impact on an organisation's bottom line, and it has the potential to reduce cost and increase sales and profit margins (Benton, 2007:8). The SCM function considers all the costs involved in acquiring, owning and converting materials, equipment and costs beyond ownership that are not necessarily included up front (Burt *et al.,* 2011:11). When procuring goods and services, SCM managers are expected to consider all the other costs that might not necessarily be included in the price, for example, when buying a car an SCM manager must consider the after-sale service costs, fuel costs, and costs of changing tyres.
- To achieve cooperative, productive relationships, both internally and with suppliers. A successful SCM requires collaboration with the internal users in delivering the key performance indicators (KPIs). It is evident that relationships in SCM are important. SCM therefore plays a major role in the management of supply chain activities and relationships with its suppliers and other crucial role participants (Naude, 2010:80).

The goals of SCM in an organisation can be achieved through the alignment of the supply chain strategy with the strategic goals of that organisation. According to Kathuria, Joshi and Porth (2007:505), corporate strategy (level 1) provides direction to and guides the business strategy (level 2), which, in turn leads to strategies in the functional areas (level 3). The process outlined by Kathuria *et al.* (2007) is called strategic alignment. Strategic alignment therefore is essential for the success of SCM and the organisation. The following sections discuss strategic alignment from an SCM point of view.

2.4 STRATEGIC ALIGNMENT OF SCM

Strategic alignment is described as that optimal state in which organisational strategy, supply chain strategy, SCM objectives and activities, employees, customers and crucial processes work in concert to achieve the organisational strategy (Lear, 2012:90, Kaplan & Norton, 2001). Traditionally, alignment has supported the implementation of a strategy. According to Lear (2012:90), the term alignment refers to the alignment with the organisation's vision, values and strategy. Alignment is shown to be a crucial competency required by highly successful companies to implement their strategy successfully, and to achieve their strategic goals and objectives (Hough, Strickland, Gamble & Thompson, 2008).

The literature distinguishes between two types of organisational alignment, namely, vertical and horizontal strategies (Kathuria *et al.*, 2007:523; Lear, 2012:90). Vertical alignment refers to the configuration of strategies, objectives, action plans, and decisions throughout all the various levels of the organisation (Kathuria *et al.*, 2007:523). This means that the goal of every activity contributes towards the higher objectives of the organisation. The objectives for strategic change are designed to reflect the organisation's mission (CIPS, 2014). This includes the conceptualisation of strategy at three levels: corporate, business, and functional (as previously discussed). Horizontal alignment refers to the coordination of efforts across the organisation and is primarily relevant to the lower levels in the business hierarchy (Kathuria *et al.,* 2007:523). Horizontal alignment is concerned with cross-functional and intra-functional integration and is about ensuring that the plans of every unit in an organisation are coordinated with those of others, so that they work efficiently and effectively together (CIPS, 2014). According to Lysons and Farrington (2013:33), it is imperative to align corporate strategies with business strategies, firstly to support and enable their achievement, and secondly, to justify and reinforce SCM's strategic role and contribution to competitive advantage.

It is essential to align the supply chain strategies with the corporate and business strategies to ensure their successful implementation (Chopra & Meindl, 2013:34). Proper alignment can lead to successful business (Cox, 2004; Mitra & Bhardwaj, 2010). The alignment of SCM with both organisational strategies allows the organisation to capture cross-enterprise opportunities that, not only generate cost and

capital efficiencies, but also assist in driving top-line opportunities. As the basis for the development of SCM strategies, corporate strategies are cascaded down into SCM goals and objectives. The alignment of the organisational strategies with the supply chain strategy is best explained by the framework developed by the authors, Du Toit and Vlok (2015:33).

To achieve a strategic fit, an organisation must ensure that its supply chain capabilities support its ability to satisfy the needs of the targeted customer segments (Chopra & Meindl, 2013:34). Strategic fit requires that both the competitive and the supply chain strategies of the company are aligned with the goals (Chopra & Meindl, 2013:33). It therefore refers to the consistency between the customer priorities that the competitive strategy hopes to satisfy and the supply chain capabilities that the supply chain strategy aims to build. A company hoping to achieve strategic fit must accomplish the following:

- The competitive strategy and all functional strategies must fit together to form a coordinated strategy. Each functional strategy must support other functional strategies and assist the firm to reach its competitive strategy goal;
- The various functions in a company must appropriately structure their processes and resources to be able to execute the strategies successfully; and
- The design of the supply chain and the role of each stage must be aligned to support the supply chain strategy.

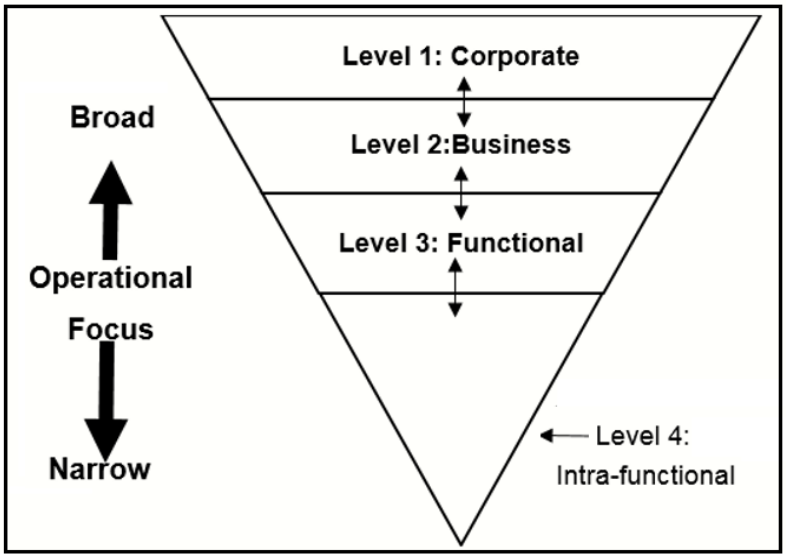

Figure 2.3: Hierarchy of alignment

Source: Kathuria *et al.* (2007:505).

An organisation may fail, either because of a lack of strategic fit, or because its supply chain design, processes and resources do not provide the capabilities to support the desired strategic fit. The SCM strategies and processes have a huge impact on organisation performance. Table 2.2 indicates the links between corporate strategy and the supply chain objectives.

Table 2.2: Links between corporate strategy and supply chain objectives

Corporate objectives	Supply chain objectives
Maintain and increase market share	Provide suppliers to match customer needs; assure quality, reduce delivery lead time; reduce costs
Improve profits, cash flow and return on capital	Reduce stocks; improve reliability; more frequent deliveries
Shorten time to market	Early supplier involvement; simultaneous engineering
Eliminate non-core activities	Develop effective production or buy policy, integrate sourcing, procurement and capacity planning
Introduce continuous improvement	Optimise the supplier base, partnership and co-maker ship approaches; reduce product complexity; increase accuracy and reliability
Become world-class supplier	Work with suppliers to establish world-class standards, improve flexibility in response to market conditions; liaison with technological sources

Source: Own compilation

According to Khadem (2008, quoted in Lear, 2012:90), there is a difference between alignment and integration. Lear (2012:90) emphasises by providing the example that "two individuals are aligned when they move in the same direction. They are integrated when they cooperate with each other". In the same context, it is possible for SCM to be aligned to, but not integrated with, the organisation. The following section focuses on SCM integration and considers both internal and external integration.

2.5 SUPPLY CHAIN INTEGRATION

Supply Chain Integration (SCI) involves the integration of key processes and relationships to arrive at mutually acceptable outcomes (Boon-itt & Wong, 2011:254). Flynn *et al.* (2010a:59) state that SCI is "the degree to which a manufacturer

strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organisational processes" to achieve the effective and efficient flows of products and services, information, money and decisions, to provide the maximum value to the customer. According to Van Weele (2016:255), SCI represents a system approach to viewing the supply chain as an integrated entity, rather than a set of fragmented parts.

Kwon and Suh (2005:25) consider SCI to be a strategic tool that aims to reduce costs and thus increases customer and shareholder value. The manufacturer must know the suppliers' needs and the supplier must know and understand the specifications of what the customer needs. SCI contributes to a firm's competitive advantage and enhances performance (Zhao *et al.,* 2006; Frohlick & Westbrook, 2001; Zhao *et al.,* 2008).

In contrast, internal integration focuses on activities within an organisation. It is the degree to which an organisation structures its own organisational strategies, practices and processes collaboratively to fulfil customer requirements (Flynn *et al.,* 2010a, Zhao *et al.,* 2008). The process is illustrated in Figure 2.4 (next page).

2.5.1 Stage 1: Internally focused integration

In stage one, the organisation is internally focused with no 'silo' operations. Functional departments are not working in a coordinated manner. This lack of internal integration will create quality, cost, delivery timing and other customer service problems, that are detrimental to supply chains (Wisner *et al.*, 2016:473). Functional departments focus on their individual goals and set of objectives, with departments competing against each other for performance, whilst sabotaging business. The cooperation of end-user departments in support of SCM is very low. There is also unwillingness to work together or share information because of fear that the other department will take advantage of them. Basically, complete functional independence describes this stage well, as each business function operates independently in complete isolation from the other business functions (Christopher, 2006:18).

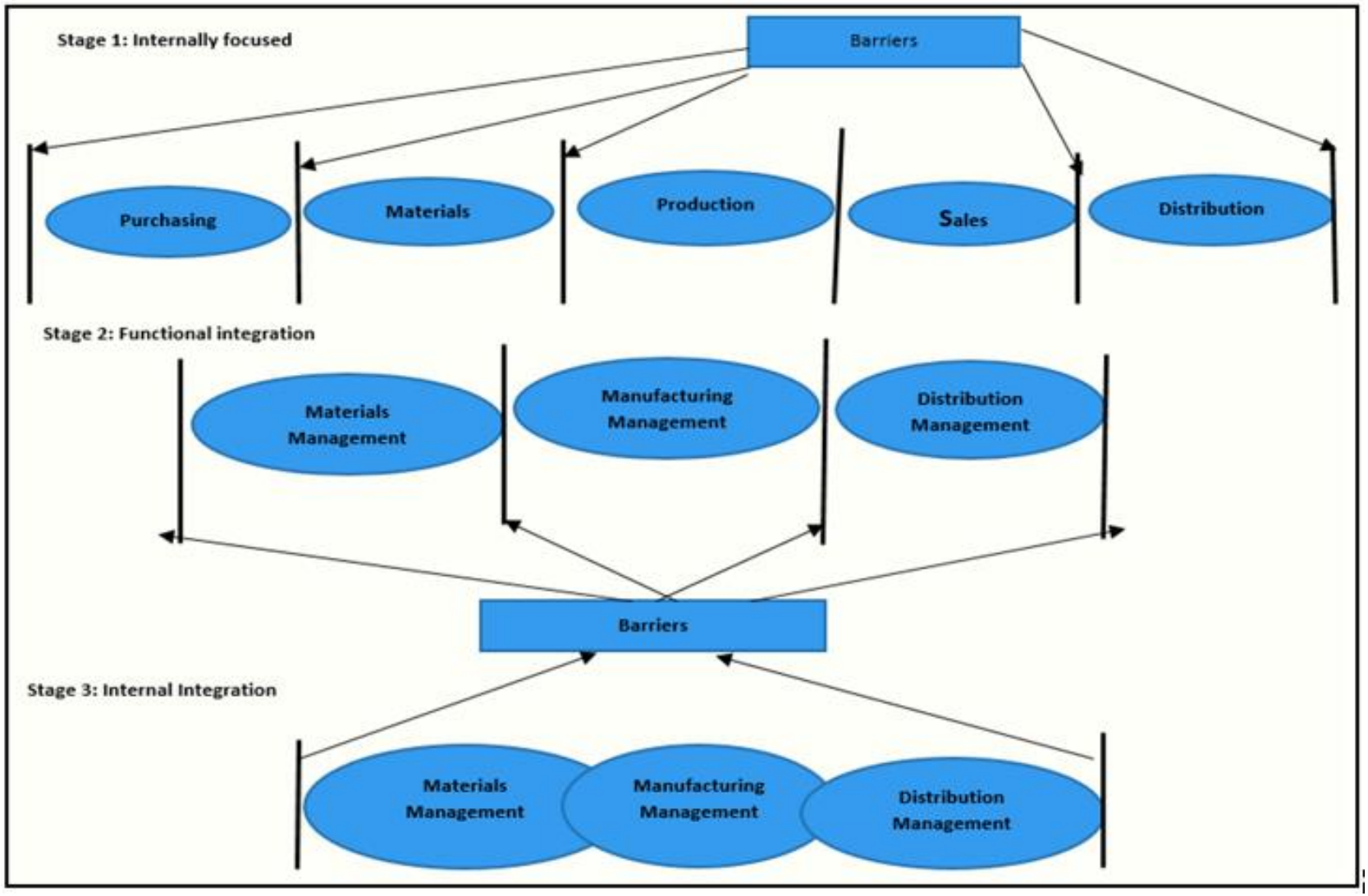

Figure 2.4: Supply chain integration

Source: Adapted from Christopher (2006:19); Wisner *et al.* (2016:265)

2.5.2 Stage 2: Functional integration

The need to integrate business function within an organisation is long-overdue (Mangan *et al.,* 2012:36). Functional silos in organisations are barriers for integration, collaboration and cross-functional activities (Lambert, 2014:5). Confirming the involvement of business functions in SCM functions, Blackstock (2005:5) articulates that “supply chain management is everybody’s job”. According to Sanders (2012:68), supply chain, as a collection of processes, should be managed across the entire supply chain, rather than in separate organisations. The successful management of SCM requires the involvement of all other business functions, as explained below:

- **Operations:** SCM ensures the on-time availability of the materials required for production (Nieuwenhuizen & Rossouw, 2008:190). For SCM to provide adequate support to operations, SCM should develop insights into production and service strategic plans. The SCM strategies and activities should therefore be aligned with those for operations management.
- **Engineering:** Engineering is responsible for developing specifications, product plans and designs, and producing the products in accordance with customer requirements (Handfield *et al.,* 2009:118). SCM and engineering are responsible for ensuring the production of quality goods. SCM supports engineering by ensuring that the selected suppliers supply the best quality products that meet engineering standards. To achieve this, SCM assesses the supplier’s production capabilities and develops relationships that encourage suppliers to offer innovative ideas.
- **Marketing:** Marketing manages the downstream relationships with customers, identifying their needs and communicating with them regarding how the company can meet those needs (Fawcett, Ellram & Ogden, 2016:8). Marketing exploits new opportunities in the market through research and a swot analysis. According to Lambert (2014:15), the results of the research contributes to product design. Crandall, Crandall and Chen (2010:398) identify the following supply chain basics for the marketing function: (i) construct a database to capture more information about existing customers, (ii) analyse the existing customers to determine why they buy the products and services that they do, (iii) develop programmes designed to retain the customer,(iv) obtain feedback from customers for use in the design of

products, and (v) participate in cross-functional teams to develop customer service programmes.

- **Finance:** SCM in most organisations is responsible for more than 50% of the budget, in this regard the Finance Department is interested in knowing how these funds are spent in a cost-effective manner (Burt *et al.,* 2003: 46). SCM must ensure that inventories are efficiently managed as it holds up capital that could have been invested elsewhere. Finance should manage supplier payments and honour the payments on time. An effective SCM reduces costs in an organisation, therefore finance must become participants in the company's efforts to construct their supply chains. Finance must assist with the following functions: (i) help develop a total cost of ownership analysis, (ii) work with supply chain partners to achieve an equitable distribution of costs and profits, (iii) change performance measures to evaluate supply chain outcomes, (iv) provide meaningful information to operating functions, and (v) develop cost-savings guidelines.
- **Logistics:** The involvement of logistics in SCM tends to vary, depending on the nature of the organisation. Logistics is responsible for the storage and distribution of products as and when needed. In line with customer demands, logistics determine future demands and proactively acquire the goods.
- **Quality assurance:** The quality topic has become more prominent in SCM in the past decade. SCM and the quality department work together in ensuring that suppliers deliver quality products. This function is so important that other organisations place the responsibility for supplier quality management within SCM.
- **Legal department:** Contracts are essential for managing the relationships between the buying organisation and the supplier. The statement of works, necessary insurance coverage, indemnification/liability and termination clauses must be specially formulated to handle special cases (Whittington, 1998:3). Due to the speciality of this activity, SCM needs legal advice on specific elements of the contracts. In most bigger organisations a larger part of the legal services is offered in-house, whereas smaller organisations need to outsource this function. The legal department assists SCM in vetting the contracts and handling any litigation that may arise in SCM.

The success of internal integration can be realised through the effective implementation of cross-functional teams (Van Weele, 2016:60). The intention of cross-functional teams is mainly to bring together different skills and expertise so that their competencies and resources can be pooled or exchanged so that their goals can be realised. According to Flynn *et al.* (2010a:64), high performing cross-functional teams will have greater success with the tasks, with greater benefits to the organisation, at lower costs in less time, with greater stakeholder buy-in. Cross-functional teams should also include suppliers. According to Lysons and Farrington (2013:162), the benefits that can be derived from supplier participation are as follows:

- Greater satisfaction concerning the quality of information exchange between the team and its crucial suppliers.
- A greater reliance on suppliers to directly support the teams' goals and objectives.
- Greater supply base management effectiveness.
- Greater supplier contribution in several critical areas; one significant development is that of the "guest engineer" in which a member of supplier staff is permanently located in the operations department of a purchaser.

2.5.3 Stage 3: Internal integration

The internal integration of SCM eradicates silo functions by recognising that different departments and functional areas within an organisation should operate as part of an integrated process for the benefit of the organisation, and ultimately, the customer (Flynn *et al.,* 2010a:60). Das *et al.* (2006:563) refer to this type of integration as vertical integration where internal departments work together towards the corporate objectives. Naude and Badenhorst-Weiss (2011:75) affirm that SCM must start with internal integration and move away from the silo approach to a coordinated systems approach.

As SCM is at the centre of a large part of a company's activities, it must maintain continuing and sustainable relationships with other departments (Burt *et al.*, 2011:42). However, the main goal of internal integration is to meet the expectations of the customer (Stank, Keller & Closs, 2001:33) and without the participation of other functional departments SCM would not be able to achieve certain objectives. Internal integration removes functional barriers and encourages collaboration between SCM

and other functional departments. According to Flynn *et al.* (2010a:60), internal integration positively impacts operational performance. Stank *et al.* (2001) assert that internal integration is the most significant differentiator of firm performance. According to Flynn *et al.* (2010a:60), "information sharing, joint planning, cross-functional teams and working together as a team are the crucial elements of internal integration".

Efficient integration practices develop a solid starting point for external integration (Das *et al.,* 2006:565). SCM is a varied function subject, and as such, is integrated with internal and external dynamics. According to Basnet (2013:153-155), when organisations include internal integration efforts in their strategy, it strengthens the supply chain integration efforts, improves customer service levels, and leads to a significant improvement in the organisation's bottom line.

2.5.4 External integration

External integration involves the integration of activities that are external to the organisation across the supply chain (Sundaram & Mehta, 2002:537). For example, the supply chain integrates external suppliers, Government, local communities, customers and other entities relevant to the organisation (Monzka *et al.,* 2012:102; Wong *et al.,* 2011:605). The integration of the customers and suppliers contributes to an improved understanding of customer needs, accurate demands, accurate production planning and on-time deliveries (Flynn *et al.*, 2010a:60).

As the environment changes, the organisation must respond through the development and implementation of strategies that maintain a balance between internal practices and the ever-changing environment (Flynn *et al.*, 2010a:60). External integration enhances efficiencies in the business. Flynn *et al.* (2010a:56) assert that SCI is defined as "the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organisation processes".

SCM is the face of the organisation and serves as the primary vehicle that integrates with external stakeholders. Monzka *et al.* (2012:102) identified the three crucial SCM external linkages, as briefly explained below:

- **Suppliers:** SCM's primary linkage is with the suppliers. The primary role of SCM is to communicate with suppliers and select the suppliers with which to do

business. SCM has a responsibility to select suppliers and act as a primary commercial linkage between the buying organisation and the supplier (Monzka *et al.,* 2012:39). Supplier integration is defined as a state of syncretism amongst the supplier, and the purchasing and manufacturing constituents of an organisation (Das *et al.*, 2006:564).

- **Government:** SCM is also required to support the Government's policies. SCM therefore maintains the communication link.
- **Local communities:** SCM may have contact with local communities and leaders. Because of SCM's huge budget, it has the potential to affect certain social goals which will benefit the local communities in which they operate. These goals include sourcing from local suppliers, awarding certain percentage of business to qualified minority suppliers, and establishing ethical business practices. Collaboration is defined as the process in which two or more parties adopt a high level of cooperation to maintain a trading relationship over time. The relationship is bilateral: both parties have the power to shape its nature and future direction. External supply chain integration is graphically illustrated in Figure 2.5.

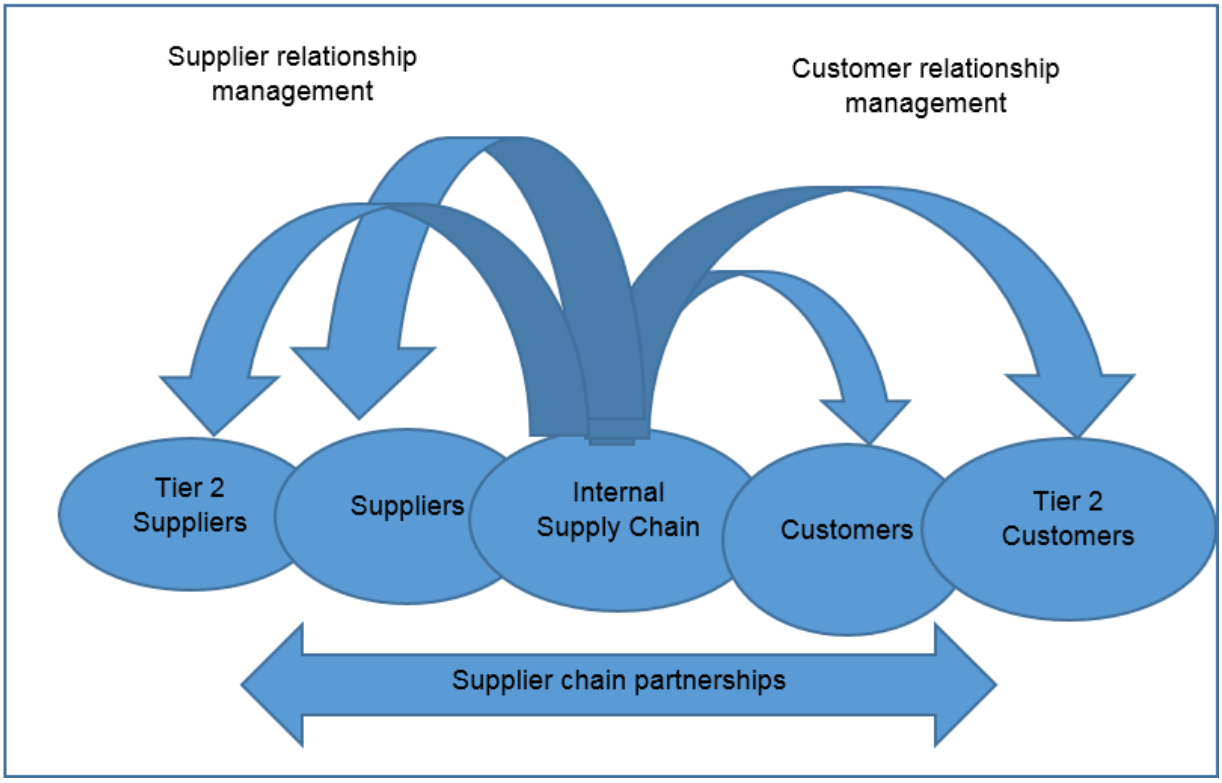

Figure 2.5: External supply chain integration

Source: Adapted from Benton (2007:188); Hines (2004:81) and Christopher (2006:19)

2.5.5 Effect of SCM integration on supply chain performance

Supply chains are pressured to perform and to contribute to the competitive advantage of the organisation. In this regard, increased contributions to cost reduction, effective asset management and revenue generation are required (Handfield *et al.,* 2009:744; Pohl & Forstl, 2011:232). As a result, supply chain performance is measured in terms of costs and tied-up capital, which could have been invested elsewhere, as well as customer service (Forslund & Johnsson, 2007:1).

According to Flynn *et al.* (2010b:60), the selection of the appropriate performance measures is challenging due to the complexity of supply chain. Whilst Chen and Paulraj (2004:114) argue that financial performance should be the main measure of supply chain performance because of the shareholders' interests. Supply chain therefore must achieve the balance between responsiveness and efficiency that supports a competitive strategy (Chopra & Meindl, 2013: 59). Moreover, the achievement of a strategic fit is important for the organisation's success.

New metrics need to be introduced to allow for external integration in areas such as on-time delivery, fill rates, and returns, to underscore the importance of satisfying customers. Network partners begin to use activity-based costing and balanced scorecards to turn the supply chain into a value chain of allies working together towards the same strategic objectives. With information being shared electronically, network members can more readily identify opportunities to achieve higher performance levels. Joint teams are established to find solutions to specific customer problems (Birou, 2006:295). As a result, cost and time are reduced, which consequently adds value to the customer (Hines, 2004:81).

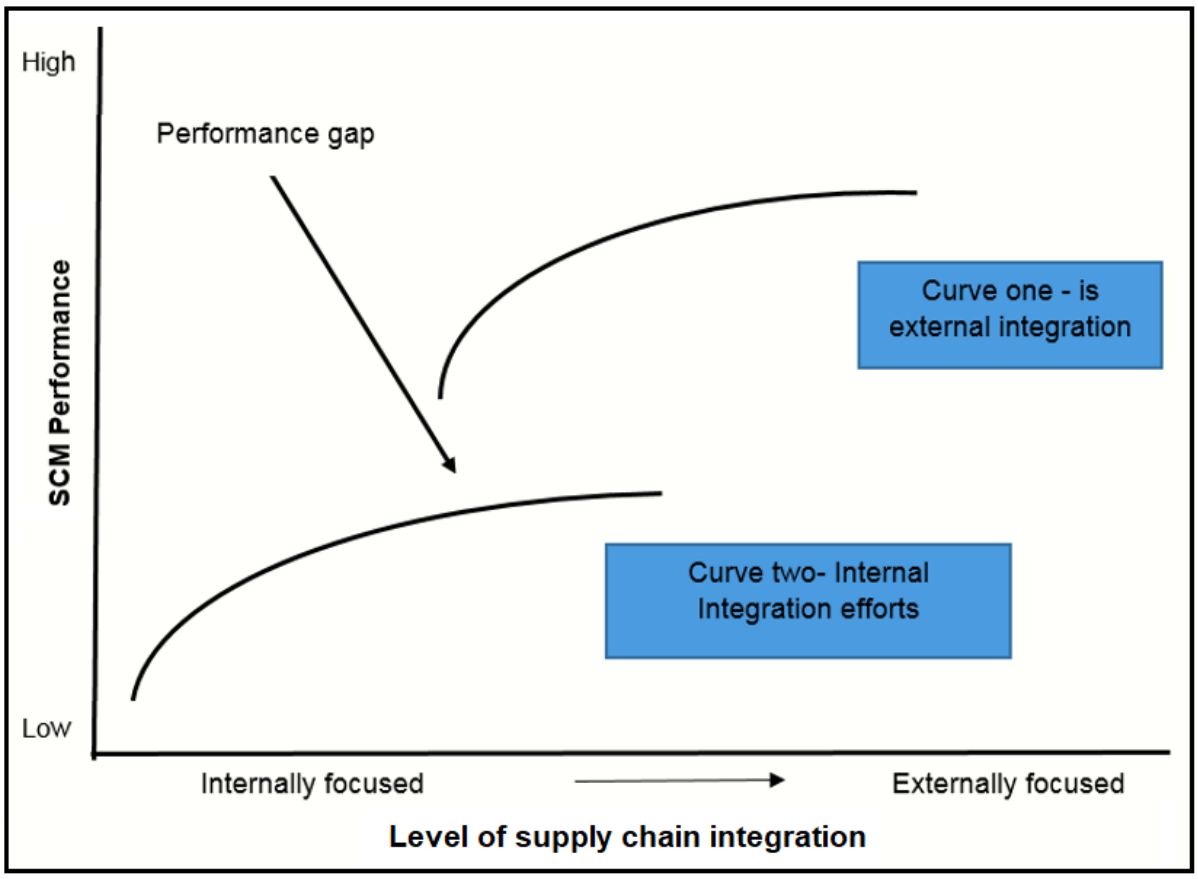

Figure 2.6: The correlation between the level of supply chain integration and supply chain performance

Source: Adapted from Gattorna (2003); Cohen and Roussel (2005:231)

According to Chopra and Meindl (2013:33) for a company to achieve strategic fit it must accomplish the following:

- The competitive strategy and all functional strategies must fit together to form a coordinated strategy. Each functional strategy must support the other functional strategies and assist the firm reach its competitive strategy goal;
- All the divergent functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully; and
- The design of the supply chain and the role of each stage must be aligned to support the supply chain strategy.

To understand how companies can improve the responsiveness and efficiency of their supply chain and improve the overall performance of the SCM, the following crucial enablers of supply chain performance need to be examined.

2.6 ENABLERS OF SUPPLY CHAIN EXCELLENCE

The enablers are the pillars for supply chain operations (Chandrasekaran, 2012:58). It is important to note that these enablers do not act independently but interact with one another to determine supply chain performance (Chopra & Meindl, 2013:60). Handfield *et al.* (2011:1) assert that the crucial enablers should support the development of SCM strategies that are aligned with the cooperative objectives. The SCM enablers are crucial to the performance of supply chain constituents and role participants across the network (Chandrasekaran, 2012:515). The supply chain enablers should be quantified into achievable performance measures. The main aim of performance measurement is to create an alignment between the corporate strategy, supply chain strategy, objectives and goals, and performance measures (Cousins *et al.,* 2009:146). To achieve strategic excellence, it is essential that the supply chain strategy, objectives and goals support the competitive strategy of the organisation (Chopra & Meindl, 2013: 59).

This sections below discuss the various enablers of supply chain strategy.

2.6.1 Establish capable human resources and training

The complexity of today's SCM and the advancement of technology in the field demand experts that have a diverse range of skills that can be applied in challenging situations (Bak & Jordan: 2014:1; Partida, 2016:70). According to Giunipero *et al.* (2006:823) and Monzka *et al.* (2012:34), these demands contributed to the evolution of SCM from an being administrative function to a strategic one. There is therefore an increasing need for SCM practitioners to possess the required skills to enable the successful implementation of SCM strategies. Thompson *et al.* (2007:385) describe skills as the distinctive capabilities of an organisation (Giunipero *et al.,* 2006:822). Swart, Hall and Chen (2012:12) assert that even though an organisation might have brilliant supply chain strategies, substandard performance from the SCM personnel can defeat the intended purposes. Fawcett *et al.* (2016:433) emphasise that without the right people, supply chain strategies will not be envisioned, nor will they be executed. According to the survey conducted by Deloitte (2016), 62% of the Chief Procurement Officers globally indicated that their teams do not have the necessary skills required to deliver a strategy. According to Smit (2007:94), strategic resources

or capabilities should be nurtured and continuously improved to ensure that they remain strategic.

Organisations should realise the importance of investing in the upgrading of the skill sets of SCM professionals. Giunipero *et al.* (2006:826) view this as “a critical imperative in achieving strategic advantage”. Christopher (2012:7) advises that the achievement of SCM transformation requires a significant commitment by firms and individuals in terms of the ongoing training and development of the SCM teams in areas of skills deficiency. Shaffer and Dalton (2012:111) assert that training should be regarded as an investment that increases worker productivity and operational efficiency. The main aim of the training programmes should be to educate employees on the necessary knowledge and skills so they can perform the assigned tasks to specific standards. SCM training should also focus on fostering self-regulation in employees. According to Karoly (1993) and Swart *et al*. (2012), self-regulation can be defined as the “internal and transactional processes that serve to guide goal activities”. Tukuta and Saruchera (2015:5) posit that organisations should be prepared to spend money on training their procurement personnel to equip them with the necessary technical skills in and knowledge of strategic SCM.

2.6.2 Proper organisational design

The organisation design, whether effective or ineffective, affects the success of SCM and inevitably the entire organisation (Wagner & Kemmerling, 2014:157). According to Flynn, Huo & Lu (2016:49), for SCM to be effective, as a starting point it is critical that the SCM structure should be aligned with the corporate structure and strategy. Lee (2006:9) asserts that a supply organisation should map its internal structure and operations to align with the corporate strategy.

Flynn, Huang and Zhao (2015:85) argue that a business manager in an organisation is of lower importance than an executive, therefore, the position of SCM and its reporting lines on the organisational structure determine its importance in that organisation (Hugo *et al.,* 2008:32, Flynn *et al.,* 2015:59). Similarly, Lysons and Farrington (2013) refer to the level of the SCM department, implying that the level at which SCM is placed on a hierarchical structure, reveals its status within that company. Lysons and Farrington (2013), in accordance with Flynn *et al.* (2016), indicate that the importance of SCM within an organisation can be determined by the job title of the

executive responsible for SCM, to whom and at what level the executive in charge of SCM reports, the total spend for which SCM is responsible, the financial limits placed on SCM staff to commit undertakings without recourse to higher authority and the fora at which SCM staff are represented.

According to Flynn *et al.* (2016:59) and Wagner and Kemmerling (2014:157), the Chief Supply Chain Officer (CSCO) is the highest executive role with sole responsibility for the SCM function within an organisation. According to the Council of Supply Chain Management Professionals (CSCMP) (2010) “this position is ordinarily found in large corporations and less often in small and medium-sized companies” and (s)he “must be a strategic thinker with confidence and speed in execution [and] have the ability to interact at the highest levels of the company”. There is no ideal structure that all organisations must use, and the organisational structures will differ from business to business depending on the environment, size of the business/operations and nature of the business (Bailey, Farmer, Jessop & Jones, 2015:67; Lyson & Farrington, 2013:49). If organisational structures are correctly formulated, the SCM role and objectives will be clearly defined. Pienaar and Vogt (2012:47) indicate that one of the objectives of SCM is to have an effective organisational structure with competent and motivated employees who focus on the core objectives of the organisation and the shared vision.

2.6.3 Implement enabling information technology systems

Information is a key supply chain driver because it serves as the glue that allows the other supply chain drivers to work together with the goal of creating an integrated, coordinated supply chain system. Information is therefore essential for SCM performance, because it provides the foundation which allows supply chain processes to execute transactions and managers to take decisions. Information plays an important role in SCM, as information is a directional flow that assists the organisation in communicating regarding the physical and financial parameters of the product, and can service a requirement on time (Chandrasekaran, 2012:75; Ye & Wang, 2013:369).

A spate of global technological developments and various IT software and platforms that enable information flows are being generated. The primary attribute of information systems relating to SCM is that the system, software or platform should be able to capture and transmit the information on a real-time basis (Monzka *et al.,* 2012:18).

According to Chopra and Meindl (2013:60) information is an important driver of performance in SCM because it directly affects other drivers. SCM uses this information generated from the system to make decisions. For example, to determine materials usage the production department needs historical information to enable them to make forecasts. IT is used for managing the flow of information across an organisation's supply chain (Prater & Whitehead, 2013:100).

Handfield *et al.* (2008:596) identified the following SCM systems: Supplier Relationship Management (SRM) applications, Decisions Support Systems (DSS), ERP applications, CRM applications, Transportation and warehouse planning systems and execution systems. A good IT system has the potential to make considerable improvements to SCM efficiency and effectiveness (Monzka *et al.,* 2012:597).

The use of SCM ICT systems can assist professional buyers by allowing them to shift their attention from routine to strategic tasks (Monzka *et al.,* 2012:624). Appropriate ICT systems can transform SCM through automation, provide access to a wider range of supplies and help ensure fair and transparent competition. According to Liu,Prajogo & Oke (2016:22) efficient SCM systems need full utilisation of the systems.

2.6.4 Develop appropriate SCM measures and measurement systems

The well-known adage in the business environment that states: "If you cannot measure it you cannot manage it", is still commonly used today in several organisations. As a result, businesses have turned to performance measures as yardsticks to improve its market image and revenue (Li, 2007:325). To this effect, Hofman (2007:28) asserts that "performance measurement is a cornerstone of operational success". SCM measures provide a new perspective on operational performance and are changing attitudes by providing more insight (Fawcett *et al.,* 2016:422). In response to the requirements by business for performance improvement, supply chain measurement models have recently been introduced. However, it is important that the SCM measurements be aligned to the corporate strategies. In fact the SCM strategies and KPIs should be derived from the corporate strategies.

SCM performance measures cannot be determined in isolation and require a holistic approach that considers the organisational corporate objectives. In this regard, SCM measures must incorporate financial and non-financial performance measures.

Lambert (2014:6) asserts that managers should not only focus on optimising their own firm's operations but need to work collaboratively to generate mutual goals.

According to Cousins, Lammings, Lawson and Squire (2008:144), the fundamental objective of SCM performance measurement is to translate the supply chain strategy into action, and to implement a system that monitors and evaluates performance. Effective performance measures are cascaded down from the highest level of the organisation to the lowest ranks. As discussed in Chapter 1, for an organisation to contribute to the success of the organisation, it is important that its supply chain strategy should be derived from the business strategy and there needs to be an alignment of the two strategies. All the activities at the operational level should work towards the bigger organisational strategy.

The SCM performance measures tracks certain processes within the SCM framework (Pienaar & Vogt, 2012:472). According to Cousins *et al.* (2008:153) SCM performance measures are divided into five categories, cost, quality, time, supplier performance and customer satisfaction. According to Cousins *et al.* (2008:146) performance management system must aim at ensuring that there is alignment between the corporate strategy, supply strategy, goals and objectives, performance measures and the actions of all those who are responsible for carrying out the tasks.

2.7 SUPPLY CHAIN PROCESSES

Due to historical changes in the macro and micro environments organisations have been forced to re-engineer their operations. To this effect most organisations have moved away from a departmental/functional business approach to a process-driven approach (Braunsheidel, Suresh & Boisnier, 2010:884). SCM is no longer regarded as a function of a business but as a business process within an organisation (Lu, 2011:16). During the early 1990s, Davenport and Beers (1995:53) defined a business process as a "structured set of activities with specified business outcomes for customers".

In this regard, Chopra and Meindl (2013:26) refer to SCM as a set of processes that take place within and between different stages in the business which combine to fill a customer's need for a product. Accordingly, the motivation to implement business processes in SCM is to make transactions become efficient and effective to fulfil

customer needs (Lambert, 2014:8). The following sections discuss the development of the three business processes in SCM. These frameworks represent the alternatives that are available to assist the management of organisations in the implementation of business processes (Lambert, 2014:217-218).

2.7.1 The global supply chain forum framework

The global supply chain forum framework (GSCFF) identified eight crucial processes that make up the core of SCM:

- **Customer Relationship Management (CRM):** The supply chain approach focuses on the downstream interaction between the organisation and its customers with the aim of satisfying customer needs (Chopra & Meindl, 2013: 473). Lambert (2014:10) asserts that the customer relationship process provides the structure for how relationships with customers will be developed and maintained. It is important to note that in SCM, customers are found both internally and externally. Although external customers are more popular, the internal customers are important within the supply chain processes. These are the end-recipients of the service/goods within the organisation, to be utilised to the benefit of the organisation. To provide effect to this definition a Service Level Agreement (SLA) is a commonly utilised mechanism that is used to manage SCM relationships with customers. The SLA defines the service standards, customer expectations and SCM performance metrics, and SLAs should also be used to measure performance. It is believed that organisations can outperform their competition by exceeding, not just satisfying the needs of their customers. To this effect, Chandrasekaran (2012:450) identified three outcomes of CRM: customer retention, customer acquisition and customer enhancement through cross-selling and up-selling. To achieve these outcomes, SCM needs to work collaboratively with other business departments to ensure that processes are streamlined and well-coordinated.
- **Customer service management:** CSM is the supply chain process that deals with the administration of the Product and Service Agreements developed by customer teams as part of the CSM process (Lambert, 2014:11). CSM is usually centralised under the customer services department, and their crucial responsibility is to ensure that all enquiries are resolved smoothly, timeously and efficiently. In the SCM environment, CSM requires an online, real-time system that will provide

product or pricing information to support customers (Chandrasekaran, 2012:532). CSM does not only focus on the product but on managing the entire chain of business activities, from raw materials through to final consumption (Zokaei & Hines, 2007:223).

- **Demand management:** Customer demands always fluctuate based on the economic, political and social environments. In response to these unpredictable changes, business organisations, through demand management, prefer to influence the timing, pattern and certainty of demand and adjust product characteristics (Swink, Melnyk, Cooper & Hartley, 2011:358). Lambert (2014:11) refers to demand management as the supply chain process that balances customers' demand with the capabilities of the supply chain. The demand management process manages both the orders received from the suppliers and the forecast demand (Croxton, Lambert & García-Dastugue, 2002:51).
- **Customer order fulfilment:** Lambert (2014:12) purports that order fulfilment is much more than just completing an order. It includes all the activities necessary to design networks and enable firms to meet customer requests, whilst maximising its profitability. Li (2007:327) elaborates that order fulfilment has the ability to enhance cost efficiency within supply chain, and can promote high-quality design and maintain lower manufacturing costs. The objective of SCM should be to exceed customer expectations, thereby generating repurchases, favourable word-of-mouth and customer loyalty (Prater & Whitehead, 2013:120).
- **Manufacturing flow management:** Lambert (2014:12) refers to the manufacturing flow management as the SCM process that includes all the activities necessary to obtain, implement and manage the manufacturing flexibility in the supply chain, and to move products into, through and out of the plants. The focus is on providing a customer product need and keeping products in stock to ensure on-time delivery. The production priorities are driven by the delivery dates. The stock on hand is driven by the demand.
- **Procurement:** The sourcing function should support the manufacturing flow process. Suppliers are categorised according to their contribution to the supply chain process, and most familiar categories range from tactical to strategic suppliers. Long-term and short-term relationships are developed and maintained per category. Most SCM professionals like quoting the saying that "good suppliers

do not grow on trees". Indeed, like any other relationship, supplier relationships should be nurtured and cultivated over time. For SCM to be effective and efficient, the SCM professionals must increase their efforts related to the management of supplier relationships (Coyle *et al.*, 2009:126).

- **Product development and commercialisation:** According to Heizer and Render (2008:160), a product development process requires that organisations should create structures that can communicate with the customers, and nurture innovative organisation cultures, aggressive R&D, strong leadership and training. An in-depth understanding of the customer's need is a requirement. The right product must be developed and launched in the least short period possible without any inconveniences to the customer (Stock & Lambert, 2005:26).
- **Returns:** Rogers, Lambert, Croxton and García-Dastugue (2008:159) indicate that management is the SCM process by which activities associated with returns, reverse logistics, gate keeping, and avoidance are managed within the firm and across crucial members of the supply chain. The effective management of returns enables the organisation to identify product improvement opportunities and break-through projects.

Figure 2.7 (on the next page) illustrates the eight crucial processes that make up the core of SCM.

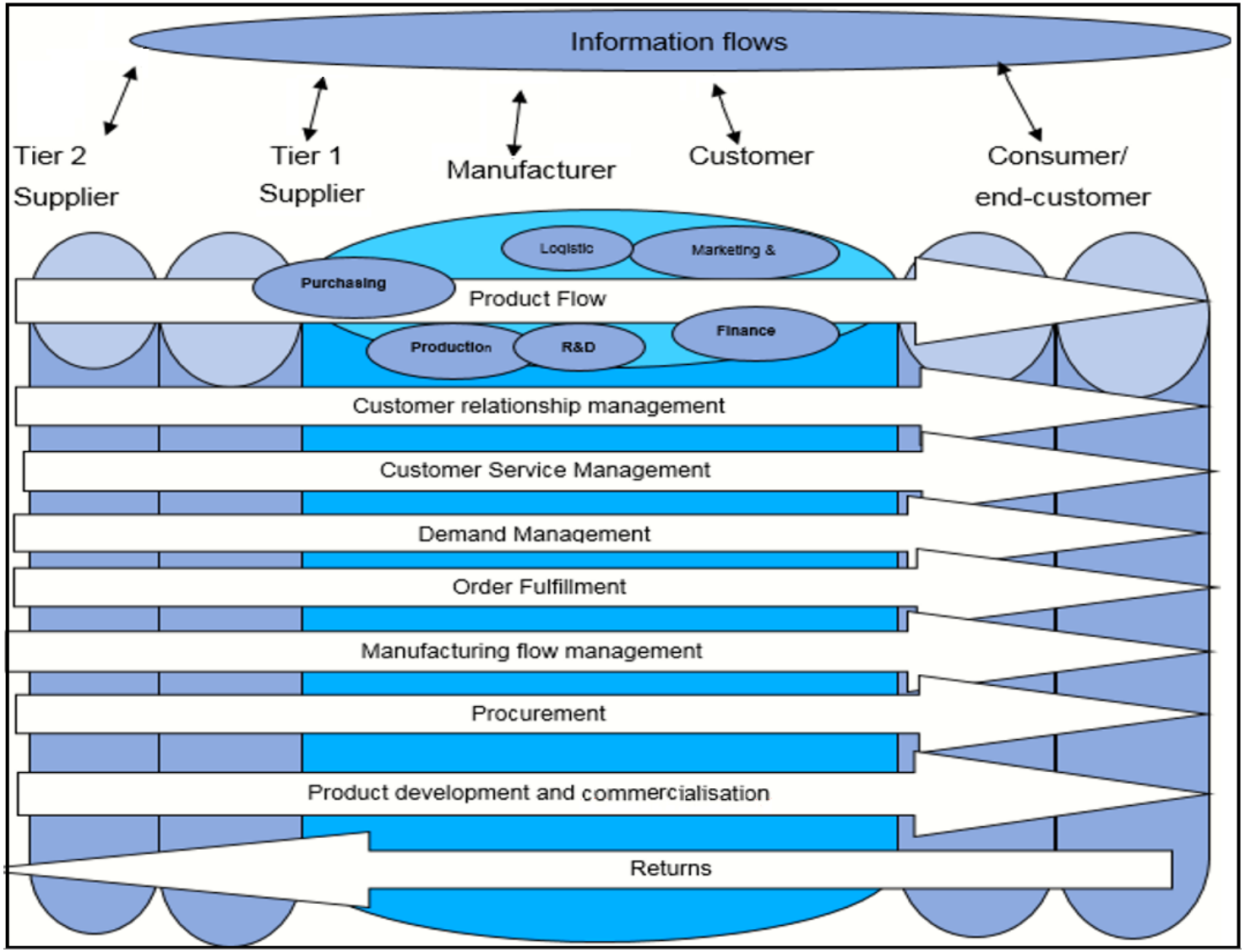

Figure 2.7: The eight SCM processes

Source: Adapted from Stock and Lambert (2005:55)

2.7.2 Supply chain operations reference

Supply chain operations reference (SCOR) is one of the most well-known processes of integrating supply chains and measuring the supply chain personnel's performance. According to Bolstorff and Rosebaum (2003:2), SCOR combines elements of business process engineering, benchmarking and leading practices into a simple framework. Wisner *et al.* (2012:448) maintain that the model was meant to enable the effective communication, performance measurement and integration between supply chain members.

SCOR was developed in 1996 by the Supply Chain Council. The SCOR model separates supply chain operations into five process categories: plan, source, make, deliver and return.

The following are the crucial elements of the SCOR model:

- **Planning:** This is the strategic portion of SCM. SCM planning is the process of assessing supply resources; to aggregate and prioritise demand requirements; to plan inventory for distribution, production, and material requirements; and plan rough-cut capacity for all products and all channels and to develop a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.
- **Sourcing:** Sourcing involves obtaining, receiving, inspecting, holding, and authorising payment for raw materials and purchased finished goods. The raw materials are channelled to operations/production for further processing.
- **Making:** This stage involves the transformation of raw materials into finished goods. The process includes requesting and receiving materials; manufacturing and testing products; packaging, holding and/or releasing products.
- **Delivering:** This is where companies coordinate the receipt of orders from customers, develop a network of warehouses, select and appoint carriers to get products to customers and set up an invoicing system. This includes execute order management processes; generate quotations; configure product; create and maintain customer database; maintain product/price database; manage accounts receivable, credits, collections, and invoicing; execute warehouse processes, including pick, pack, and configure; create customer specific packaging/labelling;

consolidate orders; ship products; manage transportation processes and import/export; and verify performance.

- **Returning:** Supply chain planners have a responsive and flexible network for receiving defective and excess products back from their customers and also in supporting customers who have problems with delivered products. The return process includes the management of defective, warranty, and excess return processing, including authorisation, scheduling, inspection, transfer, warranty administration, receiving and verifying defective products, disposition and replacement.

2.7.3 Collaborative planning, forecasting and replenishment

Collaborative planning, forecasting and replenishment (CFPR) is a fundamentally new collaborative method of scheduling logistics between suppliers and customers. It is dependent upon timely and accurate information sharing, visibility and transparency. The American Production and Inventory Control Society (APICS) defines collaborative planning, forecasting and replenishment as follows:

> *Collaborative is a process whereby supply chain trading partners can jointly plan crucial supply chain activities from production and delivery of raw materials to production and delivery of final products to end-customers. Collaboration encompasses business planning, sales forecasting, and all operations required to replenish raw materials and finished goods.*

According to the CSCMP (2017), CFPR is a concept that aims to enhance SCI by supporting and assisting joint practices.

CFPR seeks the cooperative management of inventory through joint visibility and the replenishment of products throughout the supply chain. Information being shared between the suppliers and retailers aids in planning and satisfying customer demands through a supportive system of shared information. This allows for continuous updating of inventory and upcoming requirements, essentially making the end-to-end supply chain process more efficient. Efficiency is also created through the decreased expenditures related to merchandising, inventory, logistics and transportation across all trading partners.

According to Wisner *et al.* (2012:143) the main objective of CFPR is to create efficiency within the supply chain by ensuring accurate forecasting, procurement and the delivery of the correct products. It eliminates defective deliveries, and also leads to a reduction of inventory costs, on-time replenishment, reduction of materials lead time, reduction of capital invested in inventory, and improved customer service. CFPR's approach focuses on the optimisation of the materials management processes and on ensuring the proper implementation of demand management. Inaccurate demand affects the materials reorder points, refill levels, increases lead time, and may lead to either stock-outs or over-stock. SCM must always be conscious of business development and challenges as these will have a huge impact on what, when and how much to procure. Conceptually, CPFR should enable significant scope and depth to collaborations across the supply chain. However, scale and complexity are significant constraints to its implementation.

2.8 CONCLUSION

This chapter presented a conceptualisation of SCM. It can be concluded that SCM plays a crucial role in the organisation and makes a significant contribution to the competitive advantage of the organisation and the bottom line. For SCM to be effective in an organisation, there needs to be an alignment of the SCM strategies and practices with the organisational strategies. It is believed that such an alignment will contribute to the performance of an organisation. It was also established that SCM cannot function in silo but needs to collaborate with other internal business functions. The topic of integration was discussed from two perspectives, internal and external integration. Internal integration focused to the integration of systems, processes and individuals into SCM, while external integration referred to the integration of crucial stakeholders such as the Government, local communities and the suppliers. Suppliers are crucial participants in the SCM process and therefore should be regarded as partners.

The next chapter focuses on the SCM practices in SOEs in South Africa, the policies and regulations governing SCM and the challenges to implementation.

CHAPTER 3:
SUPPLY CHAIN MANAGEMENT IN SOUTH AFRICAN STATE-OWNED ENTERPRISES

3.1 INTRODUCTION

Chapter 2 discussed the foundations, historical development, various definitions of SCM, enablers of SCM and the processes thereof. The chapter further demonstrated the important role of SCM in organisations and its contribution to the competitive advantage. SCM as a value-add function continues to be regarded as one of the major contributors to the organisation's bottom line. Chapter 3, therefore, introduces a review of the contextual and theoretical literature relating to the role of SCM in SOEs in South Africa. The chapter commences with a global overview of SOEs, discussing the role that SOEs play in the economy. Thereafter, universal issues affecting SOEs are discussed, followed by a discussion of SCM policies and regulations, SCM practices and SCM performance in SOEs. This chapter further discusses the SCM challenges facing SOEs.

3.2 GLOBAL OVERVIEW OF STATE-OWNED ENTITIES

SOEs are legal entities created by Government to undertake commercial activities on behalf of the state (PWC, 2015:6). These entities are often the largest and most valuable entities, with monopolies in mining, petroleum, infrastructure, and heavy industry. SOEs are primarily responsible for the provision of essential infrastructure and services, public value creation, major infrastructure development and upgrades, creation of jobs and the enhancing of skills (Forfas, 2010:1). According to PWC (2015:6), "SOEs became tools for some countries to position themselves for the future in the global economy provided increased global competition for finance, talent, and resources".

In Singapore, SOEs served to jumpstart industrialisation, they spearheaded development, and led to economic growth in various sectors of the Singaporean economy. In India, SOEs are the 'nerve centre's' of the economy and the backbone of economic development through large-scale infrastructure projects, services and

resources (OECD, 2011). Chinese SOEs continue to play a significant role in both the domestic and global markets (Gang & Hope, 2014:3). According to PWC (2015:45), the Swedish Government's objective for the management of SOEs is "to ensure long-term value growth and to ensure that specifically adopted public policy assignments are performed well".

Several successful SOEs in the world include Singapore Airlines, Brazil's EMBAER, the French Renault, Korean POSCO, South African Transnet, and the highly respected Indian Bombay Transport Authority, Cheng. Similarly, Qatar airlines was voted the world's best airline of 2011 (SkyTrax, 2011). The following section provides background on SOEs in the South African context.

3.2.1 State-owned entities in South Africa

South Africa, as a developmental state, recognises the importance of SOEs as a catalyst for economic growth, development, employment and the transformation of the economy (PRC, 2013a:9). As a result, SOEs face pressure and there are high expectations for them to promote effective and efficient services and to partake in addressing the socioeconomic issues facing the country. In this regard, the former President of South Africa, Mr Jacob Zuma (2012) urged that "we have to ensure that whilst they remain financially viable, the SOEs, development finance institutions and companies in which the State has a significant shareholding must respond to a clearly defined public mandate and assist us to construct a developmental state". However, McCue, Prier and Swanson (2015:200) caution against the call for Government to operate more like a business, mentioning the dilemmas faced when balancing the regulatory goals, socioeconomic goals and commercials goals of their entities.

In South Africa, SOEs are found in all three spheres of Government, namely the Local, Provincial and National Government. According to the PRC report (2013a:67) and Accenture (2010:1), there are about 715 SOEs in South Africa. The number of SOEs has increased over the years due to the increase in the number of provinces and local authorities. According to the PFMA addendum issued in 2015 by the National Treasury, there are 299 SOEs in South Africa and these are classified as follows: Schedules 1, 2, 3B, 3C and 3D (see Section 1.2.2 and Table 3.1). The schedule classification is used extensively by the South African Government, primarily for financial management (PFMA, 1996).

Table 3.1: PFMA classification of state-owned entities in South Africa

Schedule	Description	Operation/and funding characteristics	Number of SOEs
1	Constitutional entities: Means an institution listed under Schedule 1.	Fully funded by Government	11
2	Major public entities	Operate under business principles	21
3A	National Public Entities and SETAs	Fully or substantially funded under the NRF (National Research Foundation, tax levy imposed through legislation	154
3B	National Government Business Enterprises	Operate under business principles with limited borrowing	26
3C	Provincial Public Entities	Fully or substantially funded under NRF, tax levy imposed through legislation	70
3D	Provincial Government Business Enterprises	Operate under business systems with limited borrowing	16

Source: National Treasury (2015)

This study focuses on the 299 SOEs that are recognised in the PFMA (Addendum - 2015). The following section discusses the sources of funding for SOEs.

3.2.2 Funding of state-owned entities

The South African Government derives its income from the following crucial sources: personal income tax (29% of Government income), Company tax (27% of Government income), Value added tax (VAT - 26% of Government income) and Customs and Excise (5%). In combination these account for approximately 82% of the national budget revenue, with the fuel levy, excise and customs duties accounting for around 12 to 14% of the total national budget revenue. Government uses this money to provide services and infrastructure with the aim of improving the lives of all the individuals in the country, particularly the poor. The rest of the funding is acquired through debt (domestic or foreign debt), retained earnings and donations.

The 82% of Government revenue that comes from the citizens, personally or through companies, makes the citizens a major stakeholder in the South African Government.

The SOEs derive their income from one, or a combination of some, of the following sources:

- Government direct funding,
- the strength of their balance sheet,
- Government guarantees, revenues or relevant subsidies and grants.

Most of the commercial entities listed in the PFMA schedules fund themselves on the strength of their balance sheets, with or without Government support, and sales revenues. The rest of the entities, such as the Constitutional Entities (Schedule 1), public entities, water boards and the SETAs are funded mainly through partial sales, revenues, Government grants and subsidies. In the case of the SETAs, additional special taxes are levied. Schedule 2 SOEs tend to rely on capital market debt to fund their requirements, their capital expenditures, with only a few of the SOEs able to inject long-term equity capital through the sale of non-core assets.

3.2.3 Contribution of state-owned entities to the economy

SOEs play a major role in assisting Government to realise its socioeconomic and developmental goals, such as employment creation, contribution to economic growth, poverty alleviation, skills development, enterprise development and other crucial objectives (PRC, 2013a:7). The SOEs governed by the Department of Public Enterprise contribute a significant 8% towards the GDP. For example, Eskom contributes 2.8% to GDP and is responsible for 129 000 people through its suppliers whilst directly employing 35 707 people (Eskom Annual Report, 2013:20). Transnet directly employs over 84 080 workers and has created 129 000 jobs. Transnet directly contributes 3.1% to the South African GDP due to its operational and capital expenditure, considering only the initial impacts and first-round effects in the economy (Transnet Annual Report, 2015:4).

It is therefore evident that SOEs play a leading role in the creation of jobs, skills development, the provision of basic services, and the contribution to the GDP. However, the majority of the SOEs in South Africa are faced with numerous challenges, both operationally and commercially.

3.2.4 Service delivery and performance challenges of state-owned entities

The role of SOEs in service delivery is directed at ensuring that basic services are offered on behalf of the state in an efficient and effective manner. The sustainability of SOEs therefore depend on their ability to deliver on their crucial mandate, taking into account the fact that some SOEs have profit and financial returns as primary motive (Transnet, Eskom), while the primary motive of others is service delivery and they are wholly dependent on the state for funding (Public Protector).

Table 3.2 provides a high-level view of SOEs and their mandates. Most of the SOEs listed in Table 3.2 are Schedule 2, while some are Schedule 3 entities. According to PWC (2015:1) “SOEs should not be purely evaluated only based on financial results but more widely on how they contribute to societal value creation, taking an integrated and holistic view of their impact”. Apart from their commercial roles, SOEs also contribute to socioeconomic development, such as rural electrification, telecommunications penetration, security of supply of fuel, and so forth, as all of these remedy market failures and highlight the strategic importance of well-run SOEs.

Table 3.2: Role of commercial state-owned entities

Reason for state involvement	State-Owned Entities
Natural monopolies	Eskom, Transnet, Water boards, SANRAL, ACSA
Investment returns	IDC, DBSA, Land Bank
State and economic security	Denel, CEF, PetroSA, Armscor, TCTA Water Boards
Social or developmental goals	Post Office, Post Bank, SABC, SETA's, SAFCOL
Market failures	IDC, DBSA, Land Bank, NEF
Unknown	Sentech, Broadband Infraco, Investment in Telkom, SAA

Source: Adapted from PRC (2013b:15)

According to the PRC (2013b:139), the performance of SOEs therefore can be evaluated at two levels, namely, at (1) the achievement of their strategic objectives and (2) the contribution of SOEs to the state’s developmental and transformational agendas. The SOE mandates are clearly articulated in the shareholders compact which becomes the main reference concerning deliverables, and the mandate of the

SOEs are the main reasons for their existence (PRC, 2013b:138). In the most recent years SOEs in South Africa have been associated with poor performance (Boko & YuanJan, 2011:1). The negative performance of SOEs has a direct impact on service delivery and socioeconomic objectives.

Coleman (2014), cited in Leon (2015:3), asserts that:

> *"Widespread governance and management issues (at PetroSA, SAA, Eskom, Post Office, SABC), operating and balance sheet traumas (PetroSA, Eskom, SAA, SABC, Post Office)…and generally non-delivery of services (Eskom, Post Office, some water boards) bedevils the very delivery of essential economic and social services on which the country depends and acts as a significant drag on growth and a dampener on the spirit of transformation."*

Pillay (2012:1) advices that the performance of SOEs against their strategic objectives requires urgent attention. Government must ensure that SOEs are well-resourced, and that their managers have the right skills to be able to make decisions. Furthermore, if there is less political influence in SOEs their performance improves (Mbo & Adjasi, 2014:23).

Most of the service delivery challenges facing SOEs are associated with inadequacies in their supply chain management processes, such as non-compliance to policies and regulations, corruption, waste of money and misconduct of SCM practitioners (National Treasury, 2015).

During the delivery of their mandates and service delivery projects, it is obligatory that SOEs must comply with Government policies and regulations governing SCM. The following section provides an overview of the public sector SCM, which is followed by a discussion of SCM in SOEs.

3.3 PUBLIC SECTOR SUPPLY CHAIN MANAGEMENT IN SOUTH AFRICA

The Government SCM spend in 2016/17 amounted to R938 billion, where R338 billion (35%) of the expenditure was dispensed through SOEs. The Public Sector SCM in South Africa accounts for 19% of the GDP, and therefore has the potential to contribute towards the achievement of Government's socioeconomic goals (Turley & Perera, 2014:33) cited in Zitha *et al.* (2016:69).

The public sector SCM in South Africa is that part of Government process that deals with the provision, procurement, delivery and allocation of goods and services to and by the Government for its citizens (National Treasury, 2015). An efficient SCM system therefore should ensure value for money in public sector expenditure (Abebe, 2008:1267).

Public sector expenditure through SCM accounts for a significant share of the total general Government expenditure. In 2011, on average, the general public-sector procurement spending of the OECD countries (the 34 countries belonging to the Organisation for Economic Co-operation and Development) represented 29% of the total general Government expenditures or 13% of GDP (OECD, 2011:2).

Due to the huge expenditures and the financial challenges facing Government, an effective public sector SCM has become a major requirement. Public sector SCM is described as "a procurement management system that includes four main areas". Due to its importance, the public sector SCM is embedded on the Constitution, PFMA, PPPFA and several other legislations.

The concept of SCM in the South African public sector was introduced in 2004. As an international best practice, SCM in the public sector aims at enhancing efficiency. Accordingly, the National Treasury (2005:9) asserts that "the introduction of an integrated SCM function will address the inefficiencies in Government's method of procurement, contract management, inventory/asset control and obsolescence planning". The implementation of the public sector SCM in South Africa is based on the National Treasury's framework for SCM. The framework comprises six crucial elements, namely, demand, acquisition, logistics, disposal, supply chain performance, supplier database and risk management, as summarised below. (Further detail will be discussed in Chapter 4.)

- The framework introduced demand management as the first element of SCM. Crucial activities for demand management include: A needs assessment, pre-determined specifications, ensuring that requirements are linked to the budget; and that the supplying industry is analysed.
- The second element is acquisition management, which involves market identification, total cost of ownership, completeness of bid documents, evaluation of bids in accordance with published criteria, and to ensure that proper contract documents are signed.
- Logistics management involves inventory, transportation and vendor performance.
- Disposal management involves obsolescence planning, the identification of redundant materials and the execution of physical disposal processes.
- SCM performance involves monitoring the performance of SCM against the strategy to ensure effectiveness and efficiency within the system.
- The final element of SCM, is supplier database and risk management.

3.3.1 Objectives for the implementation of public sector SCM

The main goal of SCM is to manage the delivery of goods and services through the supply chain in a cost-effective manner (Sukati *et al.*, 2012:226). Glas *et al.* (2017:580) and Erridge and McIlroy (2002:450) identified three sets of strategic goals of SCM in the public sector as: regulatory goals, commercial goals, and socioeconomic goals.

- The regulatory goals focus on compliance with the policies and regulations, and directives issued by National Treasury.
- The commercial goals focus on the revenue generation by SOEs to ensure their self-sustainability. From an SCM perspective, the commercial goals seek to achieve reduced costs, increased quality, and a reduced procurement cycle.
- The socioeconomic goals focus on the use of SCM by SOEs to deliver Government imperatives, especially the socioeconomic policies (Erridge & McIlroy, 2002:450; Glas *et al.,* 2017:580).

There is ongoing conflict on the implementation of the three goals. Figure 3.1 provides an illustration of the goal triangle in the public procurement environment.

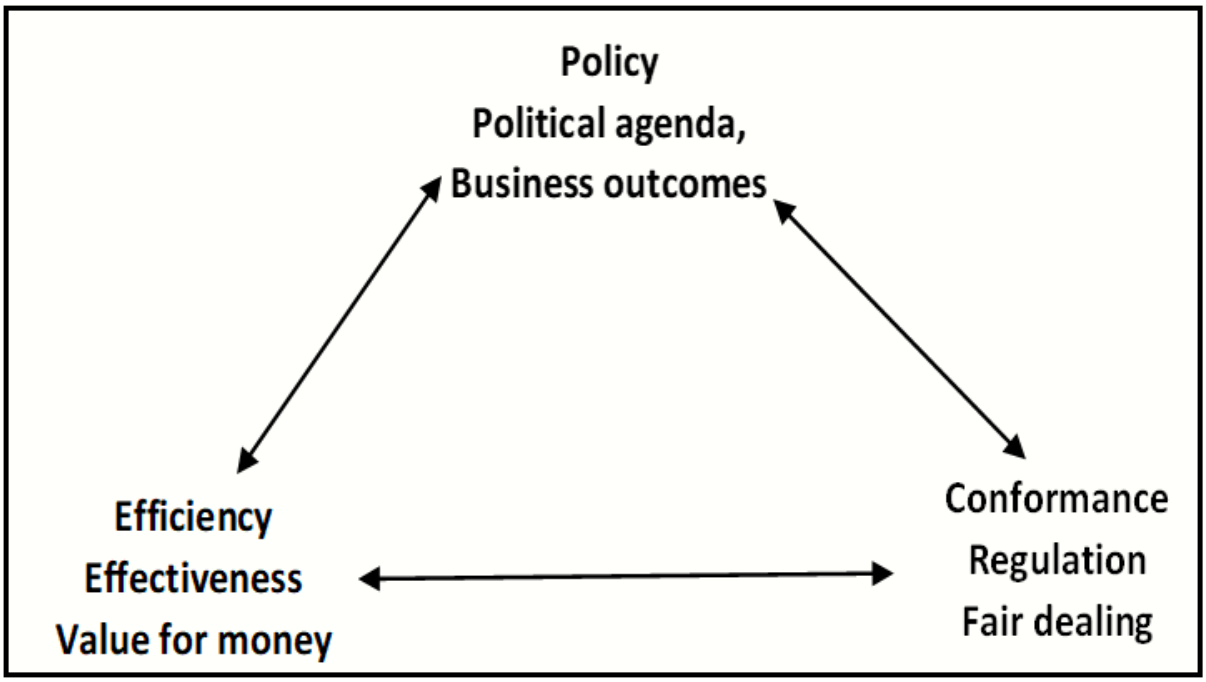

Figure 3.1: Goal triangle of public procurement

Source: Thai (2009:5)

The complexity of balancing the different, and sometimes, somewhat contradictory objectives, as required by the different stakeholders in public procurement, can make it difficult to measure supply chain performance in SOEs (Thai, 2009; Awino & Marendi, 2014; Rha, 2010). As a result, SCM practitioners in SOEs are always faced with the task of meeting the public expectations regarding both transparency and efficiency (Thai, 2009:9). Efficiency in SCM has become an urgent issue in the public sector environment (Chigudu, 2014:21). Efficiency, in a public sector environment, refers to gaining value for money (Abebe, 2008:1268). To ensure transparency, the public sector is required to produce policies, procedures and practices governing their purchases, for example, the documents must be able to pass through audits and court cases (Ratemo & Karanja, 2017:7041, Owuoth & Mwangangi, 2015:173, Onyimkwa, 2013:562).

3.3.2 Public sector SCM structures in South Africa

Public sector SCM systems vary between countries, and depend on the country's Governmental framework (Thai, 2009:5). SCM in South Africa has transitioned from the rules-based system run by the tender board to a more flexible and decentralised system (Turley & Perera, 2014:8). According to the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development

(OECD) (2006:20), “it is important that public SCM is mainstreamed and well-integrated into the public-sector governance system”. The public sector SCM system can either be centralised or decentralised. According to Lysons and Farrington (2013:165), the term centralisation implies that “all crucial strategies, policies and decisions are taken at a company headquarters level, although it sometimes means at a regional or divisional level”.

Thai (2009:9) emphasises that “the central authority often delegates certain powers to others, but the point remains that they stay with that central figure”. Centralised purchasing enables an organisation to leverage their purchasing power to achieve cost savings and it allows activities to become more coordinated. Although there are common practices in the centralised SCM in Government, there is a recent trend towards decentralisation in efforts to improve responsiveness, to eliminate bureaucratic obstacles, to improve interdepartmental coordination and to empower service delivery managers (Johnson, Leenders, & McCue, 2009:176). According to Layug (2009:2), decentralisation “is about the transfer of powers, responsibilities and resources from central to subnational Governments”.

The South African Government adopts a hybrid SCM structure, meaning that the SCM system in South Africa is both partly and fully centralised. The development of Governmental SCM policy and regulations is centralised at the office of the Chief Procurement Officer. However, the implementation is decentralised. Therefore, Government and its entities procure goods and services separately. Decentralisation of SCM provides the SOEs with the flexibility of deciding how to spend their budgets (Turley & Perera, 2014:8). This approach has resulted in major challenges within the system, such as a duplication of efforts by Government and its entities, and a waste of financial resources. According to the President of South Africa (South Africa News, 2012) “the chief procurement office will assist [to] reduce fragmentation in the SCM system’. The office of the chief procurement officers (CPO) has achieved this objective through the implementation of transversal contracts, a centralised supplier database, and the e-procurement portal.

3.3.3 Pillars of public sector SCM in South Africa

According to Owuoth and Mwangangi (2015:18), transparency, openness in SCM, and competitive bidding can assist to improve SCM performance. The pillars for SCM in

the South African public sector include: value for money, fairness, equity, accounting and reporting, ethics and fair dealings, and open and effective competition (National Treasury, 2005). The pillars are briefly discussed in the sections below.

3.3.3.1 Value for money

Value for money can be described as that which Government judges to be an optimal combination of quality, quantity, and expected costs (Burger & Hawkesworth, 2011:2). It is evident that price alone is often not a reliable indicator, and departments will not necessarily obtain the best value for money by accepting the lowest price offer that meets the mandatory requirements. Best value for money, therefore, means the best available outcome when all the relevant costs and benefits over the procurement cycle are considered. Value for money in an SCM view is narrowly defined as “a concept associated with deployment of resources vis a vis realisation of some expected output values”.

Value for money can be divided into the three popular public procurement goals: economy, efficiency and effectiveness. Economy is concerned with minimising the cost of resources that have been acquired, while considering the quality of inputs. Efficiency is concerned with the relationship between the outputs of services and the resources that were used to achieve this. Effectiveness is concerned with the achievement of targets, not only concerning quantity, but also quality. According to Schapper, Malta and Gilbert (2009:91) “efficiency of the process is a consideration regardless of whether procurement is defined as a regulated process or a managerial task”. Public SCM practitioners are expected to demonstrate their capabilities to deliver improved value for money, while addressing, not only efficiency, but also effectiveness in delivery (Kakwezi & Nyeko, 2010:110).

As the taxpayer’s expectations for greater value for money increase, the Government and SOEs are increasingly finding themselves under the same pressures that private enterprises experience to align their strategy and to reap the resulting benefits (Cousins *et al*, 2008:100; Eyaa & Ntayi, 2010:83; Bor, Chepkwonmy & Bonuke, 2015:96). An efficient public sector SCM clearly displays the ability of Government to transform taxes and other revenues into consumption by Government institutions at all levels, allegedly for the public good (Matthews, 2005:388; Mamiro, 2010:3; Gelderman, 2010:244).

3.3.3.2 Open and effective competition

The second pillar for SCM in South Africa is openness and competition. Openness and effective competition could be achieved through legislations, acts and policies. To ensure transparency, the public sector is required to produce policies, procedures and practices governing their purchases. Such documents must be able to pass through audits and court cases (Bailey *et al.*, 2015:344). Competition in Government SCM is stimulated through a quotation system and a competitive bidding process. Competition amongst service providers for Government services enables Government to tap into private sector expertise, thereby saving costs (Keisler & Buehring, 2009:213).

3.3.3.3 Ethics and fair dealings

All the parties in SCM are expected to comply with ethical standards, deal with each other based on mutual trust and respect; and conduct their business in a fair and reasonable manner and with integrity (National Treasury, 2015a:3). Government officials are responsible for declaring their personal interests in SCM decisions, they need to avoid conflict of interest and they generally need to monitor and manage fraud. Svensson (2009:260) asserts that SCM ethics appear to be of crucial importance in the actions taken by Government when spending the tax payers' money. Fair SCM implies an impartial process, free from discrimination, that is just and complies with policies and regulations (Pauw & Wolvaardt, 2009:13; Mofokeng & Luke, 2014:2).

3.3.3.4 Accountability and reporting

Every year significant amounts of tax payers' money is spent in the public sector for goods and services. SCM Practitioners and other crucial role participants owe it to the public to ensure that the tax payers money is spent wisely. According to Bailey *et al.* (2015:344), "a primary purpose of public accountability is to prevent abuses of taxpayer's money". Accountability is the most important principle of Government SCM. It ensures that individuals and organisations are answerable for their plans, actions and outcomes. A public administration which is open and transparent, and which allows for external scrutiny and public reporting, is an essential element of accountability. A crucial aspect of accountability is record keeping, and consequently, reporting.

3.3.3.5 Equity

The word ‘equity' in the context of the guidelines provided by National Treasury (2011) means, “the application and observance of Government policies, designed to advance individuals or categories of individuals disadvantaged by unfair discrimination”. This pillar ensures that Government is committed to economic growth through the implementation of measures to support the industry generally, and especially to advance the development of small, medium and micro enterprises, and historically disadvantaged individuals. The PPPFA (2000) introduced the preferential procurement 80/20 and 90/10 preference points system. According to this system, tenders or quotations from R30 000.00 up must be awarded through the points earned, where 80/90 points are earned for price, whilst 20/10 points are earned for B-BBEE.

3.4 SUPPLY CHAIN STRATEGY IN STATE-OWNED ENTITIES

The successful implementation of a supply chain strategy can contribute significantly to the strategic objectives of SCM in SOEs, and consequently, Government imperatives. The success factors of the implementation of an SCM strategy represent a wide variety of factors devoted to improving the operational efficiency and effectiveness of SCM.

The study identified eight success factors that are relevant to the implementation of supply chain strategy in SOEs (Table 3.3). Each of the success factors is discussed in the sections below.

Table 3.3: Success factors of the implementation of supply chain strategy in SOEs

Success factors	Author (s)
The SOE strategy supports Government policies and laws	Singh, Garg and Deshmukh (2010), Singh, Kumar and Skankar (2012), Kumar, Singh and Shankar (2014)
SOEs develop functional strategies to deliver on Government imperatives	Brammer and Walker (2011)
SOE strategy is translated into an annual performance plan	National Treasury (2015)
SOE generates an annual procurement plan, which is budgeted for and SCM utilises the procurement plan for the procurement of goods and services	Bailey *et al. (*2015); National Treasury (2015); Mamiro (2010), Rotich (2011)
Supply chain strategy is developed in support of the SOE strategy	Cousins *et al.* (2008); Monzka *et al.* (2012) and Harrison and Van Hoek *(*2008)
The supply chain strategy is supported by the SOE's SCM policy	Wisegeek (2013), Bartik (2009)
SCM policy is aligned with Government policies and regulations	Glas *et al.* (2017)
The SCM processes are well documented	National Treasury (2015)

Source: Own compilation

3.4.1 The SOE strategy supports Government policies and regulations

The SOE strategy supports Government policies and regulations and is translated into an annual performance plan. The first step of strategic management in the public sector involves the development of the organisational strategies and ensuring that such strategies are aligned with the organisations' core mandate and Government imperatives. The strategic management and planning processes in SOEs are guided by National Treasury' regulations, policies and the Framework for Strategic Plans and Annual Performance Plans. As a prerequisite, the SOEs organisational strategies should cover a period of at least five years, ideally from the first planning cycle following an election, and be linked to the identified outcomes of the Presidency. The plans are reviewed on a yearly basis at the beginning of each financial year. The planning framework emphasises "outcome-oriented planning", which focuses on achieving outcomes and reporting on the results of performance.

The information is used for internal management and for reporting to external stakeholders, such as Parliament and the public. The strategic plans, annual performance plans and annual procurement plans should include, amongst others how the organisation will provide effect to their service delivery mandate through SCM.

The first phase of the planning process produces a strategic plan, followed by an annual performance plan. The annual performance plan is costed and approved by the relevant officials. Based on the strategic plan, user departments develop an organisational demand plan followed by a procurement plan. The procurement plan is developed as part of the corporate planning process and therefore linked to the strategic and annual performance plans of the SOE. To ensure this alignment, SCM must be involved in the corporate planning process through representation on the SOE's executive committee. Service delivery should be at the centre of the strategic planning, development and implementation in SOEs.

The strategies must be clearly defined and well documented. SCM personnel have a full understanding of what the organisation seeks to achieve and how that is delivered and achieved through SCM. The involvement of SCM in SOE strategic development and planning cannot be overemphasised, as it allows the SOEs an opportunity to capture cross-enterprise opportunities that not only generate cost and capital efficiencies, but also contribute to the socioeconomic goals while also driving top-line opportunities. SOE corporate strategies and objectives are the basis for the development of SCM strategies and practices. It is therefore important for the SCM objectives and strategies to be aligned with that of the SOE, to reinforce SCM's strategic role in SOEs. This alignment has a huge impact on the SCM practices in SOEs.

3.4.2 SOEs must develop functional strategies to deliver on Governmental imperatives

There is a need to achieve shareholder alignment so that the functional strategies and business processes used to deliver them are compatible with the business strategy and shareholder expectations, such as revenue growth, working capital efficiency, operating cost reduction, and fixed capital efficiency (Christopher & Ryals, 1999:56). Wong, Skipworth, Godsell and Achimugu (2012:420) assert that shareholder alignment is achieved when the business strategy, supply chain strategy and

employees' expectations are aligned with shareholder objectives, and the business strategy is well-defined to ensure organisational change to meet shareholder objectives. Successful alignment requires companies to have a clear view of strategy and operations, plans and activities. Only with increased visibility can businesses identify the barriers to alignment and close the gaps that may be keeping them from competing more effectively (Forbes, 2009:9).

Strategic alignment is a process that will assist an organisation to secure clarity in their business direction, to have effective customer relationships, to have a resilient operating strategy, to have internal cohesion and collaboration, to adapt an organisational culture/infrastructure and to obtain sensitive leadership at all levels. Consequently, strategic alignment is a detailed process that encompasses a broad use of knowledge, technical ability and skills and the perseverance of all the members of the organisation, including the management and other stakeholders, to be able to establish a focused, realistic, flexible and continuous business infrastructure which is effective in meeting the needs of the business and satisfying consumers (Luftman, Papp & Brier, 1999:9).

3.4.3 Supply chain strategy is developed in support of the SOE strategy

The secret of success in most organisations lies in the alignment of their internal processes with those of their suppliers and customers, which results in internal and external integration. This has become a very important element of supply chain strategy (Frohlich & Westbrook, 2001:185; Harrison & Van Hoek, 2008:258; Handfield, Monczka, Giuinipero & Patterson, 2011:675). According to Cousins *et al.* (2008:103) and Chopra and Meindl (2013:37), strategic alignment means that functional strategies should connect with business and corporate level strategies. Strategic alignment asks the following question: Does our functional level strategy support the business- or corporate level strategy? Ivanov and Sokolov (2010:173) confirm that SCM allows companies to reduce costs, improve quality, increase productivity, reduce cycle time and improve competitiveness. Walter, Kellermanns, Floyd, Veiga and Matherne (2013:14) assert that strategic alignment and strategic consensus will have an interactive effect on organisational performance.

Pursuing a supply chain strategy which is unaligned with the core objectives and other business functions, typically indicates dysfunctionality (Murray, 2007:94; Walter *et al.*,

2013:1), particularly, when pursuing strategic priorities not well aligned with the organisation's environment. The implementation efficiencies attributed to consensus are likely to have less of an effect on organisational performance, as the organisation is pursuing priorities that are ineffective for its environment. This is labelled as misaligned consensus. It can therefore be deduced from the above discussion that the misalignment of strategies can result in alignment gaps which arise from inconsistencies between strategy and process, and consequently result in a loss of value to both the customer and shareholder (Harrison, Godsell, Skipworth, Wong, Julien & Achimugu, 2007:3; Chopra & Meindl, 2010:37).

Table 3.4 illustrates the possible links between the SOE and supply chain objectives.

Table 3.4: Links between SOE and supply chain objectives

SOE objectives	Supply chain objectives
Service delivery	Reduction of procurement cycle time, improved quality products and services
Socioeconomic goals	Empowerment of entities owned by women, youth and blacks through preferential procurement
Improve profits, cash flow and return on capital	Negotiate contracts, cost reductions, improve reliability, reduce stock on hand
Eliminate non-core activities	Outsourcing non-core activities whilst focusing on the core
Introduce continuous improvement	Strategic supplier partnerships increase accuracy and reliability

Source: Own compilation

The SOEs' purpose and mission, once formulated, should then be cascaded by their executive management and board of directors to provide clear direction and accountability to the entire organisation. SOEs deliver the mandates either through direct interaction with the citizenry or through the outsourcing of service delivery programmes. Due to the high procurement budgets in SOEs, SCM is developing into a functional domain of strategic importance. Strategic SCM focuses on aligning SCM objectives with the SOE's mandate and corporate strategy and objectives, ensuring that every single activity in SCM contributes to achieving the objectives of the organisation.

Corporate objectives in SOEs should be understood in the context of the specific SOE's mandate, whereas SCM objectives and strategies should be understood in the context of fulfilling the socioeconomic objectives. SOEs have a responsibility to contribute to the socioeconomic objectives of the country. Due to their high procurement spend, SOEs have economic and social power, through their SCM decisions. SOEs therefore should leverage on their high purchasing power and their SCM systems as mechanisms to deliver their service delivery programmes and to contribute to Government's socioeconomic goals.

3.4.4 SOEs and the annual procurement plan

This section will discuss how SOEs generate an annual procurement plan, how the annual procurement plan is budgeted for and how SCM utilises the procurement plan for the procurement of goods and services.

The SOEs are required to ensure that their organisation has a strategic procurement plan and that strategies are developed to realise the plan (Eyaa & Ntayi, 2010:83). SCM in SOEs, through the existing National Treasury frameworks, are required to consolidate their procurement plans consisting of all goods and services above R500 000.00 and to submit them to National Treasury. The entities' procurement plan must be approved by the accounting officer (National Treasury, 2011:2) and the annual procurement plan requires a strategic and robust market analysis.

The investment in the planning, research and analysis helps in identifying the most suitable solutions and strategies for the service delivery programmes and business requirements. When developing the strategic plans and annual procurement plans it is therefore important for SOEs to conduct situational analyses on the organisation's responsibilities, service delivery status, the financial health of the SOE, the crucial stakeholders and their expectations. In doing so, the SOEs must take into consideration the applicable Government policies and long-term plans. The procurement plan should be delivered through various SCM strategies, such as amongst others, strategic sourcing, strategic supplier development, supplier quality management and preferential procurement. The SCM strategies focus on maximising the service delivery of SOEs and the minimisation of total costs. The cost of the services offered by the SOEs should consider operational expenses and subsidies. Cost recovery strategies should be implemented as a driver for revenue generation.

Cost reduction from an SCM perspective should be a crucial task to support the financial objectives of an organisation.

The SOEs must ensure that the procurement plan is used as a base line for delivering the strategy and APP of the organisation. A procurement plan influences supply chain performance in a sense that it provides focused and efficient utilisation of available resources, assists in budgeting and planning, and therefore, adequate provision is assured of the necessary funds (Kiage, 2013:66; Willy & Njeru, 2014:62).

Procurement plans for SOEs are therefore budgeted for, approved by the chief financial officer and the accounting officer of the organisation. It is also a requirement of National Treasury that such a plan must be submitted to the National Treasury on a quarterly basis for review.

3.4.5 SCM policy and Government policies and regulations

This section deals with the supply chain strategy which is supported by the SCM policy, which in its turn, is aligned with Government policies and regulations.

Several strategies can be implemented in SOEs to ensure adherence to the policies and regulations (Mutua, 2010:24). These may include strategic sourcing, open tender, three quotation system, developing and maintaining good relationships with suppliers, developing suppliers, and adopting short to medium term contracts to take advantage of competing offers (Mauki, 2014:19; Khadija & Kibet, 2015:128). Other strategies include using standard inputs so that suppliers can be switched easily, centralised procurement to use purchase leverage, negotiation, and supplier segmentation, amongst others (Kulundu, 2014:12; Khadija & Kibet, 2015:128).

A major strategy used in public procurement, includes the use of the Kraljic supplier positioning model that group items, dependent on the procurement difficulty and relative expenditure (Chirchir, 2013:38). The SCM process seeks to minimise expenses associated with the purchase of those goods and services by using strategies such as volume purchasing; the establishment of a set roster of vendors and establishing reorder protocols that assist in keeping inventories low without jeopardising the function of the operation (Muge, 2009; Mutai, 2015:14). According to Ambe (2012:128), SOEs are required to implement suitable strategies for their business organisation, yet which are in line with the SCM policies and regulations.

Sound SCM policies and regulations are essential for good governance (Okong'o & Muturi,2017:18). The SCM policy refers to a set of purposes, principles and rules of action that guide an organisation (Monzka *et al.,* 2012:72). Most SCM policies define what the role of SCM is, the code of conduct of SCM personnel, socioeconomic responsibilities, buyer-supplier relationships and operational issues. According to Kull and Talluri (2008:103), organisations develop procedures to enable its personnel to implement policies and plans that are designed to meet their objectives.

SCM policies are thus a set of rules and regulations, designed by organisations to govern on application of various procurement procedures (Bartik, 2009:50). Wisegeek (2013:1) asserts that procurement policies entail a set of rules and regulations put in place to govern the process of acquiring goods and services needed by an organisation to function efficiently. The SCM policies of SOEs must be aligned with the SCM policies and regulations and the SCM strategies.

According to Brammer and Walker (2011:8), the strategic goals of SCM are set or enforced through policies and regulations. The following section provides an overview of Government policies and regulations governing SCM in SOEs in South Africa.

3.5 LEGISLATION GOVERNING SCM IN STATE-OWNED ENTITIES IN SOUTH AFRICA

The legal framework encompasses policies and regulations and policies that have been put in place to govern the organisation. Sound SCM policies and regulations are amongst the essential elements of good governance (Glas *et al.,* 2017:1596). The SCM in SOEs is governed by the national SCM policies and regulations. This was done to ensure the uniform application of the policies and regulations at all levels of Government (Glas *et al.,* 2017:1593).

The SCM policies and regulations establish the procedures to be applied, advertising rules and time limits, the content of tender documents and technical specifications, tender evaluation and award criteria, procedures for submission, receipt and opening of tenders, and the complaints system structure and sequence (PPOA, 2007; Kirui & Nambuswa, 2017:390). The public sector SCM in South Africa is subjected to reforms, restructuring rules and regulations (Okong'o & Muturi, 2017:121; Koech &

Namusonge, 2015:117). The intention of regulating the environment is to minimise discretion, corruption and political risks (Schapper *et al.,* 2009:90).

According to OECD-DAC (2006:20), the public sector SCM system should be mainstreamed and well-integrated into the public sector governance system. The public sector SCM in South Africa is imbedded in the country's Constitution. Public SCM policies and regulations are considered as the most important pillars of a sound SCM system (Thai, 2009:8). The SCM regulations outline details on how tender specifications should be prepared, tender advertisement processes, tender closing processes, tender evaluation and adjudication processes and the diverse types of governance structures that must be in place (Mrope *et al.*, 2017:41). This is owed to the magnitude of expenditure incurred through the SCM system at Government level. The expectation from the taxpayers is a high level of transparency and accountability and the effective recognition of value for money (Koech & Namusonge, 2015:116; Schapper *et al.*, 2009:89). Strict adherence to SCM policies is not negotiable.

South Africa has mandated the Auditor General to test and audit transactions in SCM on a regular basis. In carrying out their activities public sector SCM practitioners are expected to be efficient and effective. SCM processes in South Africa are highly regularised and are subject to regular audit reviews. Government entities either establish an internal audit department or they outsource the service to external parties. To ensure compliance to these legislations and to continuously improve the system Government departments and entities are audited by the Auditor General of South Africa. The former President Jacob Zuma, in highlighting the challenges facing SCM in South Africa, stated that Government is strengthening its capacity to enforce compliance with supply chain policies and regulations. There are more than 80 different legal instruments that govern public sector SCM.

Table 3.5 provides a summary of the five policies and regulations impacting public sector SCM in South Africa.

Table 3.5: Policies and regulations impacting public sector SCM in South Africa

Act	Applicability	What it does in respect of procurement
Constitution of the Republic of South Africa, 1996 (Act No 108 of 1996)	All organs of state	Provides procurement objectives and establishes Government's policy for preferencing. Establishes requirements for the award of contracts to be lawful, reasonable and procedurally fair.
The Promotion of Equality and the Prevention of Unfair Discrimination Act,2000 (Act 4 of 2000)	The state and all individuals (natural or juristic person)	Prohibits the state or any person from discriminating unfairly against any person on the grounds of race or gender through the denial of access to contractual opportunities for rendering services or by failing to take steps to reasonably accommodate the needs of such persons.
Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000)	All organs of state (state-owned enterprises)	Establishes the way preferential procurement policies are to be implemented.
Construction Industry Development Board Act 2000 (Act 38 of 2000)	All organs of state involved in procurement relating to the construction industry	Establishes the means by which the Board can promote and implement policies, programmes and projects, including those aimed at procurement reform, standardisation and uniformity in procurement documentation, practices and procedures within the framework of the procurement policy of Government, through the establishment of the following : – a national register of contractors (and if required, consultants and suppliers) to manage public sector procurement risk and facilitate public procurement – a register of projects above a financial value with data relating to contracts awarded and completed and a best practice project assessment scheme – establishes a code of conduct for the parties engaged in construction procurement

Broad-Based Black Economic Empowerment	Procurement provisions apply to all organs of state	Establishes a code of good practice to inform the: – development of qualification criteria for the issuing of licences or concessions, the sale of state-owned enterprises and for entering into partnerships with the private sector; and – development and implementation of a preferential procurement policy
Prevention and Combating of Corrupt Activities Act, 2004 (Act No 12 of 2004)	Public and Private Sector	Makes corruption and related activities an offence. – Establishment a Register to place certain restrictions on persons and enterprises convicted of corrupt activities relating to tenders and contracts; and – Places a duty on certain individuals holding a position of authority to report certain corrupt transactions

Source: Watermeyer (2011), CIDB (2010)

3.5.1 The Constitution

Concerning Sections 217 (1) of the Constitution (1996), when an organ of state in the national, provincial or local sphere of Government, or any other institution identified in national legislation, contracts for goods or services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost-effective. Section 217 (1) lays down five principles (fairness, equitable, transparency, competitiveness and cost-effectiveness) in which public procurement in South Africa should be performed (Table 3.6). These principles are the foundation of procurement and should be embedded in SCM policies in Government and its entities.

Table 3.6: Public procurement objectives in the South African Constitution

Objective	Description	Reference
Primary	Procurement system is to be fair, equitable, transparent, competitive and cost-effective	Section 217 (1)
Secondary	Procurement policy may provide – categories of preference in the allocation of contracts; and – the protection or advancement of persons, or categories of individuals disadvantaged by unfair discrimination	Section 217 (2)

Source: Watermeyer (2011), CIDB (2010)

The following sections describe the principles contained in Section 217 of the Constitution in a public procurement context.

3.5.1.1 Fairness and equity

The concept of fairness or equal treatment in the procurement process should be understood in the context of South Africa's history of unfair discriminatory policies and practices. During the Apartheid era, black individuals in South Africa were not allowed to participate in public procurement processes (Green Paper, 1997). This, therefore, created a socioeconomic gap between the white minority and the black majority, leaving most black individuals impoverished and destitute. To redress this anomaly, South Africa, through its policies and Constitution, now seeks to promote equity throughout society (Khosa, Ntuli & Padarath, 2004:1).

Pauw, Woods, van der Linde, Fourie and Fisher (2002:7) use the terms equity and fairness interchangeably, and in their view equity means “having a fair share or receiving what we deserve”. According to Khosa *et al.* (2004:1), equity means “greater resources and more services should be made available to the most vulnerable and needy groups in society”. This means that Government, in spending public money, should treat individuals in similar circumstances similarly (Shafritz *et al*, 2015:473). Equity, therefore, in the SCM context, means the application and compliance with Government policies designed to advance individuals or categories of individuals disadvantaged by unfair discrimination (National Treasury, 2004:9; Mbanje & Lunga, 2015:68).

The procuring entity should ensure that the criteria and rationale for awarding public contracts is clearly articulated in tender documentations and adverts. Support should also be provided to all bidders by availing enough information pertaining to bids. For complex projects, the organs of state should provide clarification on the specifications or bidding requirements through a tender briefing session. This principle encourages that all those who participate in public sector procurement be provided the information and opportunities. All bidders should compete on the same footing. All competing bidders should be provided the same information. To ensure transparency and fairness, the National Treasury requires the procuring entity to notify any clarification and amendments to all recipients of the solicitation document in writing at least 15 days before the deadline for the submission of tender (Article 23).

3.5.1.2 Transparency requires openness and accountability

During the Apartheid era in South Africa, a procurement process was characterised by secrecy and lack of transparency (Verwey, 2009:44). The principle of transparency supports all the other principles in Section 217 (1) of the Constitution. Transparency refers to the availability of information to the public and clarity about procurement rules, regulations, and decisions. Shafritz *et al.* (2015:473) emphasise that what Government does with public money should be open to public knowledge and scrutiny. Hui, Othman, Normah, Rahman and Haron (2011:567) assert that the expenditure of tax payers’ monies must be done in a transparent and accountable manner. SCM process must be conducted publicly, for example, all tenders above R1 million are advertised on the National Treasury eTender portal. The tender adverts and documentations should contain the rules of procurement and the evaluation criteria. All bidders should

be made aware of the evaluation criteria and the adjudication process. All bids should be evaluated solely based on their compliance with the terms of the bid documents, and a bid should not be rejected for reasons other than those specifically stipulated in the solicitation document. Table 3.7 provides a list of key SCM information that should be publicised.

Table 3.7: Information that needs to be made public

Phases	Publications
Demand management	Annual procurement plans for all purchases above R500 000.00 and quarterly reporting for such plans. SCM instruction 2 of 2016/2017
	Specifications: Allow for comments (high-value/complex). Free access to specifications and terms of references, awards, deviations, extensions, and cancellations (National Treasury Instruction 1 of 2015/16).
	Allow observers in Bid Specifications Committee (public sector or civil society)
Acquisition management	Bidding documents and neutral contact addresses
	Publication of tenders above R500 000 for PFMA compliant institutions and R200 000 for MFMA compliant institutions on government's eTender Portal is compulsory.
	Deviations from competitive procurement processes is posted on the OCPO website (SCM Instruction 3 of 2016/17)
	Written clarifications sent to all participants
	Publish register, Public bid opening, Prices read out in public
	Allow observers into the BEC/BAC (public sector or civil society)
	Bid evaluation report (or summary)
	Introduce notification period before contract execution
	Quotations/Bid awards (above certain thresholds)
Contract management	Contract amendment notices
	Financial and physical progress information

Source: Adapted from: National Treasury (2015:23)

3.5.1.3 Competitiveness and cost-effectiveness

Public procurement processes must stimulate competition amongst service providers. The bid specifications should not be crafted in a manner which favours individual bidders whilst excluding others. The use of brand names is not encouraged. Bids should be advertised for a period not shorter than 21 days to allow bidders ample time to research, prepare and submit their price offers. The procuring entity should make sure that sufficient information is provided to the bidders to enable them to prepare their offers, such information includes drawings and detailed specifications.

3.5.2 Public Finance Management Act 1999 and regulations

The Public Finance Management Act (PFMA) has introduced best practice public financial management principles and processes to the South African Government. PFMA is a more output-based and performance-oriented control system that supports service delivery and responsible spending (Verwey, 2009:48). The Act is part of the broader strategy of improving financial management in the public sector (PFMA, 1999).

Moeti (2014:45) defines financial management as “the management of peoples’ money, which is entrusted to Government”. Financial management therefore is every manager’s responsibility. All public officials and managers should therefore ensure that public money is spent efficiently, effectively and economically. Section 45 of PFMA (1999:54) outlines the roles and responsibilities of managers in all spheres of Government. Managers are therefore held accountable for carrying out their duties and for complying to any set of rules, regulations and policies, applicable to their roles (Pauw *et al.,* 2002:136). Public managers should be called to account for their stewardship through legislative reviews and audit processes (Shafritz *et al.,* 2015:474). Accountability is an essential component of good democratic governance. In the spirit of democracy, the PFMA, 1999, gives effect to Section 213, 215, 216, 217, 218 and 219 of the Constitution of the Republic of South Africa (Act 108 of 1996).

According to Section 216 of the Constitution, the national legislation is required to “establish a National Treasury and prescribe measures to ensure both transparency and expenditure control in each sphere of Government, by introducing, generally recognised accounting practice; uniform expenditure classifications; and uniform treasury norms and standards”.

According to section 36 (1) of the PFMA, Government and its institutions should have an accounting officer, and further confers the responsibilities to be bestowed on the accounting officer. The accounting officer can be regarded as a CEO of a public entity, and director general of a Government department (Mbanje & Lunga, 2015:74). Section 38 (1) (iii) states that an accounting officer is responsible for establishing an appropriate procurement and provisioning system which is fair, equitable, transparent, competitive and cost-effective. National Treasury may develop regulations or issue instructions to Government and its entities regarding an appropriate procurement and provisioning system which is fair, equitable, transparent, competitive and cost-effective (PFMA, 1999:78). To this effect in 2005, National Treasury issued the PFMA Treasury regulations.

Regulations 16A specifically outlines procurement and financial management in detail and provides guidelines according to which all spheres of Government are to conduct procurement activities. Section 16A applies to Government departments, Constitutional institutions and public entities listed in Schedule 3A and 3C of the Act. Section 16A4.1, gives the accounting officer a mandate to establish a supply chain management unit within the office of the Chief Financial Officer and ensure that those who perform SCM functions are qualified and capable of doing so. The SCM system should establish three mandatory cross-functional governance structures comprising of great skills and experience. Such committees are: Bid Specification, Bid Evaluation and Bid Adjudication Committees (BAC)s. To ensure the efficiency of these committees, SCM unit should ensure the roles and responsibilities of the committee members. Section 16A6.3 of the regulations states that the accounting officer or accounting authority must ensure that:

- Bid documentation and the general conditions of a contract comply with National Treasury instructions and the prescripts of the CIDB, in the case of a bid relating to the construction industry.
- Bid documentation include evaluation and adjudication criteria, including the criteria prescribed concerning the PPPFA, 2000 (Act No. 5 of 2000) and the BBBEE Act, 2003 (Act No. 53 of 2003).
- Bids are advertised in at least the *Government Tender Bulletin* for a minimum period of 21 days before closure, except in urgent cases when bids may be

advertised for such shorter period as the accounting officer or accounting authority may determine.

- Awards are published in the *Government Tender Bulletin and* other media by means of which the bids were advertised.
- Contracts relating to IT are prepared in accordance with the State IT Act, 1998 (Act No. 88 of 1998), and any regulations made concerning that Act.
- Treasury Regulation 16 is complied with when goods or services are procured through public private partnerships or as part of a public private partnership.
- Instructions issued by the National Treasury in respect of the appointment of consultants are complied with.
- Deviations from the procurement system is allowed only in exceptional situations. All deviations must be approved by the accounting officers and should be reported to National Treasury. Regulation 16 A6.5 stipulates that the accounting officer or authority has an option to participate in transversal contracts facilitated by the relevant treasury. Such agreements may include contracts for multi-purpose machines, courier services, clothing and protective clothing. The accounting officer or authority may, on behalf of the institution, participate in any contract arranged by means of a competitive bidding process by any other organ of state, subject to the written approval of such organ of state and the relevant contractors. The accounting officer is obliged to be satisfied with the processes followed, securing the contract to ensure compliance (Section 16A6.6).

3.5.3 Preferential Procurement Policy Framework Act 5 of 2000

Section 217 of the Constitution of the Republic of South Africa states that when an organ of state in the national, provincial or local sphere of Government, or any other institution identified in national legislation, contracts for goods or services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost-effective. It stipulates the need to implement a procurement policy, providing for categories of preference in the allocation of contracts; and the protection or advancement of individuals, or categories of individuals disadvantaged by unfair discrimination. The Preferential Procurement Policy Framework (PPPFA) was enacted because of the section of the Constitution. PPPFA seeks to address the imbalances of the past Apartheid Government and thus allows for a preference system without

forfeiting the principles of fairness, equitable, competitiveness, transparency and cost effectives, as provided by the Constitution. PPPFA provides a framework within which Government institutions must procure goods and services. The framework is based on a preference points system. The PPPFA stipulates that when Government assesses contracts, it must consider a preference point system which prescribes functionality, price and reconstruction development programme (RDP) goals.

Previously, PPPFA did not align with the principles of the Broad-Based BEE Act as a work group was specifically established between National Treasury and the BEE unit of the Department of Trade and Industry to deal with the alignment. In 2011 the cabinet approved the revised Preferential Procurement Policy Regulations. The regulations were promulgated by the Minister of Finance on 6 June 2011 to come into effect on 7 December 2011. The preferential procurement Regulations of 2011 are applicable to organs of state as contemplated in Section 1 (iii) of the PPPFA and all public entities listed in Schedules 2, 3A, 3B, 3C, and 3D to the PFMA and municipal entities (National Treasury, 2011).

The PPPFA regulations state that a supplier receives a point out of 10 or 20 for its B- BBEE status, depending on the value of the transaction. This is in accordance with the preference point systems stipulated in the PPPFA regulations. The 80/20 preference point system is applicable to bids from R30 000 to R50 million in value (all applicable taxes included). For transactions below R30 000, only one quote needs to be obtained.

The 90/10 preference point system is applicable to bids above R50 million in value (all applicable taxes included). Concerning the PPPFA, the estimated costs and the appropriate preference point system (80/20 or 90/10) must be determined prior to advertising a bid and must be stipulated in the invitation to bid. The thresholds for petty cash, the quotation system and open bid process is not affected by the thresholds mentioned above. Bidders who do not submit B-BBEE status level verification certificates, or are non-compliant contributors to B-BBEE, do not qualify for preference points for B-BBEE, but should not be disqualified from the bidding process. They will score zero (0) points out of 10 or 20 for B-BBEE. This also applies to bidders who submit letters or expired certificates indicating that their B-BBEE status is in the process of being verified.

3.5.4 Preferential Procurement Policy Framework Act Regulations

The Preferential Procurement Policy Framework Act (PPPFA) Regulations (2017) control the implementation of the PPPFA and outline the point system for evaluating tenders. The 2017 regulations have replaced the regulations that were issued in 2011. Specifically, there has been a significant change to the threshold values. For contracts valued from R30 000 to R50 million, 80 evaluation points are allocated for price and 20 points for the suppliers' preferential procurement compliance with BEE. For values over R50 million, this allocation becomes 90 points for price, and 10 points for B-BBEE ratings. The total scores for price and B-BBEE preference are added up to provide a score in the bid evaluation process.

The new regulations align the preference point system with the B-BBEE Act, where the preference point system of 80/20 or 90/10 applies in awarding of all public procurement tenders. Regulation 11(4) of the Preferential Procurement Regulations stipulates that the points scored must be rounded off to the nearest two decimal places. This regulation applies to the final weighted evaluation of price and preference.

Table 3.8 provides a summarised view of the new PPPFA requirements. The new regulations as listed in Table 3.8, repeal the 2011 PPPFA regulations.

Table 3.8: New requirements of the Preferential Procurement Policy Framework Act Regulations

New requirement	Description	Alignment with PPPFA Regulations (2017)
Evaluation technical	– Tenders, technical in nature will require an evaluation in functionality/technical – Technical threshold should be clearly indicated on the tender document and tender adverts – Tenders will therefore be evaluated as per criteria stipulated in the tender document and advert – Functionality should be objective, meaning it should not be too low to jeopardise the quality and not too high to discourage participation in the tender process – Tenderers who meet the minimum threshold set for functionality will be considered for evaluation on price and B-BBEE (Regulation 11). Those who fail to meet the minimum criteria will be disqualified from further evaluation	Clauses :5 (1) – (7), 6 (1) –(8) and 7(1) –(9)
Local content as a pre-qualification criterion	– The 2017 regulations introduce the consideration of local content as a pre-qualification criterion – The thresholds for local content should be in line with the standards determined by the Department of Trade and industry in consultation with the National Treasury – A tender who fails to meet the stipulated threshold for local content will be disqualified	Clause 8 (1) –(5)
Preferential procurement as a pre-qualification criterion	– Organs of state through these regulations can set pre-qualification criteria in their tenders to advance a particular designated group – The organ of state must advertise the tender with the specific condition that the tenders should adhere to – A tenderer may subcontract a minimum 30% to EME/QSE or cooperatives or EME/QSEs who are at least 51% owned by one of these groups: Black-owned, youth, women, individuals with disabilities, individuals living in rural areas and individuals who are military veterans	Clause 4(a) – (c)

New requirement	Description	Alignment with PPPFA Regulations (2017)
Subcontracting as a tender condition	– If feasible, on all contracts from R30 million, as a tender condition, at least 30% of the value should be subcontracted to advance the designated groups – The condition should be stipulated in the tender adverts and tender documents, that the successful tenderer shall subcontract at least 30% to EME/QSE or cooperatives or EME/QSEs who are at least 51% owned by one of these groups: Black-owned, youth, women, individuals with disabilities, individuals living in rural areas and individuals who are military veterans	Clause 12 (1) – (3)
Cancellation of tenders	– Tenders can be cancelled either (1) due to changed circumstances, (2) there is no longer a need for the goods or services specified in the invitation; (3) funds are no longer available to cover the total envisaged expenditure; (4) no acceptable tender is received; or (5) there is a material irregularity in the tender process – If the tender was advertised using the 80/20 preference point system, where the value is expected to be between R30 000.00 and R50 million, but all the responses received were above R50 million the tender should be cancelled – If the tenders were advertised using the 90/10 preference point system, where the value is expected to be above R50 million but all responses received were below R50 million all tenders need to be cancelled	Clause 13 (1) – (3)

Source: Own compilation

3.5.5 Broad-Based Black Economic Empowerment (Act 46 of 2013)

The Broad-based Black Economic Empowerment Act (B‑BBEE Act) was first introduced in 2003 to address socioeconomic gaps in the country. The Broad-Based BEE Act 53 of 2003 defines broad-based BEE as the economic empowerment of all black individuals and that includes women, workers, youth, individuals with disabilities and individuals living in rural areas through diverse but integrated socioeconomic strategies. B-BBEE is broader in focus, encouraging South African companies to account annually for their contributions in seven comprehensive and clearly defined priority areas: corporate social investment, equity ownership, employment equity, enterprise development, management control, preferential procurement and skills development (BEE Act, 2003).

The fundamental objective of the Act is to advance economic transformation and to enhance the economic participation of black people in the South African economy (DTI, 2017). The B-BBEE Codes of Good Practice emerged in February 2007 as an implementation framework for B-BBEE policy and legislation. After the implementation thereof, institutional mechanisms were established for the monitoring and evaluation of B-BBEE in the entire economy. To fulfil the legal mandate as outlined in the Act, then President Jacob Zuma appointed members to the B-BBEE Advisory Council on 3 December 2009, as contemplated in Section 6(1)(c) and (d) of the Act. The B-BBEE Advisory Council aims to provide guidance and overall monitoring of the state of B- BBEE performance in the economy, with a view to making policy recommendations to address challenges in the implementation of this transformation policy.

In 2013, the amended codes of good practice were gazetted. The amended BBBEEA which commenced in 2013, was amended for the following reasons:

> *to insert certain definitions, to clarify interpretation; to provide for the remuneration of Council members; to promote compliance by organs of state and public entities and to strengthen the evaluation and monitoring of compliance; to include the creation of incentive schemes to support Black-owned and managed enterprises in the strategy for broad-based black economic empowerment; to provide for the cancellation of a contract or authorisation; to establish the Broad-Based Black Economic Empowerment Commission to deal with compliance of broad-based*

black economic empowerment; to provide for offences and penalties; and to provide for matters connected therewith (BBBEEA, 2013:1).

This was followed by the actual implementation of the 2013 codes in 2015.

Figure 3.2 (on the next page) provides a summary of South Africa's B-BBEE transformation journey. Figure 3.2 shows that there have been significant developments in BBBEE, thereby contributing to the socioeconomic objectives of the country.

3.5.5.1 Objectives of BBBEEA

BBBEEA was enacted for the following purposes: to establish a legal framework for the promotion of black economic empowerment, to empower the Minister to issue Codes of Good Practice and to publish transformation charters, to establish the Black Empowerment Advisory Council, and to provide for all matters related to the Act. The Act also aims to provide guidelines that set out targets, roles and obligations for the private and public sectors (BEECom, 2001). Additionally, the Act is designed to include women, workers, youth, individuals with disabilities, and individuals living in rural areas.

The B-BBEE Act provides for the development of codes of good practice on BEE that may include the further interpretation and definition of broad-based BEE and the interpretation and definition of different categories of black empowerment entities; qualification criteria for qualification criteria for preferential purpose for procurement and economic activities. (Section 9 (1) (a) (b)).

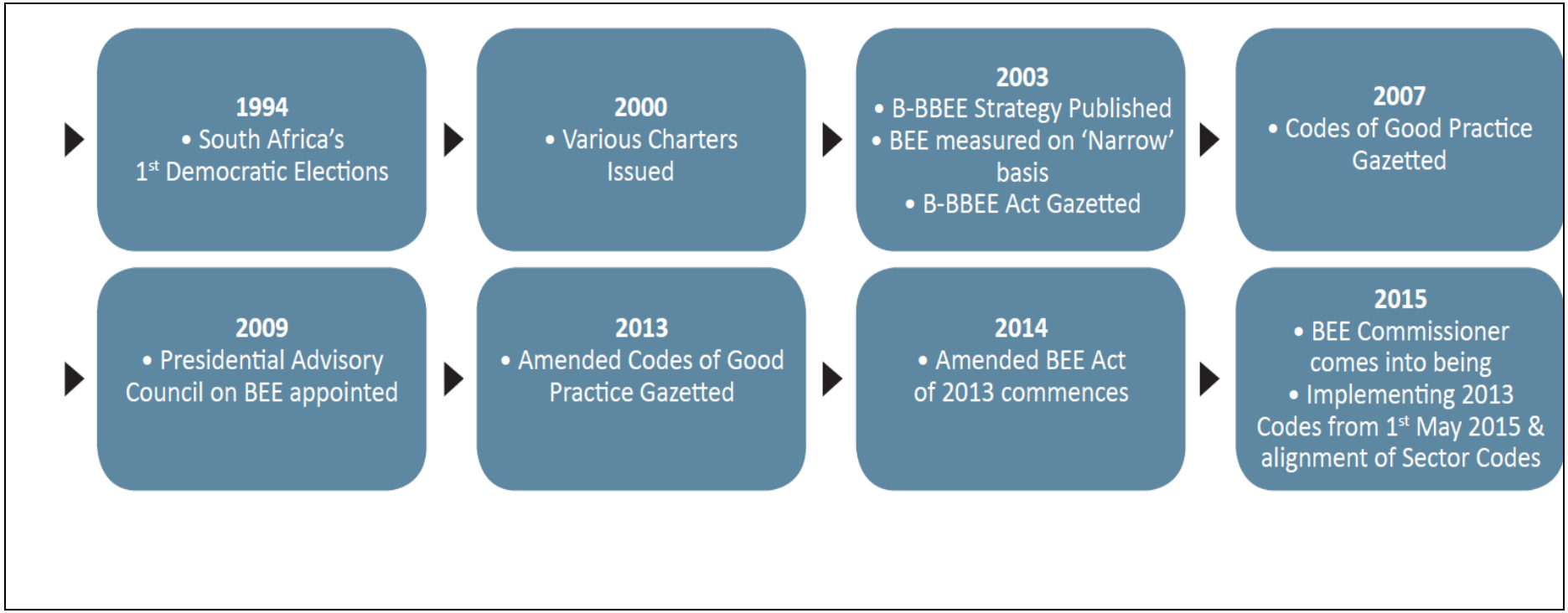

Figure 3.2: South Africa's BEE transformation journey

Source: Own compilation, adapted from the DTI (2017)

3.5.5.2 Codes of good practice and balanced score card

The B-BBEE Codes of Good Practice emerged in February 2007 as an implementation framework for B-BBEE policy and legislation. After implementation, institutional mechanisms were established for the monitoring and evaluation of B-BBEE in the entire economy. These include BEE Codes and Scorecards. The Codes of good practice provide a standard framework for the measurement of broad-based BEE across all sectors of the economy. The intention of the Codes of Good Practice is to level the playing field for all companies and organisations operating within the South African economy by providing clear and comprehensive criteria for the measurement of broad-based BEE.

Government uses a “balanced scorecard” to measure the progress related to the achievement of BEE by enterprises and sectors. The use of a common scorecard by different stakeholders within SCM provides and promotes a basic framework against which to benchmark the BEE process in various enterprise sectors. The scorecard measures the following elements:

- **Ownership:** measures black ownership of the entity.
- **Management:** measures participation of black people in the Board and management control structure.
- **Skills Development:** measures skills development spend on black employees and unemployed individuals, as well as learnerships, apprenticeships/ internships and SETA-accredited training programmes.
- **Enterprise and Supplier Development:** measures procurement spend from empowering suppliers, together with Supplier Development and Enterprise Development contributions, to beneficiary entities that are at least 51% Black-owned, in respect of their development, sustainability, financial and operational liberation.
- **Socioeconomic Development:** measures the contributions for socioeconomic development.

Table 3.9 indicates the difference between the old codes and the new ones published in 2017.

Table 3.9: Comparison of 2017 amended codes and old codes

Element	Weighting Points (Amended Codes)	Weighting Points (old Codes)
Ownership	25	20 plus 3 bonus points
Management control	15 plus 4 bonus points	Management control -10 plus one bonus point Employment equity - 15 plus three bonus points
Skills development	20 plus five bonus points	Skills development – 15
New enterprise and supplier development	40 plus four bonus points	Preferential procurement – 20 Enterprise development - 15
Socioeconomic development	5	5
Total	118	107

Source: Empowerdex (2018)

In the amended codes a greater emphasis is placed on majority black ownership, particularly in relation to the sub-element of Procurement, as well as ESD. The study focuses on the Enterprise and supplier development element of the codes. Preferential Procurement and Enterprise Development, as previously known, were merged to form an element known as Enterprise and supplier development which currently holds the highest points in terms of the new codes. Detailed discussion of ESD and its implementation in SOEs will be discussed in detail under Section 3.6.8.

3.5.6 National treasury circulars and practice notes

In accordance with the framework for SCM referred to in Section 76 (4) (c) of the PFMA, National Treasury is empowered to issue instruction notes, circulars and guidelines from time to time. These documents are issued with the view of promoting uniformity and to aid accounting officers and accounting authorities regarding the development, implementation and maintenance of an effective SCM system within their respective institutions.

Table 3.10 illustrates the number of circulars issued from 2004 to date.

Table 3.10: National Treasury circulars and practice notes

Year	Title	Affected Entities
2016	Circular No 13 - Utilisation of g-commerce for items on transversal contracts	Schedule 2 and 3
	Circular 11 - Microsoft Software Products and Services Cost Containment Project Implementation	Schedule 3A and 3C
	Circular 10 - ICT Software Products and Services (This is an amended version)	Schedule 3A and 3C
	Circular 9 - National Travel Policy Framework	Schedule 3A and 3C
	Annex B - Comments template 30082016	All Government entities
	Circular 8 - Mobile Communication Services	Schedule 3A and 3C
	Circular 7 - Microsoft Software, Products and Services Projects	Schedule 3A and 3C
	Circular 6 - Fixed line and PBX cost containment project	Schedule 3A and 3C
	Circular 5 - Submission of B-BBEE status level certificates and sworn affidavits	All Government entities
	Circular 4 - National Travel and Accommodation Corporate Rates for Government	Schedule 3A and 3C
	Circular 3 - Utilisation of transversal term contracts	Schedule 2 and 3
	Circular 2 - National Mobile communications project implementation	Schedule 3A and 3C
	Circular 1 - National Travel and accommodation project implementation	Schedule 3A and 3C
2015	Circular on the Central Supplier Database	Schedule 2 and 3
	Circular on Acceptance of Sworn Affidavits concerning new Codes of Good Practice	All entities
	Circular on Procurement of reserved postal services	Schedule 2 and 3
2012	Postponing the implementation of Sub-paragraph 3.9.4 of Instruction Note Number 32	Schedule 3A and 3C
	Validity of broad-based EME certificates	All entities
	Local production and content as announced by the Minister of Trade and Industry	All entities
2011	Preferential Procurement Regulations: postponing the implementation of specific paragraphs contained in Implementation Guide	All entities

Year	Title	Affected Entities
	Implementation guide: Preferential Procurement Regulations, 2011	All entities
	Implementation guidelines PPPFA Regulations	All entities
	New Standard Bidding Documents	All entities
	Circular on Database of Restricted Suppliers	All entities
	Postponing the implementation of certain paragraphs in Instruction Note number 32, dated 31 May 2011 related to enhancing compliance monitoring and improving transparency and accountability in SCM	All entities
	Guidelines on the implementation of Demand management	Schedule 3A and 3C
	Training on the revised Preferential Procurement Regulations, 2011	All entities
2010	Verifying the prohibition status of bidders prior to awarding contracts	All entities
	Checking the prohibition status of recommended bidders prior to awarding any contract	All entities
2008	Irregular Expenditure	All entities
2007	Alignment of Preferential Procurement with the aims of BBBEEA and its related strategy	All entities
	Threshold values for procurement of goods and services by means of petty cash, verbal/written price quotations and competitive bids	Schedule 3A and 3C
	Exemptions from SCM Framework	Schedule 3A and 3C
2006	National Treasury Database: List of restricted suppliers	All entities
	Code of Conduct for BACs	Schedule 3A and 3C
2005	Irregular Expenditure	Schedule 3A and 3C
	Inspections, tests, and analysis conducted by institutions accredited or recognised by SANAS on bid samples, capability evaluations and consignments	Schedule 3A and 3C
	Evaluation of bids /Calculation of points /Timeous payment of accounts	All entities
2004	The implementation of SCM	All entities

Source: Own compilation. Adapted from www.treasury.gov.za

National Treasury circulars provide guidance to national Government, provincial, local Government and the SOEs. Most of the circulars listed in the table above have a direct impact on Schedules 3A and 3C SOEs, causing a gap in other SOEs, therefore causing delays in uniformity regarding the SCM implementation across SOEs.

3.5.7 Construction Industry Development Board Act (2000)

Infrastructure development in South Africa receives a significant portion of public money (National Treasury, 2015a:27). Most of the service delivery programmes implemented by SOEs are construction related (Turley & Perera, 2015:3). In terms of Act No 38 of 2000, the Construction Industry Development Board (CIDB), must establish a Register of Projects which gathers information on the value, nature and distribution of projects. The register should also provide the basis for the best practice project assessment scheme, to promote the performance of public and private sector clients in the development of the construction industry.

Companies that tender for construction projects are expected to comply with CIDB regulations. CIDB is a national body established by an Act of Parliament (Act 38 of 2000). The CIDB develops the industry for the improved delivery of infrastructure to the South African public. It works with all stakeholders for the sustainable growth of construction enterprises and best practice amongst employers, contractors and the professions. The CIDB identifies best practices and sets national standards. It creates common and ethical standards for construction delivery of contracts. To implement these objectives, the CIDB is mandated to establish a code of conduct for all role participants in the construction processes, standards of uniformity in construction procurement, a national register of projects and a national register of contractors (National Treasury, 2005). The CIDB Standard for Uniformity in construction Procurement requires that institutions concluding contracts for construction work use standard forms, such as: General conditions for construction works. Furthermore, infrastructure procurement is not the same as the procurement for normal goods and services and therefore requires a different approach as illustrated in Figure 3.3 on the next page.

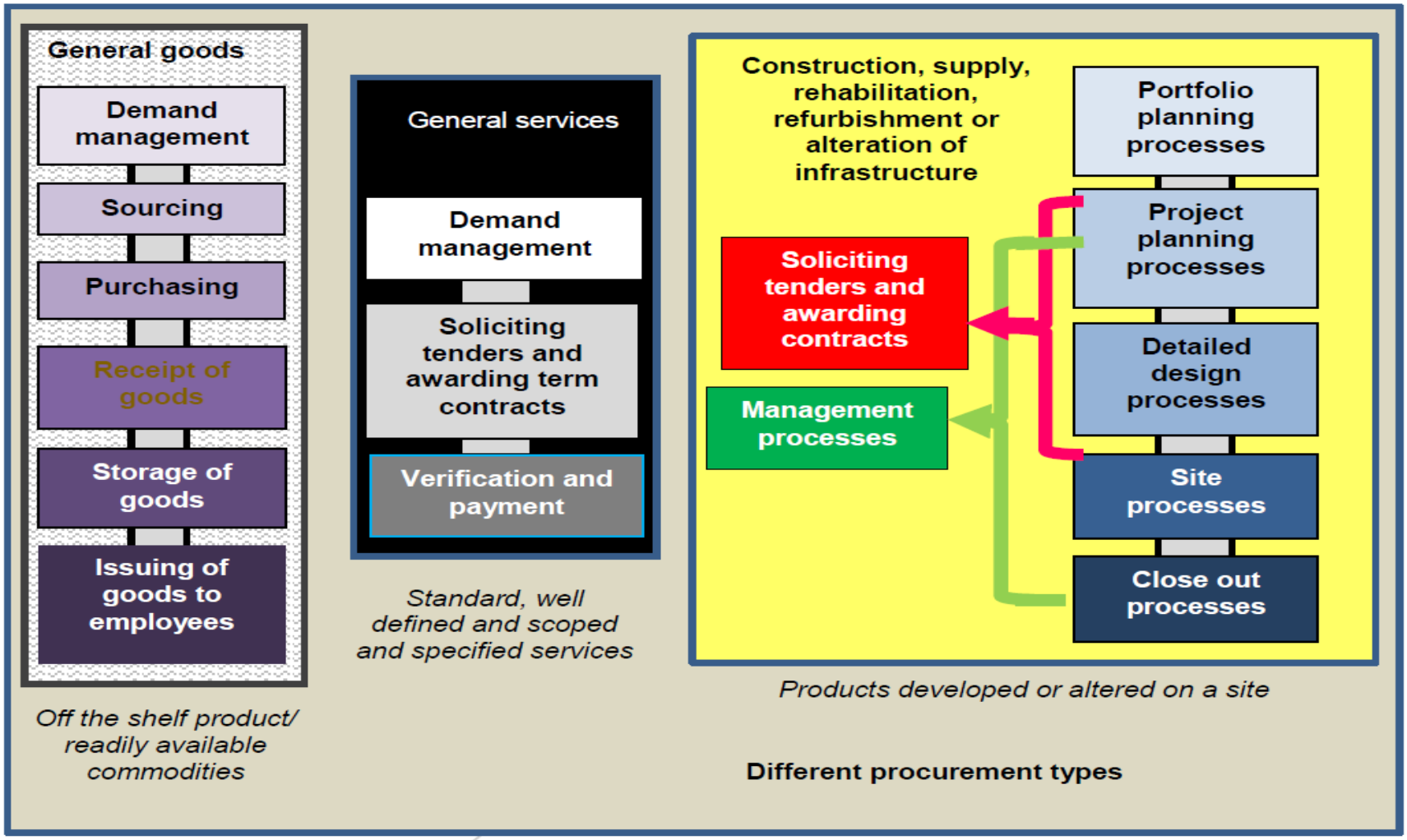

Figure 3.3: Difference between normal procurement and construction procurement

Source: Adopted from National Treasury (2012)

The prescripts of the Construction Industry Development Board which relate to construction procurement include: the CIDB Standard for Uniformity in Construction Procurement; and the CIDB Code of Conduct for the Parties engaged in Construction Procurement. According to National Treasury (2012), all engineering and construction works contracts shall be advertised on the CIDB website (i-Tender). i-Tender is an electronic national information service which is linked to the Register of Projects to enable clients to advertise tenders on the CIDB website which automatically alerts contractors who are registered with the CIDB via email and sms (CIDB).

As illustrated in Figure 3.3, infrastructure procurement requires project planning processes, detailed design processes, site processes and close-out processes. The CIDB plays a crucial role in leading the implementation of infrastructure programmes, and as a result, have developed various standards, policies and practice notes to guide the practitioners in the implementation of infrastructure procurement.

To comply with legislative requirements, it facilitates the exchange of information between clients and contractors. All bids relating to the construction industry, institutions are required to adhere to the prescripts of the CIDB Act as prescribed in Treasury Regulation 16A6.3 (a) (ii). The SCM policies and procedures of the various SOEs must also be aligned with the CIDB Act, Regulations and Standards for Uniformity, and should be applied across construction procurement. Furthermore, the CIDBA prescribes the following four standard industry forms of contract:

- **Conditions of Contract for Construction**. Conditions of Contract for Plant and Design – Build, Conditions of Contract for FIDIC EPC/Turnkey Projects, Conditions of Contract for Design, Build and Operate Projects or Short Form of Contract (FIDIC). The FIDIC form of contract can be used for high-value, multidisciplinary construction projects and for lower value less complex projects;
- **NEC3 Engineering and Construction Short Contract or NEC3 Engineering and Construction Contract (NEC3).** This form of contract can be used for all projects regardless of value type or complexity and has specifically defined project management principles;
- **The JBCC series 2000**. Building Agreement or Minor Works Agreement (JBCC) is restricted to building projects only; and

- **The General Conditions of Contract for Construction Works (GCC)** can be used for lower value, less complex projects and where the outsourcing of these functions is not feasible.

National Treasury and CIDB have allowed SOEs to choose the contracts that are suitable for their projects and environment. Additionally, should there be clauses that are not covered in the GCC. However, SOEs are allowed to develop special conditions of contracts and to attach such a contract to the principal contract.

3.6 IMPLEMENTING SCM PRACTICES IN STATE-OWNED ENTITIES

In reviewing and consolidating the literature, seven leading SCM practices emerge in SOEs, namely: (1) Customer Relationship Management (CRM), (2) strategic sourcing, (3) Enterprise Supplier Development (ESD), (4) strategic supplier relationship and contract management (SRM) (5) cross-functional team, (6) workforce and structure, (7) Information Technology (IT), (8) Supply Chain Integration (SCI).

3.6.1 Customer relationship management

The word ‘customer’ rarely features in the public sector SCM (Ambe & Badenhorst-Weiss, 2012), because SCM does not have direct contact with the ‘customers’ they purchase for. Instead the goods or services are procured on behalf of an internal end-user department, which then finalises delivery to the customer. Because end-user departments are reliant on SCM to deliver the service, the relationship between the end-user and SCM must be closely monitored. Most organisations turn to service level agreements (SLAs) as an instrument for managing an internal customer relationship. The SLA is a document used to define the level of a service that exists between a service provider and a customer.

All service expectations and performance metrics are clearly documented in the SLA. Performance review is done on a quarterly basis (O’Donnell, 2014:16) As the custodian of SCM processes, the SCM department has a responsibility to train its users to provide them an understanding of what SCM processes are like. The SLAs should clearly outline the expectations of each party, roles and responsibilities and the crucial deliverables. The end-user department expects SCM to deliver reliably on time, right quality, fast response time and feedback and high accessibility. SLAs should be

utilised as a performance measurement for both parties and performance should be measured quarterly. The results of performance measurement should be utilised to focus on the areas that require improvement. The variables of customer services are depicted in Table 3.11.

Table 3.11: Summary of customer service management elements

Variables	Description	Author (s)
Internal customer concept	– SCM should manage internal relationships through integration of the objectives of different units throughout the value chain, adding value for the ultimate customer – Providing information to customers (end-users) such as product availability, delivery dates, and order status; administering product and service agreements – SCM should provide training to its internal customers – There must be clear communication of the policies, acts and procedures to the end-user	Monzka *et al.* (2012), Inda *et al.* (2012), Karimi and Rafiee (2013) and Chin *et al.* (2012)
Service level agreements	– SCM should enter SLA with user departments to manage the performance of both parties	O'Donell (2014)
Customer service focused	– SCM revolves around the customer and should therefore be customer centric	Lambert (2009)

Source: Own compilation (2018)

3.6.2 Strategic sourcing

Strategic sourcing in Government is regarded as a distinguished strategic procurement approach, with the main aim being the attainment of value for money (Treasury, 2015:45). National Treasury defines strategic sourcing as:

> *a collaborative, structured approach to analysing Government's spending; using the information from this analysis to acquire commodities and services effectively; and as a result, supporting Government's service delivery objectives.* (Treasury, 2015:45)

As the largest buyer in the economy, strategic sourcing in South Africa enables Government to encourage cross-Government collaboration and the adoption of industry best practices. In addition, it allows the Government to aggregate

requirements to achieve economies of scale, streamline processes and leverage its buying power (Hahn, 2016:1; National Treasury 2015b:36). The benefits of strategic sourcing include, achieving economies of scale through consolidated requirements, reducing inconsistency in prices between the private and public sectors and between Government departments, encouraging common Government policy positions on certain commodities and services, encouraging the development and use of standardised specifications of common commodities, and improving vendor performance (National Treasury, 2015b:37).

According to National Treasury (2015b:37), strategic sourcing has the potential to generate savings of up to 20% of the costs of goods and services purchased. Strategic sourcing is a new concept in public sector SCM. The implementation of strategic SCM in most SOEs is immature, and apart from a few SOEs, SCM is still reactive.

The strategic plan and annual procurement plan of the organisation should inform strategic sourcing. Strategic sourcing requires that SOEs adopt a differentiated approach to the procurement of the various commodity groups (National Treasury, 2015b:5). The strategic sourcing process assists managers to optimise their supplier base, leverage on bulk purchases to achieve economies of scale, obtain value for money and subsequently reduce costs. Strategic sourcing practices in the SOE environment comprise the following elements: demand management, strategic sourcing and category management, the bidding process and quotation system.

The strategic sourcing process begins with the identification of the business requirements from an organisational strategic plan, which is then translated into a demand management plan (UPS Supply Chain Solutions, 2005:5). Goods and services are differentiated, based on their strategic importance and the complexity of the supply market.

Strategic sourcing in SOEs focuses on longer-term decisions relating to service delivery, value creation, reduced cycle times and bottlenecks (Lysons & Farrington, 2012:360). Adopted from the Kraljic model, goods and services are grouped into four categories: leverage, strategic, bottleneck and routine commodities.

Category management refers to the methodology by which this ‘portfolio buying’ approach is put into practice. The category management process relies on cross-functional teamwork to generate procurement outcomes that fully satisfy agreed

business needs. Important benefits of category management include the standardisation of specifications and processes, improvements in service levels, quality, availability and value for money, reduced total cost of ownership and improved SRM (ADR, 2017:1). Category management is therefore a structured approach to the procurement of goods and services. However, various commodities require specific strategies most suitable for the commodities.

3.6.2.1 Strategic planning and annual procurement plan

To achieve these great savings strategic sourcing requires proper demand planning. Demand planning, also called procurement planning, is the first and also most crucial step towards the strategic sourcing process. It is a legal requirement that all procuring Government entities prepare and publish procurement plans. These procurement plans must be in line with the strategic plan and appropriation of a procuring entity and be properly costed. All procurement plans are advertised on www.etenders.gov.za. Each project on the plan is analysed, validated and costed, and all procuring entities are required to strictly adhere to the published plan.

Following the procurement plan is a strategic sourcing process in preparation of the acquisition of goods and services. As discussed under Section 3.4.4, the annual procurement plan must be aligned with the budget and signed off by the Chief Financial Officer of the SOE. The signed Procurement plan should be submitted to National Treasury by 31 March, annually. The plan should be updated quarterly. The procurement plan should be budgeted for, the budget should be accurate as it will serve as a guideline during the acquisition process. SOEs should appoint a cross-functional strategic sourcing team to perform the market analysis, analyse specifications and recommend the most suitable sourcing strategy for each project.

3.6.2.2 Sourcing strategies

The SCM's role is to advise the end-user and the organisation on the most suitable sourcing strategy. In doing so, SCM should ensure that the sourcing strategies are aligned with the regulations and policies governing procurement, such as PPPFA, B-BBEEA, PFMA and DTI legislations on localisation. Sourcing strategies include preferential procurement, localisation (60%), supplier development, empowerment of women and youth. Empowerment of a construction-related project should be aligned with the CIDB Act, whilst procurement/sourcing strategies for IT equipment should be

aligned with SITA requirements. SCM also has the responsibility to check with National Treasury if there is a transversal contract in place. To successfully propose a sourcing strategy, SCM is responsible for conducting an industry analysis, to ascertain the participants in the market, their capacity, and the relevance of technology.

Table 3.12 provides a list of key sourcing methods that are implemented in SOEs.

Table 3.12: Sourcing methods

Method	Description
Request for Quotation (RFQ)	A request for quotation is allowed for procurement not exceeding R500 000 (Five hundred thousand). A minimum of three (3) written quotes should be obtained from CSD. Requests for quotations must be in writing by means of letter, facsimile or electronically (email), containing precise and detailed specifications from the onset as contained in the authorised Purchase Requisition.
Request for Proposals (RFP)	RFP is a competitive process where the public is approached with an invitation to bid that is published in the media. Once the bid has closed, the winning Bid is selected by means of a transparent evaluation, recommendation and adjudication process.
Request for Information (RFI)	The RFI is an optional procurement mechanism used to engage the market. The RFI is the first step of the formal procurement process followed by RFP procurement mechanisms. The RFI is the primary initiation of the formal procurement phase. The purpose of the RFI is to: – -Formally inform the market of the SOE's intention; – -Confirm the expected market appetite and interest in the a project; and – -Enable SOE to shortlist (optional) respondents and further tailor the next step, the RFP process.
Expression of Interest	The Expression of Interest (EOI) is an option available to engage or sound the market and is typically conducted during the development of the business case and not during procurement.
Sole Supplier	Sole sourcing exists when there is only one source (supplier) available in the market. A sole source may make a special product or technology that no one else does. Where such a situation exists, competitive tendering is not advisable.
Emergency Cases	Emergency cases are cases where immediate action is necessary in order to avoid a dangerous or risky situation or misery. The reasons for the urgency/emergency and for dispensing of competitive bids, should be clearly recorded and approved by the accounting officer/authority or his/her delegate. The following circumstances would normally be regarded as sufficient grounds for invoking the emergency procedure, i.e. a situation has arisen where there is an imminent risk of:

	– human injury or death; – human suffering; – serious business disruption that could not have been reasonably foreseen; – interruption of essential services; – serious damage to property or financial loss; – suffering or death of livestock or other animals; or – serious environmental damage or degradation.

Source: Own compilation (2018) Adapted from National Treasury SCM guidelines for Accounting officers (2003)

To support the sourcing methods listed in the table above, National Treasury developed the Standard Bidding Documents (SBDs) to be utilised by all Government entities. According to National Treasury (Circular 1 of 2003) accounting officers should customise and utilise the standard bidding documents (SBDs) issued by the National Treasury. The sourcing strategies should be aligned with the Constitution, PFMA, PPPFA, BBBEEA and CIDB. Misalignment with these policies will result to missed opportunities in contributing to the socioeconomic development of this country. The strategic sourcing process should focus on total cost of ownership, reduction of costs, quality and lean processes. Prior to going out on tender, an SOE should check whether there is no other organ of state that has secured the same contract at a cheaper price.

3.6.2.3 Transversal contracts (National Treasury and SITA)

A transversal contract is defined as:

> *any contract that is deemed to be economically cost effective and which provides for the supply of goods or services or both through a competitive bidding process which has been identified as a common need that affects all government entities.* (Western Cape Provincial Treasury, 2007)

To save costs and to leverage on economies of scale, National Treasury has also secured transversal contracts on behalf of the State (National Treasury, 2015b). Treasury Regulations 16A6.5 provides that:

> *The accounting officer or accounting authority may opt to participate in transversal term contracts facilitated by the relevant treasury. Should the accounting officer or accounting authority opt to participate in a transversal contract facilitated by the relevant treasury, the accounting*

officer or accounting authority may not solicit bids for the same or similar product or service during the tenure of the transversal term contract.

As Treasury Regulations 16A6.5 is not obligatory to Public entities listed in schedule 2, 3B and 3D to the PFMA, these SOEs may participate through approval from their accountings authorities (Board of Directors). Approval from the Board of Directors is a lengthy process and time-consuming which results in poor participation from the non-listed SOEs. National Treasury has also mandated SITA to secure IT transversal contracts, however, the utilisation of the SITA transversal contracts is not mandatory to SOEs. Although it is not mandatory for SOEs to participate in transversal contracts, it is essential to cite some of the benefits of the utilisation of transversal contracts:

- Secure competitive prices;
- Reduction of procurement cycle time as the processes have already been concluded by the National Treasury; and
- Longer term contracts may, if managed properly, provide more leverage to improve the quality of goods and services provided.

3.6.2.4 Procurement thresholds

Goods and services in SOEs are procured through a public procurement process which includes the bidding process or quotation process, depending on the threshold value, competitive bidding for procurement above (R500k), transversal contracts, ICT procurement through SITA contracts, deviations from competitive bidding, variations/extension of contracts, and emergency procurement (National Treasury, 2017:19). The sourcing methods in SOEs are guided by the National Treasury policies, regulations and circulars.

The threshold values differ from one SOE to another, depending on the size of the organisation, the budget and nature of goods and services required. For example, at the Passenger Rail Agency of South Africa (PRASA), transactions below R350 000 are dispensed through a three-quotation system, whilst anything above R350 000 goes through the public tender process. At Transnet, the threshold for quotations is R2 million, and any transactions above R2 million go through the tender process. Table 3.13 illustrates the procurement thresholds by the National Treasury. However,

the PPPFA and its associated Regulations should be applied for all procurement equal to, or above R30 000.00.

Table 3.13: Procurement thresholds

Procurement Method/Preference System	Acquisition value range thresholds
Petty Cash	R0- R2000.00
Request for Quote (RFQ)	R2001 – R10 000.00
RFQ (3 quotes)	R10 001.00 – R30 000.00
RFQ (3 quotes) using the 80/20 preference points system	R30 001 – R500 000.00
RFP using 80/20 preference points system	R500 001.00 – R50 million
RFP using the 90/10 preference points system	R50 million and above

Source: Adapted from (Practice note 8 of 2007/2008 and Preferential procurement regulations,2017)

There is a need for the SCM in SOEs to be strategic and efficient to effectively contribute towards the socioeconomic objectives of the country.

3.6.2.5 Preference point systems

As discussed under Sections 3.5.3 and 3.5.4 above, PPPFA requires that the 80/20 and 90/10 preference point system be determined, based on the R50 million threshold (all applicable taxes included). The 90/10 preference point system applies where the acquisition of the requirements will exceed R50 million. In terms of the Preferential Procurement Regulations, 2011, if it is stipulated that the 80/20 preference point system is applicable to a bid process and all bids received exceed R50 million, the bid must be cancelled. If one or more of the acceptable bid(s) received are within the R50 million threshold, all bids received must be evaluated on the 80/20 preference point system.

Similarly, if it is stipulated that the 90/10 preference point system is applicable to a bid process and all bids received are equal to, or below R50 million, the bid must be cancelled. If one or more of the acceptable bid(s) received are above the R50 million threshold, all bids received must be evaluated on the 90/10 preference point system. Preferential Procurement Regulations, 2011 prescribes the evaluation of tenders to follow either the 80/20 or 90/10 preferential point system.

Table 3.14 provides a guideline for the allocation of preference points in procurement.

Table 3.14: Preference points allocations

B-BBEE status level of contributor	Qualification	90/10 Preference points	80/20 Preference points
1	≥100 points on the Generic Scorecard	10	20
2	≥95 but <100 points on the Generic Scorecard	9	18
3	≥90 but <95 points on the Generic Scorecard	8	16
4	≥80 but <90 points on the Generic Scorecard	5	12
5	≥75 but <80 points on the Generic Scorecard	4	8
6	≥70 but <75 points on the Generic Scorecard	3	6
7	≥55 but <70 points on the Generic Scorecard	2	4
8	≥40 but <55 points on the Generic Scorecard	1	2
Non-compliant contributor	<40 points on the Generic Scorecard	0	0

Source: Own compilation (2018)

Table 3.14 can also be utilised to explain the alignment between PPPFA and BBBEA, as the preference points allocated are aligned to the entity's BBBEE level. In addition to achieving the 20 preference points allocated to the Preferential Procurement element of the Codes of Good Practice, government entities must procure goods and services from companies with a good B-BBEE status. According to the DTI (2018), this has a "trickle-down effect which applies pressure on all suppliers and service providers to meet these standards. The impact that this cascading implementation has on procurement in general is the increase in market access for black companies".

The alignment of PPPFA and BBBEA therefore increases the contribution of SOEs to the socioeconomic goals

3.6.2.6 Localisation initiatives

Local Content (LC) is defined as that portion of the Bid price which is not included in the Imported Content, provided that local manufacture does take place (SBD 6.2). LC is therefore determined as a percentage of the Bid price. However, “Imported Content” has a specific meaning in the regulations: It refers to:

> *that portion of the tender price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of costs abroad, plus freight and other direct importation costs, such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African port of entry.*

If the transaction falls within one of the designated sectors as determined by the DTI, and it was stated as such in the bid document, the threshold for Local Content, as determined by the DTI, is not negotiable and bidders who do not meet the minimum set thresholds will be disqualified and will not be evaluated any further.

The PPPFA Regulations, 2011, prescribe how Local Production and Content is to be measured in public sector SCM. In accordance with Regulation 9(1), when issuing tenders involving ‘designated sectors’, SOEs must advertise such tenders with a specific condition that only locally produced Goods, Services or Construction Works which meet a stipulated minimum threshold for Local Production and Content will be considered. Designated sectors are those sectors which have been designated by the Department of Trade and Industry (DTI) for Local Production and Content. National Treasury (NT) has issued Instruction Notes in terms of how to implement the designation of the sectors for Local Content. The Instruction Notes issued by NT on designated sectors must always be strictly adhered to when tenders in these sectors are issued.

Table 3.15, provides a summary of the key variables associated with strategic sourcing.

Table 3.15: Strategic sourcing variables

Variables	Description	Author (s)
Strategic planning	Strategic sourcing to be integrated with the organisational strategic plan. Assessment of the organisation's total spend profile.	Willy and Njeru (2014), Onyango (2011)
Procurement planning	– At the beginning of each financial year, SCM and end-user departments must produce a procurement plan; – The procurement plan is aligned with the budget.	Mamiro (2010), Willy and Njeru (2014), Onyango (2011)
Sourcing strategies	– Items on the procurement plan must be analysed for the purposes of developing sourcing strategies; – Strategic sourcing should focus on quality and identify cost reduction opportunities; – Strategic sourcing takes into account total cost of ownership; – SCM should conduct an industry analysis exercise.	Eyaa and Ntayi (2010:83)
Transversal contracts (National Treasury and SITA)	SOEs to consider transversal contracts already in place to leverage on the already negotiated rates.	National Treasury Circular 3 (2014)
Procurement thresholds	– Open bid process for transactions above R50 million, bids are advertised on eTender portal; – Utilise CSD for quotations below R 50 million.	PPPFA regulations (2011)
Preference point systems	90/10 preference points system applies to transactions above R50 million and 80/20 applies to all transactions below R50 million.	PPPFA regulations (2011)
Localisation initiatives	Localisation should be considered as a prequalification criterion in the tendering process. SOEs to consider the guidelines provided by the DTI.	National Treasury (2012)

Source: Researcher

3.6.3 Strategic supplier relationship management

SOEs outsource the goods, services and projects in which they do not have internal competencies, as their focus is on that which they can deliver (National Treasury, 2015b). Such services are outsourced to external service providers, contractors, consultants and suppliers through a competitive bidding process. Due to the value and strategic nature of the programmes, SOEs no longer regard their suppliers as external parties, but as strategic partners (McCutcheon & Stuart, 2000:282; Teller, Kotzab, Grant & Holweg, 2016).

As partnership relationships are more strategic and are of longer duration, there is trust and information sharing as the supplier is seen as the integral part of the organisation's success (Lysons & Farington, 2013: 223). Developing these partnerships is difficult, and it requires patience. Strategic supplier relationships (SRM) require top management support, a high level of trust between the SOE and the supplier, a proactive approach in developing the partnership, a total quality management philosophy, and a high degree of systems integration. Strategic supplier relationships are best managed through a contract.

Strategic SRM encourages long-term relationships between SOEs and suppliers, with the aim of leveraging the strategic and operational capabilities of the suppliers, and thereby assisting SOEs to achieve significant ongoing benefits (Li *et al.,* 2006:109). These relationships should improve the efficiency of the supply chain, increase competitiveness, reduce cost by information sharing, reduce risk and collaborate on new product development. The selection of the right partner is therefore of fundamental importance.

Through their close relationships buying organisations and suppliers can share risks and rewards and maintain the relationship on a long-term basis. Accenture (2010:26) asserts that "organisations that apply SRM techniques consistently achieve five percent more savings from both sourcing and post-contracting activities". According to Accenture (2010:8), supplier relationships management is described as "all activities related to interactions with suppliers".

Strategic supplier partnership in SCM is reported to yield organisation-specific benefits in term of financial performance (Tsai, 2007). Vereecke and Muylee (2006) highlighted

that strategic partnerships between suppliers and manufacturers have a significant impact on supply chain performance and various aspects of competitive advantage.

Supply chain partnership in the SCM is one of the most popular hybrid organisational forms. It is increasingly being adopted by firms to manage inter-organisational collaboration in the supply chain. Supply chain partnerships provide both large and small firms with numerous opportunities to improve their business, for example, there is a wider diffusion of products without needing a costly physical presence in the markets, risk and reward sharing, resource pooling, a reduction in coordination and transaction costs, the ability to concentrate on core competency, and a rapid response to market needs (Spekman, Kamauff & Myhr, 1998).

Li *et al.* (2006) emphasise that the departments and functions in partnering companies need to cooperate in evaluating inventories, systems, processes, training, work methodologies, equipment utilisation, and a host of other opportunities to reduce the cost of operations, and to explore further opportunities for the partnership. Supply chain partnerships are resource-intensive investments, which involve both financial and strategic risks (Maheshwari, Kumar & Kumar, 2006; Wang, Rivera & Kempf, 2007:56). Kotabe, Martin and Domoto (2003:253) emphasise that by involving suppliers extensively in SCM, organisations could gain more production flexibility, faster product development cycles, lower input costs and higher-end product quality to gain greater market share and premium prices.

The following section provides an overview of SRM from a contract management point of view.

3.6.3.1 Standardised contracts

Contract management is that part of SRM that sets the foundation for the three levels of SRM. Hugo *et al.* (2011:290) identified seven types of contracts:

1. firm fixed price,
2. fixed price/with escalation/de-escalation,
3. fixed price with incentives,
4. cost plus incentive fee,
5. cost sharing,
6. time and materials contract, and
7. cost plus fixed fee contract.

Managing contracts in an efficient manner can determine the success or failure of strategic supplier relationships. The monitoring and evaluation of supplier performance should form the basis of Contract Management activities where certain aspects should be monitored and reported on. Contracts are important in monitoring supplier performance. To ensure standardisation and uniformity, National Treasury has standardised the contract management framework, the contract documents for Government and its entities.

All SOEs are required to base their tender invitations and tender documents on the general conditions of contracts (GCC). If any aspect is not covered in the GCC, special conditions of the contract, relevant to the tender must be applied. SOEs must ensure that the standardised contracts are aligned with the policies and regulations governing SCM. SOEs can make amendments to the contracts to accommodate special conditions and arrangements. The contract documents are aligned with SCM laws and regulations. SOEs must develop a contract strategy which is aligned with the strategic sourcing strategies, to allow for smooth on-boarding and exit processes. As an initiative to support small and medium enterprise, SOEs are required by law to ensure that they honour the payment terms stated in the contract. Contract management processes are fully documented.

3.6.3.2 Service level agreements

Service level agreements (SLA) are the special type of contracts that describe the performance to be delivered by the service provider (Van Weele, 2016:184). Contracts with suppliers will normally define the service levels and terms under which Services are to be provided. Service level management includes assessing and managing the performance of suppliers to ensure value for money.

It is generally beneficial to establish an SLA, since it creates a common understanding about services, priorities and the responsibilities of both parties. Where applicable, an SLA must be put in place with the Successful Bidder to ensure proper performance management, and to mitigate any financial, operational, safety, environmental or reputational risks which may arise during the term of the contract. According to Van Weele (2016:185), the SLA will, at the very least, address the following aspects:

- Reflect on the overall goals of the business
- Be objective

- Be measurable
- Be comparable against pre-established criteria
- Communication plan

Suppliers must therefore be monitored according to the stipulations of the SLA. Non-performance of the supplier must be documented and acted upon as soon as possible. A review of the relationship with suppliers and the improvements that are needed can enhance efficiencies across the supply chain.

3.6.3.3 Supplier performance management

Key elements of supplier performance include: on-time deliveries (OTD), quality, responsiveness, prices, and number of non-conformances (Lysons & Farrington, 2013:217). All contracts of consultants must include penalty clauses for poor performance and in this regard, these clauses must be invoked where deemed necessary. Suppliers must be monitored against agreed performance metrics as defined in SLAs and contracts, and it must be confirmed that suppliers are meeting current business requirements. It is important that the performance measures that are selected provide clear and demonstrable evidence of the success (or otherwise) of the contractual deliverables. In principle, issues such as the following should typically be considered:

- cost and value obtained;
- performance and customer satisfaction;
- delivery improvement and added value;
- Supplier Development (SD), Empowerment and Local Content (LC) where applicable;
- delivery capability; and
- benefits realised.

3.6.3.4 Early payment of invoices

Contracts and payments of strategic suppliers should be monitored properly to ensure that the work done meets the contractual deliverables. This includes monitoring compliance with service standards set in SLAs, detailed payment advices and supporting evidence. SOEs must always ensure that payment of suppliers are on

agreed terms, in return for goods or services provided. This is a basic obligation for the buying organisation.

As demonstrated by the discussions in the sub-sections above, organisations entering strategic partnerships with suppliers, are able to work more effectively with a limited number of crucial suppliers who are agreeable to sharing. Strategic supplier partnerships are defined as long-term relationships between suppliers and SOEs (Zylbersztajain & Filho, 2003:155; Jie, Parton & Cox, 2013:1003). They are designed to control the strategic, tactical and operational capabilities of individual participating organisations to assist them to achieve major ongoing mutual benefits (Noble, 1997:27; Jie *et al.,* 2013:1003; Mentzer *et al*, 2004:549).

A supply chain partnership is defined as a strategic coalition of two or more firms in a supply chain to facilitate the joint effort and collaboration in one or more core value-creating activities, such as research, product development, manufacturing, marketing, sales, and distribution. The objective of a supply chain partnership is to increase the benefits to all partners by reducing the total cost of acquisition, possession, and disposal of goods and services (Maheshwari *et al*., 2006:277; Li *et al.*, 2006).

Supply chain partnerships are designed to influence the strategic and operational capabilities of individual participating organisations to assist them to achieve significant ongoing benefits (Stuart, 1997:223). Strategic partnerships with suppliers enable organisations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the products (Anderson & Katz, 1998; Li *et al.*, 2006).

Table 3.16 provides a summary of all the key elements discussed under the topic of strategic supplier relationships.

Table 3.16: Strategic supplier relationship variable

Variables	Description
Contract management	– The contract management should be fully documented and deployed to all suppliers. This will ensure the compliance by both parties with the agreed terms of the contract
Strategic supplier relationship	– Strategic supplier relationship approaches are fully documented and deployed to all suppliers – There is visibility of information between the buyers and the suppliers – There should be strategies in place to manage crucial suppliers
Standardised contracts	– National Treasury standardised contract documents. General Conditions of Contract and other contracts
Service level agreements	– There should be formal document with statements of performance requirements, client-supplier communication, relationship management, expectation and conflict management, cost-management, performance monitoring, specifics of the nature and level of service to be provided by a service.
Supplier performance management	– Appraising, accessing, developing, improving and leveraging the capabilities and performance of suppliers to contribute to the strategic objectives of the SOE – Measure supplier's on-time deliveries, quality of goods (Non-conforming goods caused by supplier) and services. Regular feedback should be provided to suppliers critical to business
Early payment of invoices	– Concerning GCC suppliers, invoices should be paid within 30 days of the invoice
Quality management and improvement	– Cost of quality, quality control, quality assurance, quality management and continuous improvement

Source: Own compilation (2018)

3.6.4 Cross-functional teams

SOEs deliver their infrastructure projects through SCM, and even though SCM in SOEs is centralised, it would be impossible for SCM to source the goods and services in silo. The complexity of the projects requires a collaborative and integrated approach (Van Weele, 2016:60). According to Monzka *et al.* (2012:110), an organisation faced with complex and large-scale business decisions should consider cross-functional teams. Cross-functional teams are defined as a "group of individuals from various organisational functions who are brought together to achieve clear, worthwhile and compelling goals that could not be reached without a team" (Institute of Supply

Management, 2016). Van Weele (2016:365) defines cross-functional teams as specialists from user departments and buyers who are put together in teams to develop specific sourcing and commodity strategies and plans. It is also advisable for Suppliers to be included in the team to provide the organisation with a greater understanding of the problem (Monzka *et al.,* 2012;106; Lyson & Farrington, 2016:162). According to Monzka *et al.* (2012:106) and Lysons and Farrington (2012), the advantages of cross-functional teams include a reduction in cycle time, improvement in an organisation's ability to solve complicated problems, enhanced innovation and creativity, and it encourages joint ownership of decisions. When executed properly, the cross-functional teams can bring together the knowledge and resources required for new business requirements (Monzka *et al.,* 2012:106).

Cross-function teams enhance collaboration between supply chain partners (De Villiers *et al.*, 2017:285). The synergetic effect of team interaction can help generate new or departments acting alone (Monzka *et al.*, 2012:109). The team approach supports members reaching agreement together, which can result in reduced rework and time required to execute a task (Monzka *et al.*, 2012:109). The cross-functional approach requires a joint agreement and ownership of decisions amongst teams. Through effective interaction members begin to understand each other's requirements or limitations, and they develop solutions that different departments can support (Monzka *et al.*, 2012:109).

The cross-functional team approach also encourages innovation. However, to enhance innovation, some rules may need to be relaxed to allow for free thinking. The danger of this approach in a public sector environment, is the risk of deviation from the policies and regulations (Monzka *et al.*, 2012:109).

Cross-functional teams by design, encourage the open and timely exchange of information between supply chain members and leads to enhanced communication. Information can be transmitted through emails and via face-to-face meetings (Monzka *et al.*, 2012:109).

Burt *et al.* (2011) identified the four crucial roles of SCM in cross-functional teams as:

- providing process knowledge and expertise;
- providing content knowledge;

- acting as liaison with SCM staff to ensure project needs and to obtain priority; and
- advising on sourcing strategies and putting forward the supply management point of view.

In efforts to implement this best practice, National Treasury made it compulsory for accounting officers of all Government entities to establish cross-functional teams in SCM in the form of Bid committees (Treasury Regulation 16A6.2.). Annually, accounting officers are required by law to appoint the three bid committees, namely, Bid specification (BSC), Bid evaluation (BEC) and Bid adjudication committee (BAC). The accounting officer should further ensure that the bid committee processes are within the ambit of section 217 of the Constitution and the prescripts contained in the PPPFA and the Broad-Based BEE Act, No. 53 of 2003 (B-BBEE Act) and the associated regulations.

The bid committees comprise various experts from operations, projects, marketing, finance, the legal department and any other crucial role participants who work in collaboration with SCM in the preparation of the specifications, the evaluation of bids and the final awarding process. The success of SCM in SOEs therefore is dependent on the cooperation and participation of its members. Daspit, Tillman, Boyd and McKee (2013:34) claim that the level of effectiveness of bid committees can be increased when their members engage in activities in which leadership is shared amongst members; and there is a positive internal environment which generates cohesion amongst members of the bid committees.

3.6.4.1 Bid Specification Committee (BSC)

The BSC is responsible for the compilation of bid specifications, the selection of contract and sourcing strategies and the predetermination of the evaluation criteria. The specifications should be written in an unbiased manner to allow all potential bidders to offer their goods and/ or services. The specification committee may be composed of officials of a department (procurement department or the department requiring the goods or services), or a committee appointed by the accounting officer.

3.6.4.2 Bid evaluation committee (BEC)

The BEC is responsible for the evaluation of bids received. Tender evaluation is performed in three stages. The first stage involves administrative compliance, followed

by a technical evaluation and lastly, the evaluation of price and B-BBEE. It is a mandatory requirement that bids must be evaluated in accordance with the criteria specified in the bid document. According to the prescripts of section 2 of the Preferential Procurement Policy Framework Act, No.5 of 2000 (PPPFA), bids must be evaluated in accordance with a preference points system. The evaluation committee should be cross-functional and should be composed of supply chain practitioners and officials from the user departments requiring the goods and services.

3.6.4.3 Bid adjudication committee (BAC)

The BAC is the highest-level committee responsible for considering the recommendations for awards as presented by the BEC. The BAC usually comprises the most senior officials in the organisation and the BAC reports to the accounting officer. The BAC makes recommendations to the accounting officer for approval. The bid committees are provided power and authority by the accounting officer, and this enables swift decision-making as bureaucratic channels of authorisation are avoided. The decision-makers sit around the table, deliberate on matters, and escalate to the accounting officer for approval.

SCM cannot be implemented in isolation, as it requires close collaboration with other departments, such as finance, operations and legal. In addition, it necessitates collaboration with external vendors, customers and others in the supply chain. The purpose of this collaboration is to combine various skill sets, and to encourage collective decision-making, thereby enhancing an understanding of SCM. In their conceptual work, Mentzer *et al.* (2004:549) argued that SCM, production management, finance management, and the marketing functions are dependent on each other for effective SCM. Integration across functional perspectives are necessary to align and execute overarching supply chain strategies.

Functional alignment between the organisational functions leads to increased performance of the firm. SCM can pursue cost-saving initiatives through multiple bidding and rounds of negotiations, whilst operations focus is on quality and after sales service. This misalignment could lead to the selection of a wrong supplier and provide wrong incentives to the supplier which might have detrimental effects on the SCM performance related to quality.

Cross-functional teams in the SOE SCM includes the Bid Specifications Committee, Bid Evaluation Committee and the BACs. The committees are appointed annually by the accounting officer. SCM is represented across all the bid committees. Table 3.17 provides a summary of the cross-functional team (CFT) variables together with their activities.

Table 3.17: Cross-functional team variables

Variable	Description	Author (s)
Bid Committees	– There should be three bid committees in place, namely, bid specification, bid evaluation and BACs – The roles and responsibilities of the bid committees are documented in the bid committees charter – Bid committee members should sign a non-disclosure agreement to ensure confidentiality – Bid committee members should receive training on latest developments – The functions of the bid committee members are embedded in their individual performance contracts – Member participation in bid committees is monitored and reviewed on a regular basis	PPPFA Regulations (2011)
Collaboration	– Successful SCM requires process coordination and internal collaboration amongst the firm's functional areas, and externally between the SOE and its suppliers – SCM cannot be implement in isolation but in collaboration with other departments – Personnel from different functions brought together to achieve supply chain related tasks	Mentzer *et al.* (2004:549); Driedonks, Gevers & van Weele (2016:289), Monzcka *et al.* (2012); van Weele (2016:69)
Time to complete task	The CFT approach reduces time to complete task by bringing all the crucial role participants around the table	Monzka *et al.* (2012)
Joint ownership of decisions	The CFT approach enhances joint decision-making and ownership	Monzka *et al.* (2012)
Innovation	CFT inspires innovative thinking amongst team members	Monzka *et al.* (2012)

Variable	Description	Author (s)
Communication	CFT enables the flawless flow of information between SCM and the end-users	Monzka *et al.* (2012); Drawong (2015:38); Boerner, Schaffner & Gebert (2012:256)

Source: Own compilation (2018)

3.6.5 Workforce and structure

The organisational workforce and structure is crucial for delivering the organisational objectives, as well as SCM strategy and objectives (Monzka *et al.,* 2012:18).

3.6.5.1 Organisation structure

Having a the Head of SCM reporting to the CEO is the design feature that correlates highest with the achievement of SCM objectives. The higher SCM is placed in the corporate structure, the greater the role it plays in supporting organisational objectives. The SCM in an SOE is not a standalone function but falls under the office of the Chief financial officer (CFO), this was confirmed by the research conducted by Accenture (2010:2), which found that 95% of the CPOs report to the CFOs. There is a common agreement amongst SOEs that there is a need for the CPO to report directly to the CEO to truly drive the strategic agenda of SCM. Due to the high spend through SCM, in most SOEs, the SCM is represented at Board subcommittees, such as the Risk and management committee, the Audit committee and Finance committee. This validates the strategic importance of SCM in the organisation.

The SCM profession has a range of jobs titles, for example, procurement officer, buyer, supply chain manager, supplier relationship manager, contract manager, category manager and assistant buyer. These job titles define roles and responsibilities within a reporting hierarchy.

3.6.5.2 SCM skills and competencies

Competent, objective and impartial individuals are crucial to a successful SCM (National Treasury, 2015b:51; Bowersox *et al.,* 2007; Mentzer, 2004). In their 2012 study, Barnes and Liao emphasise the dearth in research, and emphasise the competencies required for successful supply chain systems. As a result, an examination of the competencies, at individual and organisational level in a supply

chain, strengthens the ties between the two academically distinct fields of study (Krishnapriya & Baral, 2013).

Supply chain professionals become the administrators of the organisational change when it undergoes a shift from cooperation and coordination to collaboration, which requires higher levels of trust and commitment. They are required to be more aware of the organisation's objectives and possess excellent collaborative skills to establish and maintain supply chain relationships. The role of the supply chain professional has evolved from just being functionally focused to process focused. Supply chain managers not only need to be equipped with the skills and knowledge to manage logistics, but are also required to be relationship managers. Jayaram and Avittathur (2012) lament the limited availability of managerial talent possessing the required expertise in the crucial supply chain functions.

Although the membership in internationally recognised professional associations, such as APICS, the CSCMPs, and the Institute for Supply Management (ISM) is on the rise, more widespread participation is required to advance the professional knowledge in this business discipline. As a result, academicians tried to bridge the skill gap that has appeared at a global level. Lou (2012) reveals the scarcity of global skills, and further breaks them down into soft and hard (job-specific) skills. Languages and communication, team management, leadership and organisational skills were ranked high in soft skills, whereas budgetary, IT, green skills, procurement and negotiation, R & D, and healthcare rated high on hard skills. Along similar lines, Rahman and Yang (2009) identify the requirement of a combination of hard and soft skills amongst logistic professionals in China.

3.6.5.3 Training and development

Organisations need to consider the skills requirements and education when integrating their value-adding activities with their partners (Gattorna & Clark, 2003). Mentzer (2012:5) asserts that effective training and knowledge-based learning is essential in developing and maintaining new SCM skills. The organisation design affects the success of SCM, for example, a supply chain manager lacks organisational importance when compared to an executive who has much higher responsibilities. The reporting structure of SCM in SOEs in South Africa differ from one SOE to another. According to the PFMA, SCM in Government and its entities should preferably report

to the CFO. Due to the growing importance of SCM in SOEs, not all SOEs comply with this legislative requirement.

Effective implementation of the organisational objectives requires competent, ethical, professional and skilled SCM employees within the appropriate structures. Competent, objective and impartial individuals are crucial to a successful SCM. There is therefore a need for SCM practitioners to have a comprehensive understanding of the SCM policies and regulations, the interpretation thereof and their impact.

SCM should be represented at a strategic level, should be involved in the strategic planning processes of the organisation and should be appropriately placed within an organisational structure in a way that signifies its strategic importance. The SCM team should possess the right skills, and SOEs should invest in the continuous development of SCM skills.

As part of continuous development, SCM practitioners should be encouraged to affiliate with professional bodies in SCM. According to Foerstl *et al.* (2013:696), in order to meet the future requirements of SCM, as a strategic contributor to an SOE's success, the skills of employees must be developed over time and they should be allocated the tasks where they are of the greatest value to the organisation.

Table 3.18 provides a summary of the organisational structure variables together with its activities.

Table 3.18: Organisational structure variables

Variables	Description	Author (s)
Organisation Structure	– The head of SCM should be at an executive level reporting to the CEO – SCM is represented at board level	Lysons and Farrington (2013); Feizabadi, Singh, and Motlagh (2014:474)
SCM skills and competencies	– SCM personnel have adequate skills required for the positions they are occupying	Mwangangi and Owuoth (2015:182); Foerstl *et al.* (2013:696)
Training and development	– Organisation invests in the training and development of SCM personnel – SCM personnel are affiliated with SCM professional bodies	Mwangangi and Owuoth (2015:182)

Source: Own compilation (2018)

3.6.6 Information technology

Information Technology (IT) plays an important role in SCM. IT systems transform SCM through automation, provides access to a wider range of supplies and helps ensure fair and transparent competition. The following sections provide an overview on implementation of IT in SCM in SOEs.

3.6.6.1 Integrated ERP system

Computer-based ERP (or Enterprise resource planning) systems require investments in training. IT is critical in the implementation of a supply chain system. Good IT systems have the potential to make considerable improvements to SCM efficiency and effectiveness (Wisner *et al.*, 2016:189). ICT systems enable efficiency by reducing costs and effort. The use of SCM ICT systems can allow professional buyers to shift their attention from routine to strategic tasks. There is a requirement by National Treasury that CSD should be integrated to the SCM systems, and for SCM systems to be efficient, there needs to be full utilisation of the systems.

For the purposes of this study, the utilisation of IT refers to the extent to which an SOE employs, utilises, or implements ICT in its internal and external business operations. Information in the ERP is used for decision-making purposes and performance delivery. The ERP systems provide a view of the entire organisation, enabling decision-makers within each function to have information regarding customer orders, production plans, work in-progress and finished goods inventory levels, outbound goods-in-transit, purchase orders, inbound goods-in-transit, purchased item inventories, and financial and accounting information (Wisner *et al.*, 2016:189). ERP systems thus link business processes and facilitate communication and information sharing amongst the firm's departments.

Technological innovation gives SOEs the opportunity to make continuous strides in modernising their processes. SCI, concerning supplier integration and customer integration, mediates the relationship between information technologies and the firm's operational performance. Since the crucial business processes overlay each of the functional areas, the firm eventually becomes process-oriented rather than functionally-oriented as ERP systems are deployed. It is this visibility of information across the organisation that allows processes to become integrated within the firm.

3.6.6.2 E-sourcing/e-tendering

Various government entities utilise different SCM IT software, depending on their affordability. The software provides predominantly for procure-to-pay and contract management. In most business organisations, functions such as the development of specifications, are done manually outside the system where the technology is not available/affordable (CIPS, 2014:128). SCM therefore has not fully leveraged the capabilities of these systems nor have these capabilities been supported with e-Procurement tools. As a result, the requisition-to-pay process still involves manual activities which leads to process inefficiencies and a lack of compliance and governance. The benefits of automated SCM processes includes: potential costs savings, increased communication, high accuracy of data input, reduced cycle time, improved supplier relations, real-time information, reduced risk of fraud and improved management information, decision support and feedback.

3.6.6.3 Information sharing

Information sharing refers to the extent to which critical information is communicated amongst SCM members (Sundram *et al.*, 2011:840). SCM must always ensure that information is available online and accessible to all supply chain participants. Information sharing includes any data that can be useful to other members of the supply chain (Russell & Taylor, 2014). Quotations/tender information such as specifications must be clear and concise. If a compulsory site inspection/briefing session is required, then a meeting must be convened, and minutes of the meeting must be recorded. The minutes must include the queries/requests raised for clarification at the meeting, together with the responses to those requests without identifying the sources of the requests. The minutes must be forwarded to all tenderers who attended the meeting to ensure that the same information is provided to all tenderers. This would enable Bidders to take the minutes into account in preparing their Bids. Information sharing therefore allows for a faster and accurate business decisions by suppliers and other key players in the supply chain (Sundram *et al.*, 2011:840).

3.6.6.4 Centralised supplier database

Recently, National Treasury has introduced several e-Procurement tools, such as the e-tendering, Centralised supplier database (CSD) and e-government portal. All

Government entities are required by National Treasury to utilise the CSD system, as the other two systems are not yet fully functional. CSD was introduced in 2016, to improve efficiency and effectiveness in the government procurement environment, to reduce red tape, break down barriers to entry and to create economic opportunities for many South Africans to do business with Government. For the first time in South Africa, all suppliers doing business with Government can be accessed from one source. The expectation from National Treasury is that all Government entities should integrate CSD with their ERP systems (SCM instruction 4A of 2016/2917). According to the National Treasury (2015:1): “the purpose of centralising Government’s supplier database aims to reduce duplication of effort and cost for both supplier and Government, whilst enabling electronic procurement processes”.

The following table provides a summary of CSD utilisation as at the end of December 2017:

Table 3.19: Utilisation of CSD - December 2017

Description	Value
Total number of users	621 423
Total registered service providers	441 342
Exempted Micro enterprises	314 708
Qualifying Small Enterprises (QSEs)	18 958
Large Suppliers	5 237
Suppliers who did not specify their annual turnover	102 439

Source: Adapted from National Treasury (2018a:8)

As indicated in Table 3.19, the total number of users registered in CSD is 621 423, whilst only 441 342 are successful registered users (National Treasury, 2018a:7).

A summary of all the key variables associated with information technology are listed in Table 3.20 below.

Table 3.20: Key variables related to implementation of IT in SOEs

Variables	Activities	Author (s)
Integrated ERP system	SCM ERP system should be integrated with other systems such as finance and operations	National Treasury (2014); Russell & Taylor (2014)
e-Sourcing	– SCM processes should be fully automated – The contracts management system is fully automated – The SCM IT system is fully utilised – All users are trained on using utilisation of system	National treasury(2015b); KPMG (2012); Accenture (2018); Russell & Taylor (2014)
Information sharing	– Early problem identification – Faster response – ERP system should ensure flawless information sharing	Flynn *et al.* (2010b); Accenture (2018); Li *et al.* (2006); Sundaram *et al.* (2011)
Centralised Supplier Database	– SOEs to source suppliers from the CSD – The SCM IT system is integrated with CSD	National Treasury
e-Tendering	All tenders to be advertised on the eTender portal	National Treasury
Performance management	The SCM IT system should track crucial information required to measure SCM performance matrix indicators	National Treasury SCM Guidelines for Accounting Officers (2004)

Source: Own compilation (2018)

3.6.7 Supply chain integration

The concept of supply chain integration (SCI) was briefly discussed in Section 2.5.4. This section therefore provides a broader overview of supply chain integration (SCI) as it applies to SOEs. SCI refers to the extent to which an organisation strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organisational processes (Flynn, Huo & Zhao, 2010a; Krishnapriya & Baral; 2014; Zhao *et al*, 2011; Wong *et al,*2012). Kwon and Suh (2005:26) define SCI as "A strategic tool, which attempts to minimise the operating costs and thereby enhancing values for the stakeholders (customers and shareholders) by linking all participating participants throughout the system, from supplier's suppliers to the customers". SCI refers to the degree to which an organisation strategically collaborates with its supply chain partners and manages intra and inter-organisation processes to achieve

effective and efficient flows of products, services, information, money and decisions, with the objective of providing maximum value to its customers.

From the above definitions, the dimensions of SCI include customer/market integration, information integration (Narismhan & Das, 2001), supplier integration, cross-functional integration (Trent & Monczka, 2003; Foerstl *et al.*, 2013) and purchasing integration. The goal is to achieve the effective and efficient flow of products and services, information, money and decisions, and to provide the maximum value to the customer at a low cost and high speed. In addition, SCI is recognised as a strategy for improving business performance in highly competitive environments.

Supply chain management systematically integrates with the other functions in the internal supply chain. As integrated information systems support tactical decision-making, with the focus on efficient materials/information flows, they offer significant potential for improved internal and external coordination. In addition, they can contribute to improvements to various supporting systems, such as Materials Replenishment Planning (MRP), Enterprise Replenishment Planning (ERP), just-in-time supply, and total quality management. Although SCM dovetails with other functions through consultation and reporting, it still uses a standalone information system. However, SCM plays a crucial role in securing systematic cooperation and information-sharing across the supply chain.

Integrated information systems are utilised to support strategic decisions with a focus on customer service and the management of information. Integration has significant benefits related to cost reduction through the elimination of waste at all stages of the process; more systematic planning, coordination and control; and greater supply chain flexibility and responsiveness to customer demands. SCI is recognised as a strategy for improving business performance (Narasimhan & Das, 2001:1).

Supply chain integration is regarded as a strategic tool aimed at reducing costs, thereby increasing customer and shareholder value. In the context of this study, Monzka *et al.* (2012:99) define integration as “the process of incorporating or bringing together different groups, functions, or organisations, either formally or informally, physically or by IT, to work jointly and often only on a business-related assignment or purpose”. Internal integration is the extent to which an organisation develops strategies and processes that can be synchronised to add value to the organisation’s

customers. External integration enhances customer integration efforts, organisation effectiveness and efficiency.

In terms of SOEs, SCI benefits the organisation in a sense that the SOE can use their supply chain partners, such as consultants, to mitigate their internal deficiencies which allows them to focus on their crucial competencies to maximise productivity and returns. SCI allows for value-added activities between organisations, suppliers and customers to be made more visible. An integrated SCM in an organisation has a positive influence on organisational performance, as SCI encourages information sharing and operational alignment, and consequently, enhanced performance. Information sharing is crucial in SCI and the exchange of information assists suppliers to align with the organisation's strategic and operational decisions. Table 3.21 provides a summary of the SCI variables.

Table 3.21: Supply chain integration variables

Variables	Description	Author (s)
Internal integration	– To achieve internal integration, personnel need management support, resources, and empowerment to make meaningful organisational changes to foster the type of cooperation necessary to: – Support the supply chain strategy – SCM should integrated with other departmental functions – SCM technological systems are integrated with other operational systems – SCM integration enhances efficiencies in internal processes	Flynn, Huo and Zhao, (2010a); Krishnapriya and Baral (2014); Zhao *et al.*, (2011); Wong *et al.,* 2012)
External integration	SCM should integrate with external stakeholders such as National Treasury, DTI, CIDB, suppliers/contractors/service providers and other crucial role participants	Sundaram & Mehta, 2002:537), Monzka *et al.* (2012); Wong *et al.* (2012); (Flynn *et al.,* 2010a)
SCI and SOE performance	SCI has a positive impact on organisational performance (Section 2.5.5)	Handfield *et al.* (2009), Pohl & Forstl (2011), Forslund & Johnsson, (2007), Flynn *et al.* (2010:60), Chen and Paulraj (2004), Chopra & Meindl, (2013).

Source: Own compilation

3.6.8 Enterprise and supplier development

The concept of enterprise and supplier development (ESD) was briefly introduced under Section 3.5.5, as one of the key elements of BBBEE generic score cards. This section expatiates the concepts and further provides a breakdown of the points allocated to ESD (Table 3.22). The revised Codes of Good Practice (2015) changed the way B-BBEE scorecards were being calculated by increasing the number of points required to achieve each level. The updated Codes resulted in a consolidation of the Enterprise Development (ED) and Preferential Procurement (PP) elements into a single, new Enterprise and Supplier Development (ESD), accounting for 40 of the total 107 points available, with measured entities required to achieve a minimum of (40%), making ESD the most significant element on the scorecard. ESD is a Government initiative aimed at empowerment of Black-owned entities, small, medium enterprises, and women owned enterprises in South Africa. The 2017 PPPFA regulations recommend that ESD should be considered as a pre-qualification criterion (PPPFA, 2017).

Table 3.22: Summary of enterprise and supplier development (ESD) indicators

Indicator: Preferential Procurement	Weighting	Target
B-BBEE procurement spend from all Empowering Suppliers is based on its BBBBEE procurement recognition level as a percentage of total measured spend	5	80%
B-BBEE procurement spend from all Empowering Suppliers that are QSEs based on its B-BBEE procurement recognition level a percentage of total measured spend	3	15%
B-BBEE procurement spend from EMEs based on its B-BBEE procurement recognition level as a percentage of total measured spend	4	15%
B-BBEE procurement spend from all Empowering Suppliers that are at least 51% Black-owned based on its B-BBEE procurement recognition level as a percentage of total measured spend	9	40%
B-BBEE procurement spend from all Empowering Suppliers that are least 30% black women-owned based on its B-BBEE procurement recognition level as a percentage of total measured spend	4	12%
Bonus Points: B-BBEE Procurement spend from Designated Group that are at least 51% Black-owned	2	2%

Indicator: Supplier Development	Weighting	Target
Annual value of all Supplier Development Contributions made by the Measured Entity as a percentage of the target	10	2% of NPAT
Indicator: Enterprise Development	**Weighting**	**Target**
Annual value of all Enterprise Development Contributions and Sector Specific Programmes made by the Measured Entity as a percentage of the target	5	1% of NPAT
Bonus Points: Graduation of one or more ED beneficiaries to SD. Creating one or more jobs directly because of SD and ED initiatives	1 1	

Source: Adapted from DTI (2017)

The ESD indicators as demonstrated under Table 3.22 are discussed in the following sections.

3.6.8.1 Preferential procurement, supplier development and enterprise development

As previously discussed, the ESD element, although consolidated, still has three sub-categories, namely, Preferential Procurement, Supplier Development and Enterprise Development (Table 3.22). This section provides an overview of each sub-category.

The first sub-category to be discussed is Preferential Procurement which accounts for 25 points of the ESD element. The aim of the Preferential Procurement scorecard is to encourage the use of Black-owned professional services and entrepreneurs as suppliers, whilst inherently encouraging measured entities to empower themselves on the broad-based principles of B-BBEE. The preferential procurement strategy also enforces procurement from Empowering Suppliers that are QSEs, EMEs, and from all empowering Suppliers that are at least 51% Black-owned, and empowering suppliers that are least 30% black women-owned based on its B-BBEE procurement recognition level as a percentage of total measured spend.

The second sub-category of ESD is Supplier Development. Supplier Development is defined as “any activity that a buyer undertakes to improve suppliers’ performance and/or capabilities to meet the buyers’ short and or long-term supply needs” (Wisner *et al.*, 2016:91). Supplier development is also referred to as Supplier Diversity in South Africa, and is understood to be contributions and support given to qualifying beneficiaries that already form part of the measured entity’s supply chain. The

weighting for Supplier Development on the current score card is 10%, with the target being 2% of NPAT. The Measured Entity may substantially increase the revenue stream to the beneficiary through the provision of new or extended (three year) contracts. Supplier Development has the potential to alleviate one of the most critical constraints faced by small business, namely, market access. As guaranteed contracts are often a key requirement for funding, being part of a Supplier Development Programme often unlocks funding opportunities for the beneficiaries. Furthermore, the measured entity has an opportunity to ensure that the beneficiary becomes sustainable, increase its resources and technology, and provide better service. Through creating or developing sustainability, we also create a strong structure for access into the economy – ultimately, reducing the high unemployment rate in South Africa.

Supplier Diversity is the utilisation of Enterprise Development to build businesses that diversify the Measured Entities' supply chain from a transformation perspective. This is advantageous as it assists the corporate in improving its performance against the Preferential Procurement pillar in the B-BBEE scorecard. All measured enterprises are now required to spend 2% of their net profit after tax annually on supplier development and a further 1% of the net profit after tax on enterprise development and sector specific programmes. These two categories together make up the 15 points that were previously attainable under Enterprise Development.

The concept of Supplier Development is often confused with that of Enterprise Development. The difference between the two is that Supplier Development focuses on the suppliers who are already in the supplier database or within the organisation's supply chain, whereas 'Enterprise Development' beneficiaries do not form part of the existing supply chain. The main aim of Enterprise Development is to assist and develop a potential supplier to eventually form part of the measure entity's supply chain. ESD is also a priority element, therefore the minimum threshold requirement of ESD needs to be met, to ensure that the discounting of the BEE level status does not apply. Therefore, the measured entity must achieve a minimum of 40% on three of the specific sub-categories on this scorecard.

Therefore, ESD within the context of the B-BBEE scorecard is defined as a programme of developing small and medium enterprises, called beneficiaries, by investing time, money, and capital to contribute to the development, sustainability, financial

independence, and operational independence of those beneficiaries. It is empirical for ESD to be integrated into the supply chain processes such as demand planning, annual planning processes, strategic sourcing process and interim reviews. The following sections provide a brief overview of ESD strategy, indicators on the score card and initiatives.

3.6.8.2 ESD strategy, plan and structure of SOEs

SOEs and Government entities are expected to facilitate easy access for small, medium and micro enterprises into the mainstream procurement activities. This approach requires strategic thinking and planning. Government has made it compulsory for Government entities (SOEs) to contribute towards the socioeconomic goals of the country, through amongst others, preferential procurement and ESD.

Under the previous B-BBEE legislation, preferential procurement and enterprise development were two separate compliance areas. It is therefore imperative for SOEs to craft a well-defined ESD strategy, and to develop a policy, guidelines and framework for implementation (Section 4.12, Statement 400). The ESD strategic framework enables compliance to the organisational policies and procedures which underpin the organisational role as a catalyst for ESD. SOEs should incorporate ESD in the planning stage, instead of at execution, and the movement towards longer-term demand planning will increase ESD opportunities available.

The ESD strategy and objectives are fully integrated with strategic sourcing and the demand planning process. To successfully execute the ESD strategy, SOEs should ensure that dedicated resources (financial resources and human resource elements) are made available. ESD is not a once-off initiative but requires continuous improvement of the processes and evaluation criteria to improve the growth of integration and transformation opportunities. Monitoring and reporting to the B-BBEE scorecard and the charter should be updated and closely linked to contractual obligations and ESD criteria. The implementation of the ESD strategy should be reported at the executive committee monthly to ensure close monitoring of the implementation of the strategy.

Table 3.23 summarises the variables associated with ESD.

Table 3.23: Enterprise supplier development variables

Variables	Description	Author (s)
ESD strategy	– SOE should have an ESD strategy in place – ESD strategy to include any changing Government regulations – Strategy to be translated to clear crucial performance indicators – The organisation invests at least 1% of its Net Profit After Tax to fund ESD initiatives	Venter (2016)
ESD Plan	– The ESD strategy and objectives are fully integrated with strategic sourcing and demand planning process – There should be a clear ESD implementation plan	Venter (2016) B-BBEE codes Statement 400 (Section:4.12)
ESD structure	– Develop a dedicated structure for the implementation of ESD	Venter (2016), Patterson (2017)
ESD implementation and monitoring	– Continuous improvement of processes and evaluation criteria	Venter (2016)
ESD monthly reporting structure	– ESD outputs are included in management's performance contracts – ESD performance to be closely monitored and updates to be presented to executives	Venter (2016)

Source: Own compilation

The SCM practices discussed in Section 3.6 are summarised in Table 3.24 below. The table illustrates the key practice and the key variables thereof. This summary serves a key reference for the questionnaire which was developed to empirically test the implementation of the SCM practices in SOEs.

Table 3.24: Summary of SCM practices in SOEs

SCM practice	Variables
Customer Relationship management	– Internal CRM – SLAs between SCM and user departments – SLAs between SCM and external customers – Integration of Customer service into SCM KPIs – Quarterly review of CRM
Strategic sourcing	– Alignment of Strategic sourcing with annual procurement plan – Consideration of total cost of ownership – Industry analysis process – Utilisation of National Treasury transversal contracts – Utilisation of SITA transversal contracts – CSD for all quotations system – Advertise tenders on the National Treasury eTender portal – Consideration of local content
Enterprise supplier development	– ESD strategy – ESD Strategy translated to clear crucial performance indicators – ESD implementation plan – Monthly reporting – At least 2% of Net Profit After Tax is earmarked for ESD – ESD strategy is fully integrated in strategic sourcing processes – Dedicated resources for ESD
Strategic supplier relationship management	– Contracts management is fully documented – Supplier management is fully documented – Utilisation National Treasury standardised contract documents – Quarterly supplier performance reviews – Suppliers are held accountable for poor performance – Supplier invoices paid within 30 days of receipt
Cross functions	– Three bid committee systems in place – Clearly defined roles for bid committee members – Code of conduct for Bid committee members – Collaboration with end-user departments – Joint decision-making – Collective ownership for our SCM decisions – Encourage innovative thinking
Workforce structure	– SCM is represented at board level – SCM personnel are highly skilled – SCM personnel have relevant qualifications

SCM practice	Variables
	– Training and development for SCM personnel – SCM personnel are affiliated to a professional body – SCM personnel have career development plans
Information technology	– SCM process is fully automated – Contracts management system is fully automated – ERP system is fully utilised – ERP system to ensure flawless information sharing – ERP system is integrated with CSD
Supply chain integration	– SCM system is an integrated process – SCM system enhances efficiencies in internal processes – Suppliers are fully integrated to the SCM system
Information technology	– SCM process is fully automated – Contracts management system is fully automated – ERP system is fully utilised – ERP system to ensure flawless information sharing

Source: Own compilation

3.7 SUPPLY CHAIN PERFORMANCE IN STATE-OWNED ENTITIES

An organisation's success is dependent on having an effective and efficient metrics system that aligns all the strategic objectives of the organisation (Lear, 2012:90). Measuring SCM performance is important for determining SOE performance. According to Sufian (2010:260), SCM performance is influenced by managing and integrating crucial elements, like supply chain linkages and information, into the SCM.

SCM performance management is a monitoring process, undertaking a retrospective analysis to determine whether the proper processes were followed and whether the desired objectives were achieved. Some of the issues that may be reviewed are; compliance to norms and standards; cost efficiency of SCM process (the cost of the process itself); and whether supply chain practices are consistent with Government's broader policy focus. SCM performance evaluation system represents a formal systematic approach to monitor and evaluate SCM performance within an organisation. Supply chain performance measurement and management system should directly support corporate goals and objectives. A well-developed performance management system helps management distinguish between good or poor SCM

practices and results (Monzka *et al.* 2012:656). Supply Chain Performance Measures serve as an indicator of how well the SC system is functioning. Measuring SC performance can facilitate a greater understanding of the SC and improve its performance (Taghipour *et al.,* 2015:15).

SCM performance measures cannot be determined in isolation but require a holistic approach that considers the organisational corporate objectives. In this regard, SCM measures must incorporate financial and non-financial performance measures. Lambert (2009:6) asserts that managers should not only focus on optimising their own firm's operations but need to work collaboratively to generate mutual goals. According to Cousins, Lammings, Lawson and Squire (2008:144), the fundamental objective of SCM performance measurement is to translate supply chain strategy into action and to therefore implement a system that monitors and evaluates performance.

Effective performance measures are cascaded down from the highest level of the organisation to the lowest ranks. All the activities at the operational level should work towards the bigger organisational strategy. An effective performance management should cascade high-level corporate strategy through to the lowest level of officials in the company. SCM performance measures are divided into seven categories: cost, compliance, risk management, quality, time, reporting and benchmarking (Table 3.19).

The following sections provide a brief discussion on the top four key performance indicators in SOEs. The seven dimensions of SCM performance considered for the study are also discussed below.

3.7.1 Cost measures

The Constitution of South Africa prescribes that public procurement in South Africa must be cost-effective. Therefore, SCM practitioners are responsible for negotiating contracts and prices to ensure value for money (Constitution, 1999). SCM uses various methods to determine the how effectively it spends the money. The cost related measures evaluate the efficiency and effectiveness of the procurement spend. This relates to the difference between actual and planned spend (Cousins *et al.,* 2008:153). The main objective of cost measures is to reduce the costs associated with purchases. To ensure the value for money, there is need to maintain a balance between the bidding administrative costs, compliance costs, premium and the value

of the goods being procured (Mbae, 2014). The concept of minimisation costs is of integral importance to the SOEs SCM (Mutua, 2010:24).

3.7.2 Compliance

Regulatory compliance is an important aspect in public SCM administration since regulation that fails to elicit an adequate level of compliance not only fails to meet its underlying policy objective, but also creates unnecessary costs through fruitless administration and implementation, postpones the achievement of the policy objective and erodes general confidence in the use of the regulation (Ratemo & Karanja, 2015). The level of compliance to policies and regulations determine whether SOEs meats their goals and objectives (Eyaa & Oluka, 2011:35). According to Handler (2015), compliance with the fundamental principle of public procurement is the main tool and the moderating factor in the implementation of any horizontal. Gelderman *et al.* (2010) caution that non-compliance to SCM policies and regulations defeats the crucial objectives of the regulations. It is therefore crucial for SOEs to periodically monitor and assess the SOEs' compliance with Government policies and regulations.

3.7.3 Quality measures

One of the crucial objectives of SCM is to procure the best quality products/services in line with the end-user's requirements. The measurement of defects received from suppliers can be a useful means of monitoring supplier performance. Quality from an SCM point of view can be identified through activities such as customer returns, field failure rates per item, per supplier, order fulfilment and quality of the projects.

3.7.4 Time measures

The time taken in the SCM process is crucial for service delivery. The standard lead time for advertising tenders in SOEs is 21 days. The 21 days does not include the internal processes such as specification development, tender evaluation and adjudication. There is significant administrative work involved in the process which often lead to the delays. crucial elements of such measures are due dates, delivery windows and acceptable early/late arrivals to due dates (Monzka *et al.,* 2012:638). It is the responsibility of a buyer to chase orders and to make sure that the supplier adheres to agreed delivery dates and times. Reduction of time needed to award a tender is an indirect goal of almost every reform.

3.7.5 Risk management

Risk management in SCM is about taking a long-term focus on SCM regarding issues that involve risk and uncertainty, the eagerness of the SCM function to take risks and opportunities and the relentless pursuit of organisational objectives by SCM professionals (Eyaa & Ntayi, 2010:83). The exploitation of risks and opportunities requires skills and knowledge from the SCM practitioners (Eyaa & Ntayi, 2010:83). SCM risk management therefore contributes to supply chain performance.

3.7.6 Reporting

Reporting is a crucial part of public sector performance management. The SOEs' implementation of the various elements SCM should be monitored to establish their adherence to the relevant legislative requirements and internal departmental policies and procedures. There is no better way of monitoring and tracking these other than through reporting.

SCM departments are therefore required to report on the implementation of SCM policy and its delegations, their training obligations, the constitution of bid committees and all the relevant statutory requirements; and finally, the implementation of the procurement plan (quarterly). SCM reports, amongst others, include:

- The number of tenders issued;
- The current stage of the procurement process;
- Progress made with contract negotiations;
- Tender awards;
- Deviations from the SCM processes;

3.7.7 Benchmarking

A benchmarking exercise where performance in measured against similar organisations, appropriate international standards or recognised industry best practices must be undertaken. Benchmarking results must be used to evaluate and compare supplier prices and services. The results of the benchmarking must be used to adjust current supplier contracts and agreements.

Table 3.25 summarises the key performance indicators for SCM in SOEs.

Table 3.25: Summary of SCM key performance measures

Measure	Author (s)
Cost	Lysons and Farrington (2012), Monzka *et al.* (2012), Cousins *et al.* (2008), National Treasury (2015), Constitution
Compliance	Ratemo and Karanja (2015), Handler (2015),
Risk management	Eyaa and Ntayi (2010), Ammer (1989), National Treasury (2015b)
Quality	Monzka *et al.* (2012), Lyson and Farrington (2013), Van Weele (2016)
Time	Panayiotou, Tatsiopoulos and Gayialis (2004), Pegnato (2003), Kumar *et al.* (2015), Monzka *et al.* (2012), Lyson and Farrington (2012), Van Weele (2016), National Treasury (2015b)
Reporting	National Treasury(2015b), Bailey *et al.* (2015)
Benchmarking	National Treasury (2015b), Lysons and Farrington (2012)

Source: Own compilation

3.8 SCM CHALLENGES IN STATE-OWNED ENTITIES

Some of the universal challenges facing SOEs have been listed as: suboptimal operational performance, weak corporate governance, poor performance of the board, corruption, political influence, and poor service delivery (Mbo & Adjasi, 2014:23; PWC, 2015:2).

In 2010, the South African Government appointed the Presidential Review Committee, to review the SOEs in all three spheres of Government and to establish their contribution to the developmental state. The SOEs are expected to run their operations like 'businesses', generate revenue and should be self-sustainable in the future. The Government wants to reduce the SOEs' high dependence on Government subsidies. Due to policies and regulations compelling SOEs to adhere to SCM guidelines, SOEs have the challenge of achieving their business goals in the ways discussed below.

3.8.1 Enterprise development and preferential procurement challenges

The South African Government introduced the B-BBEE with the aim of empowering historically disadvantaged people. Despite the evident transformation, the transformation targets of Government continue to be missed. There are some reasons provided for missing the targets, such as: resistance to transformation, enforceable legislation, a lack of state capacity to monitor compliance with the legislation,

legislation that did not provide for penalties in the event of non-compliance, and misalignment of regulations and corruption.

Although SOEs play a significant role in driving transformation, and the development of small entities and previously disadvantaged suppliers, there are many issues that affect SOEs:

- There is a backlog in transformation targets in SOEs, as SOEs do not have clear implementation strategies.
- There is poor monitoring of the suppliers' commitment to the B-BBEE elements to ensure the compliance by suppliers (this information should be shared amongst SOEs).
- Poor monitoring of BEE targets and contradictions amongst SOEs on BEE issues (SOEPF, 2010).
- The SCM practitioners are not adequately skilled to develop entrepreneurs.
- SOEs should set clear enterprise development and preferential procurement targets.
- The PPPFA and the B-BBEE Act should be aligned with the SOEs strategic objectives.
- Compliance to PPPFA and B-BBEE legislations should be monitored.
- Government should develop a standardised transformation and development reporting format.

SOEs should develop enterprise development programmes specifically aimed at developing small and medium enterprises, by investing time, money, and capital to contribute to the development, sustainability, financial independence, and operational independence of those beneficiaries. The programme should include non-financial initiatives such as mentoring and coaching.

3.8.2 Prolonged procurement cycles

The SCM processes in SOEs are lengthy and time-consuming, resulting in a delay in the delivery of projects (Kumar *et al.,* 2015:366). It is an National Treasury requirement that all projects above R500 000.00 should be advertised for 21 days. Construction related projects are advertised through CIDB, according to the CIDB regulations

should a tender be cancelled the procuring organisation should wait for 60 days before re-advertising. According to Regulations 8 (1) and 8 (2) of the Preferential Procurement Regulations (2011), unless at least one tender falls within the preference system advertised in the tender documents (either 80/20 or 90/10), the tender must be cancelled and re issued stipulating the correct preference system. SOEPF and the procurement practitioners in SOEs are of the view that compulsory cancellation on these grounds is unnecessary, costly, time-consuming and disruptive. The longer time required to conclude the public procurement process detracts from service delivery. According to Dzuke and Naude (2015:8), "the time delays are a result of procedural requirements demanded by the public procurement legal framework".

3.8.3 The implementation of SCM legislations and policies in SOEs

The study established that there are more than 80 policies and regulations governing SCM in South Africa. Despite all this legislation, several SCM activities still suffer from neglect, lack of open competition and corruption (Oduma & Getuno, 2017:51). Mburu and Njeru (2014:2314) assert that the public sector SCM is still plagued by inefficiencies, misuse of public money, and delays in delivery of projects, goods and services. According to Gelderman, Semejin and Bouma (2015:65), compliance to public SCM policies and regulations remains a major issue worldwide. PRC (2013:20) in their study, established that there is a natural conflict between the commercial interests of SOEs and the State's developmental interests. For example, SOEs are tasked with the implementation of high-value infrastructure projects and at the same time, they are subjected to Governmental regulations and guidelines.

The SOEPF has raised major concerns as far as the SCM legislations are concerned. According to SOEPF amongst other challenges, the empowerment legislative framework is fragmented. Various empowerment instruments impose different, and sometimes conflicting, empowerment obligations on SOEs (PRC, 2013:77). Several SOEs find the legislative environment bureaucratic and time-consuming and the staff responsible for compliance matters in SOEs assert that merely complying with the legislative environment is overwhelmingly time-consuming, leaving reduced capacity to execute the principal objective of the SOE.

Since its inception, the PPPFA did not apply to the Schedule 2 and 3 public entities of the PFMA. This meant that public entities had more flexibility in carrying out their

procurement functions. However, since December 2011, all public entities are expected to comply with the updated PPPFA. During 2012, detailed analysis of the previous year's irregular spend without a loss was performed to identify the root causes or weaknesses that contributed to the PFMA non-compliance. The irregular spend without loss was the biggest reported PFMA non-compliance category in the previous financial year. Section 1 of the PFMA, No. 1 of 1999, as amended, defines irregular expenditure as "expenditure, other than unauthorised expenditure, incurred in contravention or not incurred in accordance with a requirement of any applicable legislation". Concerning section 55 (2) (b) (i) of the PFMA, 1999 the financial statements must include particulars of any irregular, fruitless and wasteful expenditure. Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, a requirement of any applicable legislation, including the PFMA. Table 3.26 illustrates the irregular expenditure incurred in SOEs during the financial year 2015/16.

Table 3.26: Irregular expenditure in SOEs

SOE	Irregular expenditure 2015/2016
ESKOM	R708 M
SAFCOL	R16.4M
PRASA	R550 M
SAA Express	R6.5M
Transnet	R32.2 M
PetroSA	R2.4 M (R16.9 Condoned)
RAF	R14.6m
ACSA	R171m

Source: Own compilation. Adapted from SOEs 2015/16 annual reports

As cited above, the amounts listed in Table 3.26 were extracted from the financial reports of the various SOEs. The SOEs indicated the following root causes (categories) of non-compliance with SCM policy, PPPFA and regulations (ACSA, 2015), namely, procurement process not properly followed; delayed contract renewals; procuring without a valid signed contract; and lack of understanding regarding proper classification of PFMA non-compliance issues. The irregular

expenditure is most often attributed to fragmented SCM legislative environment and poor implementation of policies and regulations (National Treasury,2015b). PRC (2013:77) assert that SOEs SCM practitioners find the legislative environment bureaucratic and time-consuming. Staff responsible for compliance matters in SOEs asserts that merely complying with the legislative environment is overwhelmingly time-consuming, leaving reduced capacity to execute the principal objective of the SOE. Table 3.27 illustrates the impact of the acts and regulations on SCM.

Table 3.27: Impact of legislations on SOE supply chain management

Act	Impact on SOE SCM
Preferential Procurement Policy Framework Act no 5 of 2000 (PPPFA)	– Tenders between R30 000.00 – R50 m to be evaluated based on 80/20 preference point system and those above R50 mil to be evaluated on 90/10 preference point system. According to SOEPF these thresholds are far less than the day-to-day procurement values handled by SOEs.
PPPFA regulations	– New regulations are highly prescriptive preference is only provided in respect of B-BBEE whilst overlooking the aims and objectives of the NGP or the RDP. – There is no room for room for price negotiations. Tenders are awarded to contractors who scored the “highest” points. – Public entities are prevented from using services of other public entities without following a competitive process.
Public Finance Management Act	– Enforces good financial management and reporting within Government and its entities. – There are several contraventions to PFMA due to non-compliance to policies and procedures.
Broad-Based BEE Act 53 of 2003 (BBBEEA)	There is a significant backlog in achieving the transformation targets in SOEs. There is still a low representation of black individuals in executive positions. SOEs are slower in the implementation of the BBBEEA and do not have strategies or plan that will fast track progress. There is also lack of capacity within SOEs to monitor compliance to legislation.
CIDB Act 38 of 2000	– SOEs only award construction works contracts to contractors who are appropriately registered with the CIDB; – all competitively tendered construction works contracts are advertised on the CIDB’s web based i-tender service which notifies registered contractors of tender opportunities through cell phones or emails and provides a searchable data base of tender opportunities; and

Act	Impact on SOE SCM
	– record the award of contracts and any cancellation or termination of a contract in the register of projects on the CIDB website.

Source: Researcher's own compilation

From the above analysis the implementation of Government SCM regulations and policies, have a significant impact on the SCM performance in SOEs. The challenge that lies with SCM practitioners in SOEs is to find a balance between compliance, efficiency and the commercial aspects of SCM (Thai, 2009).

3.8.4 Misalignment of strategies

There is a substantial gap between Government's SCM practices and those contemplated in its SCM policy strategy document (Liebenberg, 2012:2). Government's SCM policy strategy document is based on a strategic sourcing methodology. The implementation of the policy strategy will require a phased approach because the tender process is not aligned with strategic sourcing (Liebenberg, 2012:2). According to Accenture (2010: 33) more than half of the SOEs have centre-led SCM organisations, but very little strategic sourcing capabilities. Poor implementation of SCM strategies compromises the SOEs potential contributions towards reduction of poverty, job creation, reduction of inequality (Oginda, 2013:19).

Ambe and Badenhorst-Weiss (2012) identified inadequate procurement planning as one of the major challenges for SCM implementation. According to SCM instruction 2 of 2016/17, all SOEs are required to submit annual procurement plans for all purchases above R500 000.00. The National Treasury (2018b) has established that the majority of the SOEs are not complying to the Instruction note 2 of 2016/17. The summary of deviations are illustrated under Figure 3.3. National Treasury further established that some of the SOEs who do not submit the procurement plans, were found to be advertising their bids on the eTender portal, further confirming the misalignment.

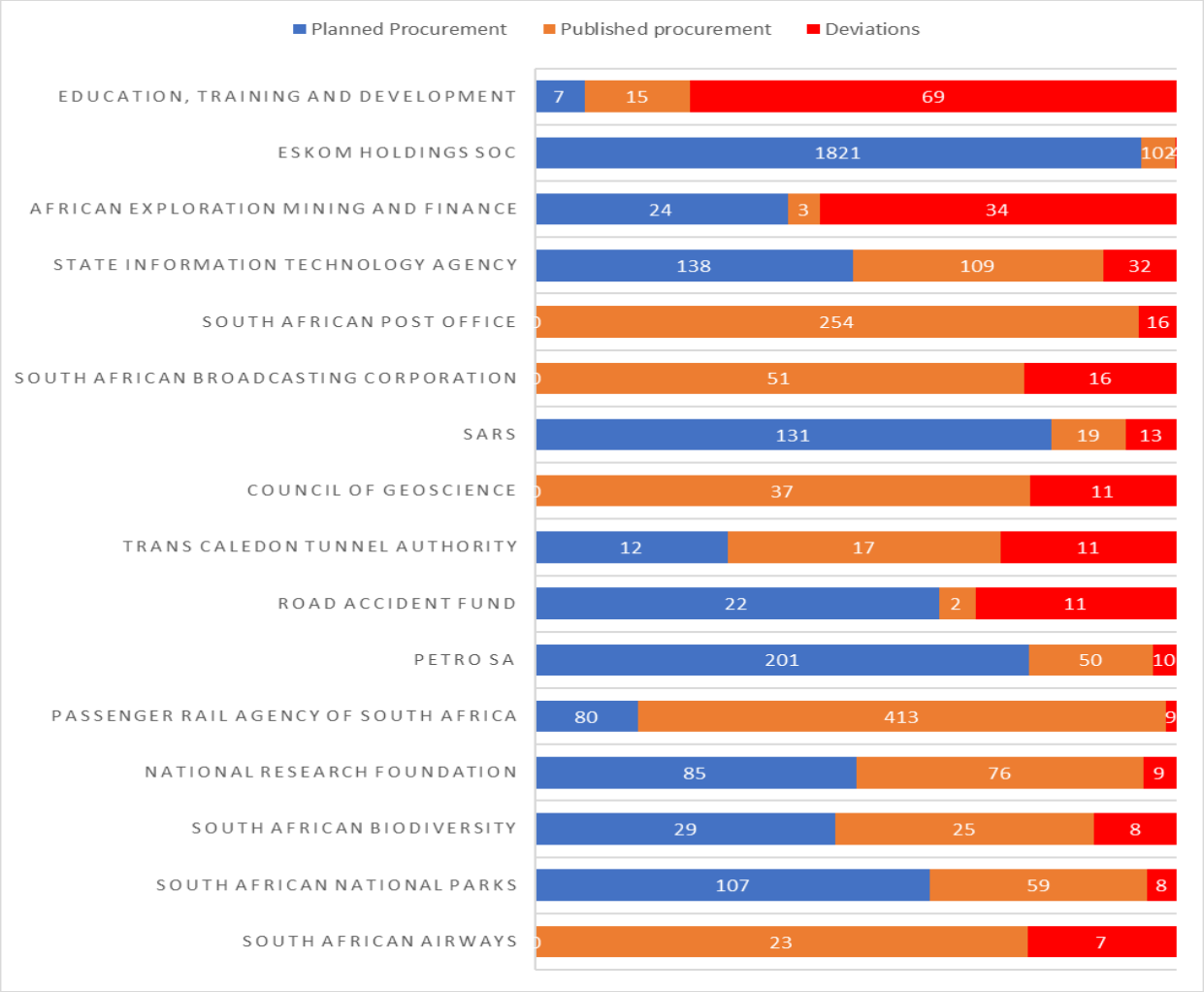

Figure 3.2: Top 20 state-owned deviations from SCM instruction 2 of 2016/17

Source: National Treasury (2018b:6)

Based on Figure 3.5, Education Training and Development (ETD) planned to only procure seven (7) transactions, however ended up requesting for the approval of 69 deviations for the procurement process. SARS planned to process 131 transactions but only managed to do 19. The numbers as illustrated under Figure 3.3 are a clear indication of misalignment between the National Treasury guidelines to implementation of SCM strategy and the actual implementation of the SCM of the strategy.

3.8.5 Customer service

SOEs procure goods and services for the ultimate benefit of the public citizenry, the customer (Jaafar & Radzi, 2013:50). One critical challenge facing SOEs is how they can go about to improve their service to the customer. According to PWC (2007:5),

> *Citizen awareness remains a powerful force for change. Greater awareness regarding their rights, improve access to information through technology and higher expectations of service levels became embedded in several countries. Citizens are expecting quicker delivery and more individualisation of services in today's 'hi touch' society that values personal experience.*

It is, therefore, disappointing that the word customer service is not mentioned in the context of South Africa Government SCM model. The South African Minister of Finance, in his budget speech in February 2013, alluded to the fact that taxpayers and all South Africans are understandably impatient for tangible change (National Treasury, 2013: 31). This is a challenge to SOEs as their core mandate is to address customer needs. There is a need for a shift in perspective by Government entities towards viewing the citizen as a customer (Naidoo, 2010:1). The end-customer in SOEs should take the centre stage in SCM (Fawcett *et al.,* 2016:41).

The Government SCM policy in its format caters only for the supplier and, consequently, disregards the customer completely (Naidoo, 2010:1). Ideally, everyone in the supply chain should have the same objective - to deliver the best value to the end costumers. That means a supply chain must be aligned to deliver customer value, measured regarding customer perceived benefits gained from a product/service compared to the cost of purchase (Chee Wong *et al.,* 2012: 420). SCM strategies in SOEs should revolve around customer service. According to Mentzer (2012:13), the impact of suppliers' service levels on the actual recipient of the service/customer should be understood.

3.8.6 Supply chain performance not aligned with SOE performance

This section will discuss how supply chain performance is not adequately aligned with SOE performance score cards. SCM performance has always exerted considerable influence on the actions of companies, and as a result, most of these businesses realise that efficient and effective SCM performance in SOEs needs to be aligned with the organisational performance measures.

Performance measures, such as cost savings, quality, on-time delivery, and efficiency are not included in SOE SCM scorecards (Accenture, 2010:2). The supply chain practitioner's key performance indicators are not linked to the business objectives; and

this is more prevalent in Government sectors where SCM is regarded as a sub-section of finance and not a standalone department. SCM there needs to be an assessment of its performance (Charan, Shankar & Baisya; 2008: 513). For performance to be managed it needs to be measured first, an organisation must identify and implement a supply chain performance measurement system which bests suits the objectives of the organisation and such system must be aligned with the organisational strategic goals. According to Kurien and Qureshi (2011: 20), SCPMS, comprising a single performance measure, is inadequate since it is not inclusive, ignores the interactions amongst important supply chain characteristics, and ignores critical aspects of organisational strategic goals.

3.8.7 A lack of supply chain management skills and incorrect reporting lines

SCM was regarded as an effortless administrative function. As a result, most employees in SCM are poor performers that were transferred from other departments. The mentality was that anyone and everyone could do procurement. This kind of disrespect to the profession has resulted in a lack of strategic skills within SCM. SOEPF recognises that one of the crucial challenges in South Africa within Government and SOEs remains the lack of a sufficiently skilled and capable workforce, especially within the SCM (Mobu, 2011:10).

The implementation of SCM policies and directives require a special set of skills and expertise. SCM within SOEs is generally at an immature level and practitioners operate at an administrative or low value add a level. The available expertise in SOEs does not meet the need for specialised SCM knowledge (Onyinkwa, 2013: 569). Teams are under resourced and under skilled, and in several instances do not have the support and mandate from executives to effect procurement transformation within their specific environments (Africa Vukani, 2012:17). A sound SCM must have a competent workforce with defined skills and knowledge for specified SCM jobs. According to Hui *et al.*(2011:586), “personals involved in the procurement system are one of the main contributing factors to the inefficiencies of the system”. If the workforce is not adequately educated in SCM matters, serious consequences; including, breaches of codes of conduct occur (Badaso, 2014:4).

The SCM profession is under the spotlight and professional procurement needs to deliver more than just cost savings, it needs to ensure stronger governance, greater

sustainability, increased security of supply and increased value. This would not be possible without a skilled and qualified workforce (Coetzee, 2011:1). The lack of SCM knowledge in SOEs remains a major weakness to the efficiency of SCM operations. There is no consistency in the reporting lines for SCM executives in SOEs. SCM in SOEs is not recognised as a significant function. The organisational structure of SCM and its role and responsibilities reflect the corporate structure and unique circumstances within the organisation. Different SOEs use different position names and reporting structure depending on the size of the SOE (Kopczak & Johnson, 2003:3).

According to Monzka *et al.* (2012:137), the physical position and placement of the SCM indicate its organisational status and influence. The higher the SCM is in the corporate structure, the greater the role it plays in supporting organisational objectives. According to Boateng (2015:75), SOEs should elevate SCM to a strategic function reporting directly to the CEO and should be represented at a board level (Bailey *et al.,* 2015:85). Regardless of the structure, SCM must deliver value to the organisation (Kopczak, 2003:3). Accenture (2010:30) recommends the SOEs need to review their SCM structures and resources according to their transactional and strategic requirements

3.8.8 Fraud, corruption and tender irregularities

Corruption, fraud and tender irregularities are pervasive problems encountered by SOEs in the SCM environment. Corruption in the SCM processes in SOEs undermines what Government seeks to achieve through the system, such as the socioeconomic objectives, value for money, reputation and integrity of Government (Magoro, 2010). According SOEPF (2010:17), corruption slows economic growth and contributes to Governmental instability. The Auditor General, in providing feedback on the 2011/2012 state audit, reported that contracts to the value of R141 million were awarded to suppliers in which close family members of employees had an interest (Auditor General, 2012:1). The audit found that contracts to the value of R438 million were awarded to suppliers in which employees had an interest, in some cases the employees included SCM officials and senior managers (Auditor General, 2012:1).

The Financial Intelligence Centre has referred over R6.5 billion for investigations linked to corrupt activities (National Treasury, 2013:31). Citizens and tax payers do

not get full value for money because this area is vulnerable to waste and corruption (National Treasury, 2013:1). In 2015, Eskom concluded 23 investigations into fraud involving R40 million. As the taxpayers expectations for greater value for money grow, the Government and SOEs will increasingly find themselves under the same pressures as private enterprises to align strategy and reap the benefits (Cousins *et al.,* 2008:100; Arminas, 2002:17). An efficient public sector SCM exhibits the ability of Government to transform taxes and other revenues into consumption by Government institutions at all levels, purportedly for the public good (Matthews, 2005:388). Table 3.28 illustrates the trend in audit performance for selected SOEs over a period of four (4) years.

Table 3.28: Audit reports

Entity	2014/15	2013/14	2012/13	2011/2012
South African Social Security Agency (SASSA)	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings	Unqualified with no findings
Passenger Rail Agency of South Africa (PRASA)	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings
Broadband Infrastructure Company	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings
Central Energy Fund (CEF)	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings
National Development Agency	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings	Unqualified with Findings
South Africa Post Office	Qualified with findings	Adverse with findings	Unqualified with Findings	Unqualified with Findings
Sheltered Employment Factories	Qualified with Findings	Unqualified with Findings	Qualified with Findings	Unqualified with Findings
South Africa Airways Express	Qualified with findings	Qualified with findings	Qualified with findings	Disclaimer
South Africa Broadcasting Corporation (SABC)	Qualified with Findings	Qualified with Findings	Disclaimer	Qualified with Findings
Independent Development Trust (IDT)	Disclaimer	Qualified with findings	Unqualified with Findings	Unqualified with Findings
Compensation Fund (CF)	Disclaimer	Disclaimer	Disclaimer	Qualified with Findings

Source: Parliament Research Unit (2016)

Table 3.28 shows a disconcerting trend related to the audit reports of selected SOEs. While some SOEs, such as SASSA, Broad Band Infrastructure and PRASA, maintained clean audit reports for the four years, the Competition Commission, South African Airways Express, Sheltered Employment Factories, National Development Agency, SABC, IDC, and the Post Office didn't show any significant improvement. Based on these results, irregular expenditure seems to be a great challenge in SOEs.

3.8.9 Poor contract management and supplier management

There are inefficiencies in the contract performance, monitoring and evaluation mechanisms. According to Dzuke and Naude (2015:8), "failure to monitor contract performance results in non-completion and/ or late completion of Government projects".

According to research conducted by Accenture (2010:3), the contracts in SOEs are not proactively managed or regularly updated. There are reports of contract overruns and over-expenditure. In 2014/15, SAFCOL incurred R364 000 in irregular expenditure due to poor contract management. The are several reports of poor supplier performance and late delivery of projects in SOEs. For example, in 2015, Eskom paid R287 million on contracts that were entered between 8 December 2012 and 31 March 2013 which were inconsistent with the requirements of the PPPFA. In 2014, South Africa Express incurred costs of R1,5 million on contracts that were exceeded and not condoned.

However, it should be noted that supplier performance in SOEs is usually done outside the SCM processes, as the SCM responsibility ends when a supplier is appointed (Accenture, 2010:3). Although, considering these disconcerting trends, it would be beneficial for SOEs to establish a SLA between their supply chain and suppliers.

3.9 CONCLUSION

SCM plays a major role in the Government's expenditure through SOEs. It is therefore imperative that SCM practitioners and crucial role participants alike should carry out their functions in a transparent, fair and open manner. SCM practitioners, as custodians of the process, must always uphold the code of ethics. The regulatory framework that governs public SCM in South Africa is fragmented which, unfortunately leaves room for malpractice.

In addition, most of the officials responsible for the SCM functions do not have the necessary skills and qualifications, and procurement/demand planning remains a challenge. Due to poor planning and research, the SCM processes are not value-adding. There is poor management of the relationships between the buying organisations and the suppliers; this is evident through the above-market prices charged by suppliers, the poor quality of goods and contract escalations. There are also a high number of cases of political interference in SCM processes, leading to acts of corruption and nepotism. There are major weaknesses in the SCM internal controls and the malpractices in SCM pose challenges to the performance of SOEs.

CHAPTER 4:
INSTRUMENTS FOR ALIGNING SUPPLY CHAIN MANAGEMENT PRACTICES

4.1 INTRODUCTION

Chapter 3 discussed the SCM practices in SOEs, general overview of Government SCM policies and regulations, and the implementation challenges facing SOEs. SCM is described as central in high-value service delivery programmes, and important to the achievement of competitive advantage, and performance in SOEs. The expectation by Government is for SOEs to ensure that service delivery projects contribute towards the socioeconomic goals. However, for SOEs to contribute meaningfully to the socioeconomic objectives of South Africa, the SOE supply chain practices and the Government policies and regulations governing SCM should be aligned. The alignment of SCM practices with SCM policies and regulations is an important strategic part of SCM in SOEs, however, the way the alignment is to be achieved, is a pending issue. The literature review process revealed a gap in the literature on this topic. This chapter therefore draws from the SCM practices and the relevant legislation, as discussed in Chapter 3, to construct a conceptual framework for the research. This chapter further observes the adoption of SCM policies and regulations in SOEs as the foundation for developing SCM systems, thereby contributing to the socioeconomic goals. In addition, this chapter indicates how the strategic choices in SCM set the strategic scene for all SCM practices.

4.2 THEORETICAL PERSPECTIVES ON SUPPLY CHAIN

Having discussed the fundamental principles of SCM, definitions, crucial terms and concepts used in this study, the relationship between supply chain strategy, Government policies and regulations, SCM practices and SCM performance in SOEs are discussed from a theory-based perspective. According to Abeywardena,Raviraja and Tham (2012), a theoretical framework provides the researcher with a lens to view the world. The study identified seven theories for discussion. The first theory to be discussed is the structural contingency theory, followed by principal-agency theory, resource-based theory, market-based theory, practice-based view theory, transaction

cost theory, and lastly, the socioeconomic theory of regulation compliance. These theories were selected as they best explain the key constructs of the study.

4.2.1 Structural contingency theory

Structural contingency theory refers to the consistency between an organisation's structure and the strategy it pursues in its external environment (Drazin & Van de Ven, 1985:516). The theory was developed in the 1950s and 1960s and was mainly driven by the insight that there is no one best way to manage an organisation (Drazin & van de Ven, 1985:514). This research aims to test the structural contingency theory when applied to the supply chain in SOEs in South Africa. The concept of 'fit' is of critical importance to SOEs. Strategic 'fit' in SOEs refers to the congruency of the SOE's corporate strategy with its supply chain strategy. Chandler (1962) counselled that the organisation's ability to accomplish its goals involves congruency 'fit' between the organisational structure and its strategic orientation. According to Butterman, Germain and Layer (2008:955), the importance of contingency theory stems from the ability to mediate performance based on the 'fit' of the factors under the control of the organisation.

Venkatraman (1989:29) identified six types of 'fit', indicating mediation, moderation, matching, covariation, profile deviation and gestalts as aspect to consider in 'fit'. For the purposes of this research, the word 'fit' will be used in the context of gestalts/prediction. The predictor determines which characteristics produce efficiency and performance. Consequently, the key principle in contingency theory is that the alignment between contingency element and the second independent variable (Drazin & Van de Ven, 1985:514). This implies that the relationship between two variables depends on, or is contingent upon, some third variable (Kieser & Kubicek, 1983:106). In this study, multiple regression will be applied to test the roles of (1) Supply chain strategy and SCM practices in predicting SCM performance; and (2) the role of supply chain strategy and SCM policies and regulations predicting SCM performance.

In the scope of the study, contingency theory therefore ensures maximum effectiveness, or efficiency, resulting from adopting, not the limit, but rather the appropriate level of the structural factor that matches the contingency (Donaldson, 2001:4).

For the study, contingency theory hypothesises that the supply chain performance differs when the supply chain strategy and SCM practices are either high or low. Supply chain strategy and SCM practices predict the relationship with SCM performance and can thus be called a predictor or a conditioning variable of the relationship (Galtung, 1967). The contingency theory indicates that the main responsibility of the SCM practitioner is to focus on achieving a strategic fit. The contingency theory and the concept of 'fit', will be applied in this research to examine the relationships between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs. Supply chain strategy and the SCM practices as applicable to predicting SCM performance, and the role of supply chain strategy and SCM policies and regulations, as applicable to predicting SCM performance will also be investigated.

4.2.2 Principal-agency theory

The principal-agent theory is defined as a model "in which the *leader* who proposes the contract is called the principal and the *follower* (party who just has to accept or reject the contract) is called the agent (Roach, 2016:29). The principal-agency theory, also referred to as agency theory, seeks to explain relationships between two parties, a principal and an agent. The principal delegates his powers to the agent to represent, in any activities carried out with a third party. The classic view of agency theory, as developed by the works of Max Weber, was mostly concerned with the conflict between a political master and state officials (Bendickson, Muldoon, Liguori & Davis, 2016:437). This view is based on the neoclassical view of an organisation which considers the organisation's operations as black boxes, which overlooks the connection between performance and rewards (Beckert & Milan, 2006).

As Eisenhardt (1989:58) points out, whilst the profit maximisation approach and self-interest persist, the focus of agency theory centres on "determining the most efficient contract governing the principal agent relationship". The notion of the contract is used here as a metaphor to describe the agency relationship (Jensen & Meckling, 1976:305), and it is designed based on the outcome (for example, commissions) or behaviour (for example, salaries) of the agent (Eisenhardt, 1989:58).

According to Eisenhardt (1989:58) while the approach to profit maximization and self-interest continues, the emphasis of the agency theory focuses on determining the most successful contract that governs the relationship between the principal agent. The concept of contract here is used to describe the principal-agency relationship (Jensen & Meckling, 1976:305), and it is designed based on the agent's outcome or behavior (Eisenhardt, 1989:58). Essentially, some authors suggest that agency theory provides a mechanism to understand how members of the SCM behave in cases of rational and non-rational behaviour (Ketchen & Hult, 2007). Furthermore, agency theory may also assist managers to understand SCM behaviour by focusing on the following issues: the development of inter- and intra-organisational relationships; the maintenance of complex relationships between suppliers and customers and the dynamics of risk-sharing, capital outlay, power and conflict between channel intermediaries; and identifying the costs and benefits of supply chain integration (Stock,1997).

Agency theory is applied to various activities associated with SCM, including outsourcing (Logan, 2000; Loebbecke & Huyskens, 2009) sourcing (Shook, Adams, Ketchen & Craighead, 2009) and supply chain collaboration (Kwon & Suh, 2005). Agency theory might also assist in the understanding of the conditions under which a supply chain member is likely to attempt to exploit other members. According to Fayezi *et al.* (2014:4), one of the key challenges in agency relationships is the misrepresentation of ability and lack of effort attributed to the agent. Another challenge of the agency theory identified by Lan and Haracleous (2010), is the over-emphasis of economic drivers. This occurs as part of the historical legacy and also occurs because several SCM were conceptualised as economic exchange mechanisms, rather than being comprised of complex social and economics relationships (Fayezi *et al.,* 2014).

The existence of multiple principals and agents makes information balancing and the monitoring of behaviour more challenging. Some of the deficiencies of theory can be rectified by other theories, such as the resource-based theory. This theory informed the objective of assessing the success factors of the implementation of SCM strategy in SOEs in South Africa, and assessing the compliance of SOEs to SCM policies and regulations.

4.2.3 Resource-based theory

The resource-based view (RBV) theory is based on the fact that the drivers for the competitive advantage and performance of organisation are primarily related to the qualities of their resources and costly-to-copy capabilities (Raduan, Jegak, Haslinda & Alimini,2009:406; Van Weele, 2016:155, Lysons & Farrington, 2012:224). The underlying principle of the RBV is the fact that organisations in the same industry are differentiated through the uniqueness of their resources and capabilities (Smit *et al.,* 2002:95; Pearce & Robinson, 2005:150). Carpenter and Sanders (2009:19) describe capabilities as "the capacity of a set of resources to perform a task or an activity in an integrated manner". Kay (1993:31) identifies the three distinctive relational capabilities that allow companies to achieve competitive advantages as: architecture, reputation and innovation.

Resources conversely are described as "inputs into a firm's production process such as capital, equipment, skills, finances, and so forth, [that] are controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Carpenter & Sanders, 2009:19). Resources include the combination of human capital, financial resources, technology and knowledge (Van Weele, 2016:155). Venter, Urban and Rwigema (2008:413) and Pearce and Robinson (2005:150) classify resources into two categories, namely, tangible resources (plant, machinery, land and buildings) and intangible resources (brand name, intellectual property, reputation, technological knowledge or service levels). Das, Narasimhan and Talluri (2006:564) caution that not all the resources possess strategic value, and state that resources with minimal value can only break even, whilst resources with strategic value generate more revenue and competitive advantage (Zimmermann & Foerstl, 2014:39). It is important for the resources to be inimitable, non-substitutable, unique and scarce, as this makes it easier for firms to achieve consistently higher performance that its competitors (Bailey et al., 2015; Lysons & Farrington, 2012:39).

SCM resources and capabilities direct the way SCM is conducted and lead to the performance of the SCM. According to Cousins *et al.* (2008:606) firms with strategic resources and distinctive capabilities have the potential to exploit opportunities and neutralise threats in the environment. The RBV encourages a strategic approach in SCM. There needs to be consistency between the organisational competitive priorities

that the competitive strategy hopes to satisfy and the supply chain capabilities that the supply chain strategy aims to construct (Chopra & Meindl, 2013:33).

SCM therefore has the potential to enhance the organisation's performance. This theory informed the following secondary objectives (i) to assess the success factors of SCM strategies in SOEs in South Africa, (ii) to assess the implementation of SCM practices in SOEs in South Africa, and (iii) to assess the extent of compliance of SOEs to SCM policy and regulations.

4.2.4 Market-based theory

The market-based theory (MBT) is grounded on economic principles, with the underlying assumption that the external environment has a positive influence on a firm's performance (Hitt, Hoskinsson & Ireland, 2009:13). Hitt *et al.* (2009:13) further emphasise that the "firm's performance is determined by industry properties, economies of scale, barriers to market entry and product differentiation". The MBT, also called the profit-maximising and competition-based theory, was centred around the idea that the main objective of an organisation is to maximise long-term profit and to develop a sustainable competitive advantage over competitive rivals in the external market place. Porter introduced purchasing, specifically supplier management, as an important driver of competitive advantage.

Porter's model can be used to identify an organisation's competitive advantage and to improve the understanding of the industry context in which the business operates (Bailey *et al.*, 2015:45). SCM's role is to reactively implement the chosen business strategy and it also plays an important role in the implementation of the cost-leadership strategy. It is SCM's responsibility to ensure that goods and services are of high quality and at a reasonable cost. SCM therefore drives the strategic sourcing process through an industry analysis, the selection of suitable suppliers and the negotiations of costs, as 'a rand saved is a rand earned'.

The theory applies to the effort to build and maintain the relationship with suppliers; the cost of monitoring the performance of suppliers and by resolving the problems that arise in the business relationships; and in the engagement of suppliers involved in opportunistic behaviour. The theory informed the followed objectives: (i) to assess key SCM performance indicators in SOEs, and (ii) to determine the impact of the

relationship between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs in South Africa.

4.2.5 Practice-based view theory

The practice-based view (PBV) aims at clarifying differences in organizational performance based on practices that are imitable and transferable (Bromiley & Rau, 2014:1249). There are several differences between PBV and RBV. In PBV firm performance is regarded as the dependent variable while in RBV the dependent variable is competitive advantage. The explanatory variables in the PBV are practices, that are imitable and amenable to transfer across firms, as opposed to the valuable, rare, inimitable, and non-substitutable (VRIN) resources in the RBV. The key principle of PBV is therefore that imitative practices can help to explain differences in performance.

While the RBV assumes that firms adopt all useful transferable practices, the PBV recognises that because of managers' bounded rationality (Simon, 1955), firms often do not know and/or do not use all the practices that might benefit them (Bromiley, 2005; Bromiley & Rau, 2014). Therefore, according to Craig,Kosmol & Kaufmann (2017), it is important to go beyond simply focusing on SCM practices to " (1) advocate that some practices may be more or less imitable and may be married with inimitable resources, (2) specifically consider the organisational level as spanning from the individual through the function, organisation, dyad, and beyond, (3) place specific practices along the continua of the organisational level of analysis and the degree of imitability, and (4) focus on relational performance as an extension of firm performance."

This theory therefore informed the following objectives (i) to determine the implementation of SCM practices in SOEs in South Africa and (ii) to determine whether the relationship between SCM strategy and practices predict SCM performance.

4.2.6 Transaction cost theory

The transaction cost theory (TCT) refers to the idea of the cost of providing for some good and services as if it was purchased in the market place rather than having it provided from within a firm (Coase, 1937; Williamson, 1995; Lysons & Farrington, 2012:223). The early studies of TCT, as described in the works of Coase (1937), paid

little attention to the internal operation of the organisation. Williamson (1975) further expanded the application of TCT by highlighting the role of TCT in promoting vertical integration and trust in the organisations. These aspects of TCT are supporting evidence for the role of SCM in organisations.

This theory is relevant for this study, as it explains that SOEs through its SCM can reduce the transaction costs associated with providing services to the citizens. This can be achieved through strategies such as supplier integration, increased coordination, and the establishment of shared goal between the buying organisation and the supplier. This approach lays the basis for price negotiation, and as a result, the lowering of the transaction costs. When transaction costs go down, performance can be expected to rise (Das *et al.,* 2006:567). According to Oduma & Getuna (2017), the TCT suggests several bidders should be allowed to participate in a competitive procurement process which can affect performance in a positive way through the lowering of costs. This theory therefore informed objective 4: To assess key SCM performance indicators in SOEs.

4.2.7 Socioeconomic theory of regulatory compliance

The socioeconomic theory of regulatory compliance was developed in 1968 by Becker. The focus area was on clarifying compliance to regulations governing economic activities and natural resources. According to this theory, the regulated economic activities are controlled through constant monitoring, surveillance and enforcement authorities. The prescription of compliance policy and institutional design requires a sound understanding of compliance behaviour. Sutinen and Kuperan (1999) defended the socioeconomic theory of compliance by integrating economic theory with theories from psychology and sociology to account for moral obligations and social influences as determinants of individuals' decisions on compliance. The psychology viewpoints provide the reasoning behind the success or failure of organisational compliance behaviours (Lisa,2010). This theory, therefore focuses on the relationship and interaction between an organisation and the society it serves, and further provide superior lens for understanding the Government SCM policies and regulations (Huiet *et al*., 2011).

Based on this theory, the perceived legitimacy of public SCM rules is identified as one of the antecedents of public procurement compliance behaviour. This theory informed

objective 3: To assess the extent of compliance of SOEs to SCM policies and regulations and objective 6: To determine the impact of the relationship between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs in South Africa.

Table 4.1 provides a summary of the seven theories and their contribution to the study.

Table 4.1: Summary of theories and their contribution to SCM

Theories	Contribution to the study
Structural contingency theory	Objectives 6
Principal-agency theory	Objectives 1, 2, 3 and 6
Resource-based theory	Objectives 1, 2 and 3
Market based theory	Objectives 4 and 6
Practice-based theory	Objectives 2 and 6
Transaction cost theory	Objective 4
Socioeconomic theory of regulatory compliance	Objectives 3 and 6

Source: Own compilation

4.3 REVIEW OF STRATEGIC ALIGNMENT FRAMEWORKS

In addition to the theories discussed in Section 4.2, the study further proposes to analyse the alignment frameworks in literature to gain a deeper understanding into the extent of the relationships between the supply chain strategy, SCM policies and regulations, SCM practices and SCM performance. The following sections review various existing alignment frameworks that were considered in developing an alignment framework for this study.

4.3.1 The framework of Gonzalez-Benito (2007)

The framework of Gonzalez-Benito (2007) was examined to determine its contribution to the study. Gonzalez-Benito's study revealed that purchasing's contribution to business performance depends on the degree to which the purchasing capabilities fit with and support the business strategy. By adapting the theory of production competence to the purchasing context, a distinction was made between two levels of

fit: alignment between purchasing's strategic objectives and purchasing capabilities, and between the corporate strategy and strategic objectives of purchasing.

Purchasing performance (effectiveness and efficiency) is measured through the alignment between purchasing strategy and performance. Purchasing performance is measured in two ways: (1) the fit between purchasing strategic objectives and purchasing capabilities which represents the capability of the purchasing function to realise its functional objectives and which is therefore labelled *purchasing efficacy*; (2) the second component refers to the fit between the business strategy and SCM's strategy, labelled 'strategic alignment'. Purchasing efficacy reflects the capacity of the human and technological resources of the purchasing function to achieve the projected objectives. Purchasing efficacy yields benefits if the functional objectives support the business strategy.

Research has shown that to better understand the contribution purchasing to business performance there needs to be alignment between purchasing skills and the business strategy. The study further demonstrated that to improve performance, it is necessary to align purchasing capabilities with business strategy. This means that, instead of replicating such activities that were successful in other businesses, managers must attempt to determine the skills these practices could produce and to test how they fit into the company and the strategic goals of purchasing.

The purchasing practices that are good in organisation are not necessarily suitable for the next organisation as they possess different capabilities. Managers should carefully consider the purchasing capabilities required for their own organisation and look for those practices that would be able to provide such capabilities in the most efficient way. This study adopts the notion that it is important for the SCM capabilities to be aligned with the business strategy to enable the improvement of performance.

Figure 4.1 (on the next page) is a graphical representation of Gonzalez-Benito's framework for purchasing capabilities and business strategy.

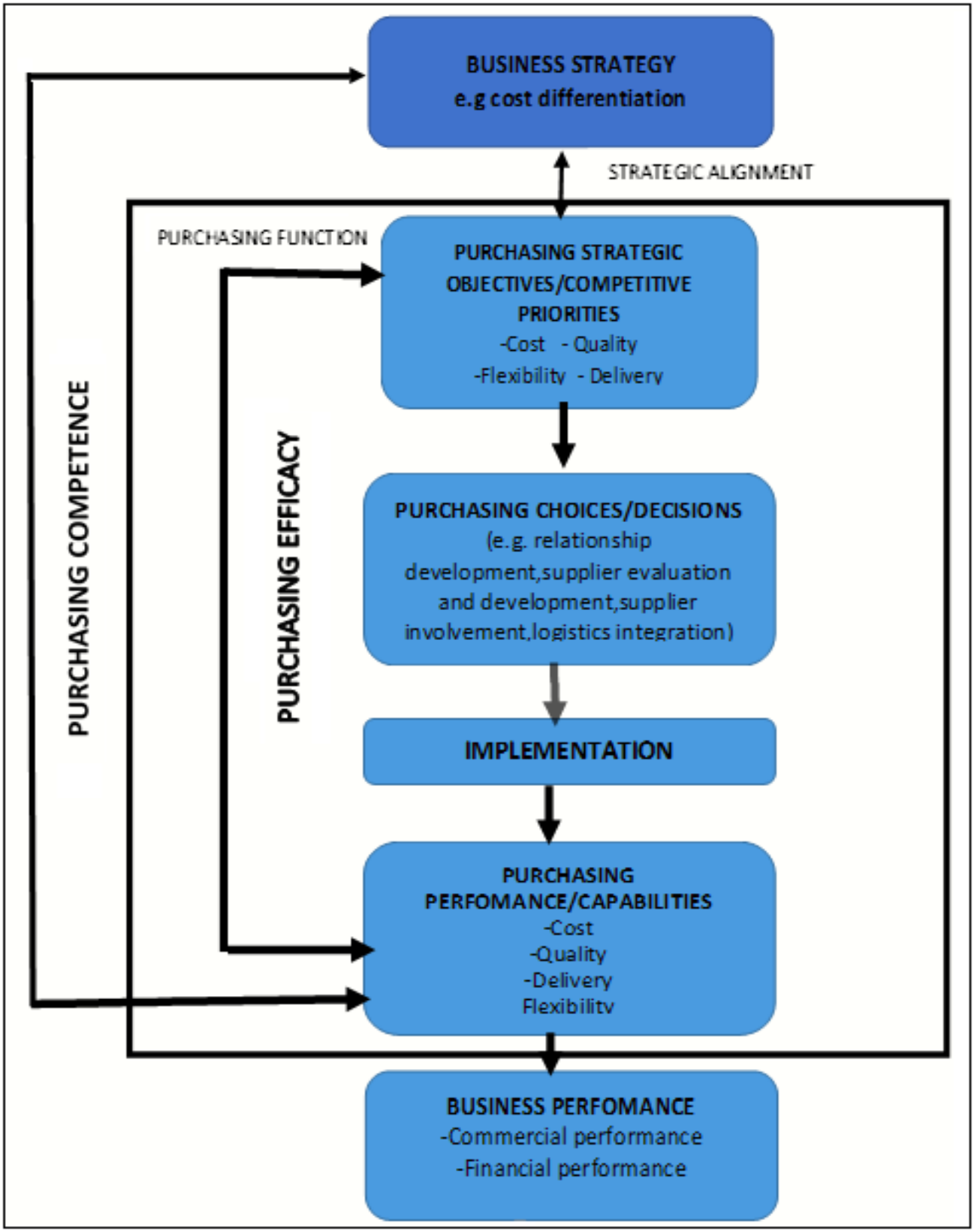

Figure 4.1: The framework for purchasing capabilities and business strategy

Source: Gonzalez-Benito (2007:904)

4.3.2 Karimi and Rafiee's (2013) model

The current research study assessed Karimi and Rafiee's framework which identified the relationship between SCM practices, competitive advantage and organisational performance. According to Karimi and Rafiee (2013:2), SCM practices are the set of activities undertaken by an organisation to promote the effective management of its supply chain. SCM practices are proposed as a multidimensional concept, and include the downstream and upstream sides of supply chain. The framework proposes that SCM practices will have an impact on organisational performance both directly and indirectly through competitive advantage.

The concept of SCM practice is conceptualised as four-dimensional constructs, indicating (1) supplier partnership, (2) customer relationship, (3) level of information sharing, and (4) quality of information sharing and postponement (Alvarado & Kotzab, 2001; Chen & Paulraj, 2004; Min & Mentzer, 2004; Sezen, 2008; Tan *et al.*, 2002).

Figure 4.2 depicts the impact of supply chain practices on organisational performance through competitive priorities.

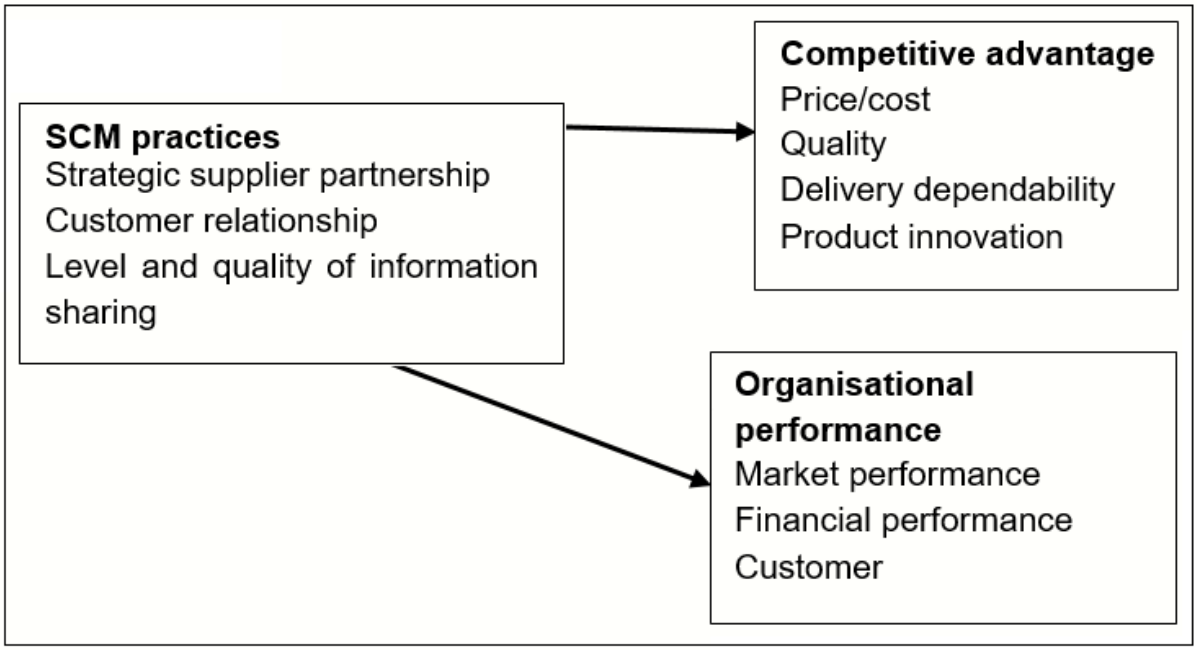

Figure 4.2: Impact of supply chain practices on organisational performance through competitive priorities

Source: Karimi and Rafiee (2013:3)

The framework (Figure 4.2) proposes that SCM practices have a direct impact on the financial and marketing performance of an organisation. SCM practices are expected

to increase an organisation's market share and return in investment (Hsu, Tan, Kanna & Leong, 2009). The study follows the model of Karimi and Rafiee (2013) in analysing the relationship between SCM practices and supply chain performance (H1a).

4.3.3 The Baier, Hartmann and Moser Model (2008)

In their study, Baier *et al.* (2008) developed a conceptual framework for the alignment of supply chain strategy with SCM performance. The model was developed based on the theory of production competence as developed by Vickery (1991), and Cleveland, Schroeder and Anderson (1998). Baier *et al.* (2008) recognised that the value creation of SCM in an organisation can be realised by its decisions and activities being aligned with the organisation's objectives. The model provided a comprehensive alignment-performance link in purchasing and supply management (PSM) and how financial performance will be achieved. The relative fit between the business strategy and purchasing strategy, labelled as strategic alignment, and between the purchasing strategy and purchasing practices, are referred to as purchasing efficacy (Figure 4.3).

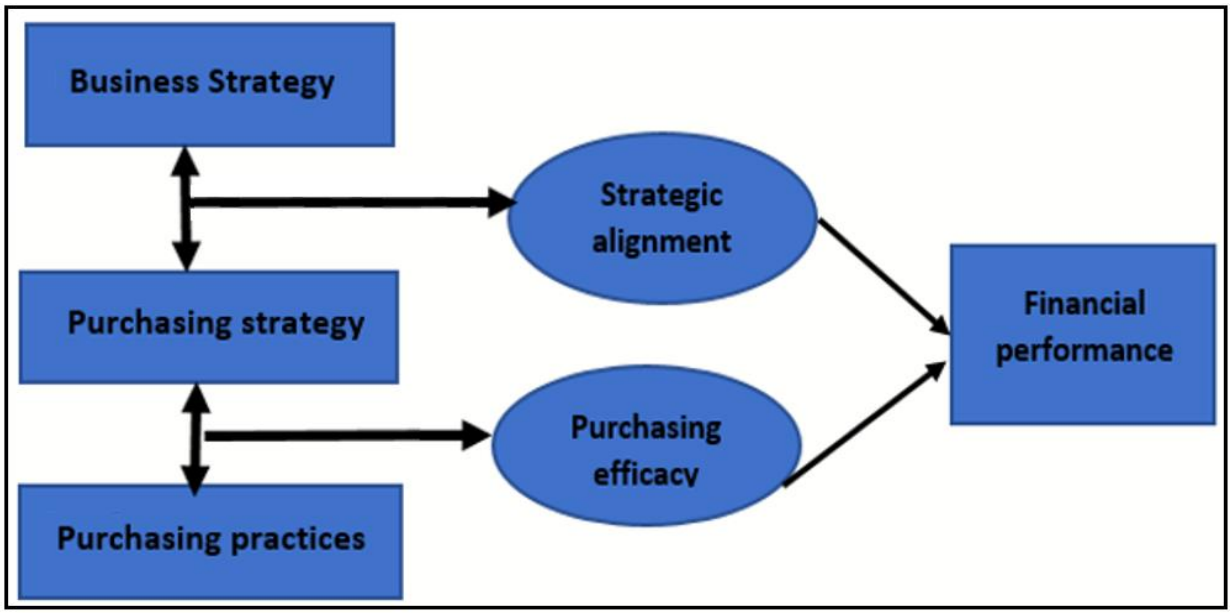

Figure 4.3: Conceptual model of the alignment-performance link in PSM

Source: Own compilation

The study follows the Baeir *et al.* (2008) model in conceptualising the relationship between SOE strategy, supply chain strategy and SCM practices.

4.3.4 National Treasury supply chain management model

The National Treasury SCM model comprises of the following elements: demand management, acquisition management, logistics management, disposal management, risk management and performance management (National Treasury Guidelines for Accounting Officers, 2010:11). The National Treasury SCM model applies to all spheres of Government in South Africa, including SOEs. Figure 4.4 illustrates the public-sector supply chain model in South Africa, followed by a detailed discussion of the elements of the framework.

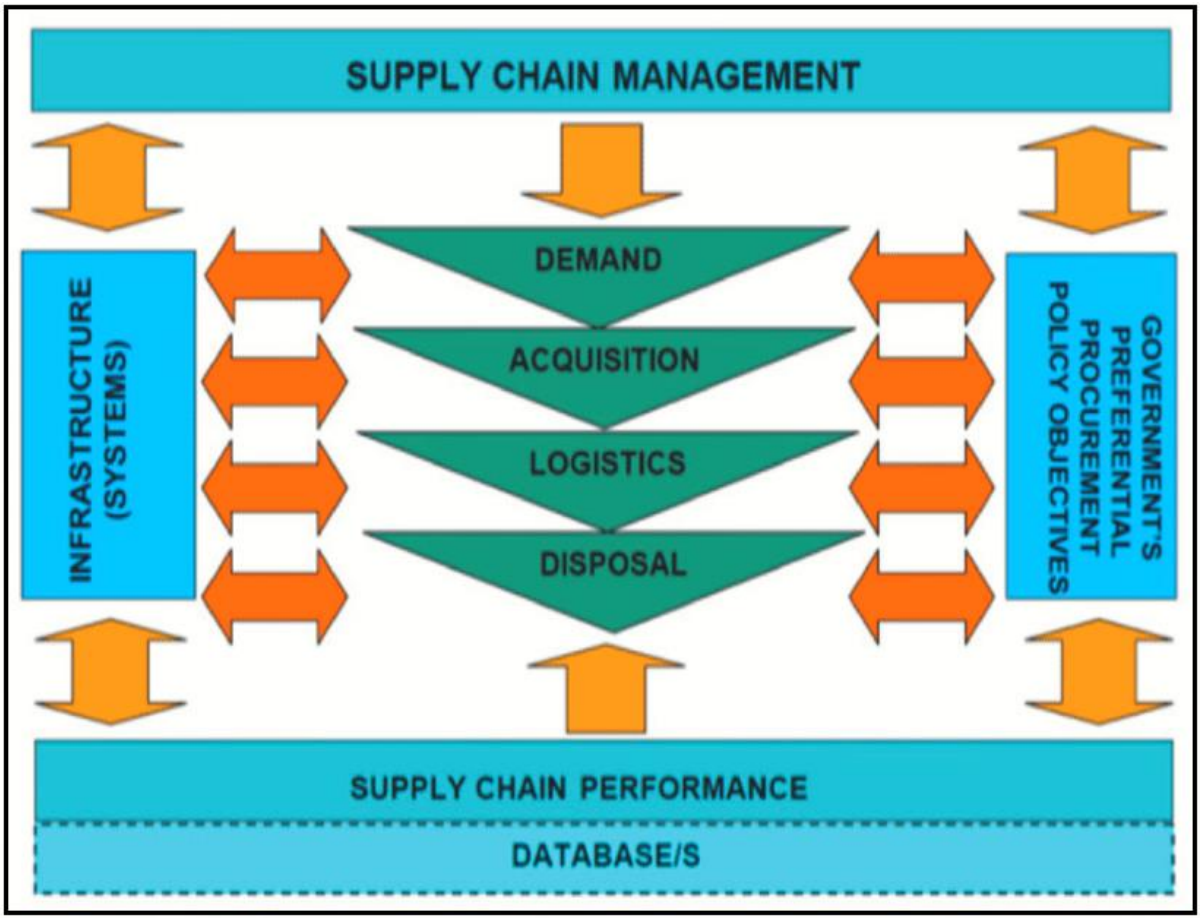

Figure 4.4: National Treasury SCM model

Source: National Treasury South Africa (2004)

4.3.4.1 Demand management

Demand management is described as the first step of the public sector SCM process. It is also referred to as the planning phase, where the user requirements are aligned to the budget and service delivery strategies. The result of this phase is a documented annual procurement plan. The objective is to ensure that the resources required to run

operations are delivered at the correct time, price and place and that the quantity and quality will satisfy needs.

At the beginning of each financial year, the SCM departments send requests to the end-user departments to prepare demand plans. The demand plans are supposed to articulate the departmental requirements for the financial year, the budgeted amounts for each requirement, and possible required dates. Demand planning requires inputs from the Finance Department, end-user department and SCM. From the plan, SCM can determine sourcing strategies for each service and calculate timelines in line with policy requirements.

Demand planning remains a challenge in Government. According to PIRA (2014:21) “the end-users will usually not determine the needs on basis of strategic plans. Often these requests are reactive responses to a problem that has unexpectedly arisen”. The PRC (2013:14) asserts that “the demand planning is weak”.

For transactions above R500 000.00 the accounting officer appoints a Bid Specification Committee comprising of various specialists to prepare the specifications. Most Government departments are reliant on consultants to prepare specifications, while in other cases, Government asks the suppliers to provide detailed specifications for some of the requirements. PIRA (2014:24) cites a fitting example: “in 2010, the provincial Department of Health in Limpopo wanted to procure for the supply and maintenance of devices that destroy air-borne pathogens. They approached suppliers for specification”.

4.3.4.2 Acquisition management

This process involves the actual buying of goods and services through predefined processes. According to Ambe and Migiro (2008:232) “acquisition management is the management of procurement”. Concerning sections 44 and 56 of the PFMA, accounting officers are required to delegate authority to senior SCM officials to carry out SCM processes. Depending on the threshold, the acquisition of goods and services could be dispensed through either a quotation system or a tender system. Acquisition management is also referred to as sourcing or procurement. The major activities associated with acquisition are: procurement of goods and services through the three quotations system, tendering process, tender awards, contract management and supplier database management.

Government tend to focus on their core business and outsource the non-core business activities to suppliers and other external specialists. The rationale behind outsourcing includes mitigating risks, building sustainable competitive advantage and extending technical capabilities. To achieve the main objectives, buying organisations make sure that their suppliers are competent concerning technical skills and possess strong business acumen. The suppliers, once appointed, become representatives of the buying organisation, and their performance, whether good or poor, will have a direct impact on the image of the buying organisation.

In the public sector, suppliers with rare skills are expected to transfer such skills to Government officials. All goods and services are procured either through verbal quotations, written quotations or the tendering system. Procurement is done concerning the Preferential Procurement Framework Act of 2000. The act requires that buying organisations should establish and maintain a supplier database. Procurement transactions below R500 000.00 should be procured from the suppliers listed on the database. The database should be updated twice a year (National Treasury, 2004).

4.3.4.3 Logistics management

Logistics management in the public sector is a process of strategically managing the storage, coding, setting inventory levels, receiving, issuing and replenishment of materials. Most organisations prefer to buy and store goods for future use (National Treasury, 2004:86). The National Treasury SCM, regulations, policies and guidelines provide insufficient information as far as logistics management is concerned. No definition is indicated for logistics management in South Africa's public-sector environment. The most comprehensive definition coincides with that of the South Africa public sector, and appears in the implementation provided by the CSCMP (2014), which defines logistics management as "that part of SCM that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption to meet customers' requirements".

Logistics management is an integrated function, which coordinates and optimises all logistics activities, and integrates logistics activities with other functions, including marketing, sales, manufacturing, finance and IT. The logistics management process deals with the coding of items, setting of inventory levels, placing of orders, receiving

and distribution, stores/warehouse management, expediting orders, transport management and supplier performance. This process integrates with the financial system to generate payments to suppliers.

4.3.4.4 Disposal management

According to National Treasury (2004:89), disposal management "is the final process when an institution needs to do away with the unserviceable, redundant or obsolete movable assets". The National Treasury recommends that control measures, such as the segregation of duties and delegation of authority, need to be in place. Prior to the disposal of items, the Government organisation must obtain pre-approval from authorised officials. National Treasury further recommends that the following disposal methods be considered: transfer to another institution concerning section 42 of the PFMA, transfer to another institution at market-related value, transfer to another institution free of charge, selling per price quotation, competitive bid or auction, whichever is most advantageous, or ultimately destroying the assets. Disposal management focuses on obsolescence planning, depreciation, identifying where all redundant material is kept or located, and the identification of appropriate strategies relating to the way items are to be disposed of.

4.3.4.5 Risk management

Risk management is the culture, processes and structures directed towards the effective management of potential opportunities and adverse effects. Risk management forms an integral part of the SCM process (DTI,2017). Risk can be defined as "the probability of an unwanted outcome happening" (CIPS,2016). Risk management acknowledges that all the activities of an institution involve some element of risk. Management should decide what an acceptable level of risk is by objectively assessing the factors that may prevent an activity from meeting its objective. It is advisable to seek to remove, or at least, mitigate risk whenever possible before awarding a contract. In the case of SCM, this will include "ensuring on a case-by-case basis what risks, such as price or currency fluctuations, are allocated to the appropriate party in unambiguous contract documents, or that guarantees, or insurance arrangements are in place" (National treasury,2014).

The obligations are placed upon buyers to analyse, assess and mitigate risk during the pre-award stages of contract management. Risk management procedures should

determine the need for, and form of bid sureties (National treasury,2014). Subject to Section 12 of the Treasury Regulations, risk should be allocated in the best interest of the State by means of proper risk analyses and management.

4.3.4.6 Supply chain performance

Supply chain performance in the public sector environment is characterised by a "monitoring and a retrospective analysis to determine whether or not the proper process was followed and the desired objectives achieved, has value for money been attained, have the desired objectives been achieved, and is there room for improving the process, what is the assessment of suppliers, and what are the reasons for deviating from procedures" (CIDB,2018, National Treasury, 2004:91). The study adopts the National Treasury framework in justifying the relationship between supply chain strategy, SCM policies and regulations practices on SCM performance.

4.3.5 Summary of the models

Gonzalez-Benito's framework revealed that SCM's contribution to business performance depends on the degree to which SCM capabilities fit with and support the business strategy. This framework contributes to the study in stabling the relationship between SCM strategy and performance. The framework will contribute to the study by confirming the strategic importance of SCM skills, capabilities and knowledge in delivering a SCM strategy, and in enhancing performance. The framework reverberates the views of Walter *et al.* (2013:14), Cousins *et al.* (2008:144), Chopra and Meindl (2013:34), Cox (2004), and Mitra and Bhardwaj (2010) who recognised the importance of the alignment between the organisational strategies with the supply chain strategy, and the positive impact of such alignment on SCM performance, and ultimately, the performance of the organisation.

This study adopts the notion that the alignment of SCM capabilities with the business strategy is important for the improvement of SCM performance. The second model that was analysed was developed by Karimi and Rafiee (2013). The framework analysed the relationships between SCM practices, competitive advantage and organisational performance. The framework proposes the notion that SCM practices will have an impact on organisational performance both directly and indirectly through competitive advantage. The study follows the model of Karimi and Rafiee (2013) in

analysing the relationship between SCM practices and supply chain performance, and ultimately, the performance of SOEs.

The third framework that was analysed was based on the study of Baier *et al.* (2008) which considered the alignment between supply chain strategy with SCM performance. The model authenticated the possibility of aligning SCM strategy with SCM performance, and further confirmed the contribution of such alignment to organisational performance.

Lastly, the National Treasury SCM model was analysed. The framework was found to be useful in expatiating the concept of SCM practices and performance.

The analysis of the four frameworks established that none of the models address all four constructs considered for this study, namely, SCM strategy, SCM policies and regulations, SCM practices and SCM performance. The literature review also revealed that there is no framework tailored for the alignment of the three constructs in SOEs in South Africa. The study, therefore, will close the gap by developing a framework for the alignment of SCM practices with the policies and regulations to enhance SCM performance in SOEs.

In developing such a framework, the study will consider the Gonzalez-Benito's Framework (2007), Karimi and Rafiee's framework (2013) and the framework of Baeir *et al.* (2008) in conceptualising the relationship between supply chain strategy, SCM practices and SCM performance. Since the study is based on SCM in SOEs, the National Treasury framework (2004) will also be considered to integrate the public-sector SCM elements and policies and regulations governing SCM into the proposed conceptual framework.

4.4 CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

The study explored the supply chain strategy, SCM policies and regulations, SCM practices with policies and regulations governing SCM. The study further examined the theories and framework to determine the relationships between the dependent and independent variables. Research objective 7 was aimed at the development of a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices to enhance SCM performance. Figure 4.5 illustrates the

conceptual alignment between supply chain strategy, SCM policies and regulations, SCM practices in SOEs and SCM performance.

4.4.1 Conceptual framework

This subsection presents a conceptual framework that defines the relationship between supply chain practices and policies to enhance supply chain performance. Four constructs, namely, SCM strategy, SCM practices, SCM policies and regulations and SCM performance were identified (Figure 4.5). According to Kinyua (2011), a conceptual framework is used to outline the choices or present the preferred approach to an idea or thought. Figure 4.5 presents the conceptual framework for the study and illustrates the relationship between the variables.

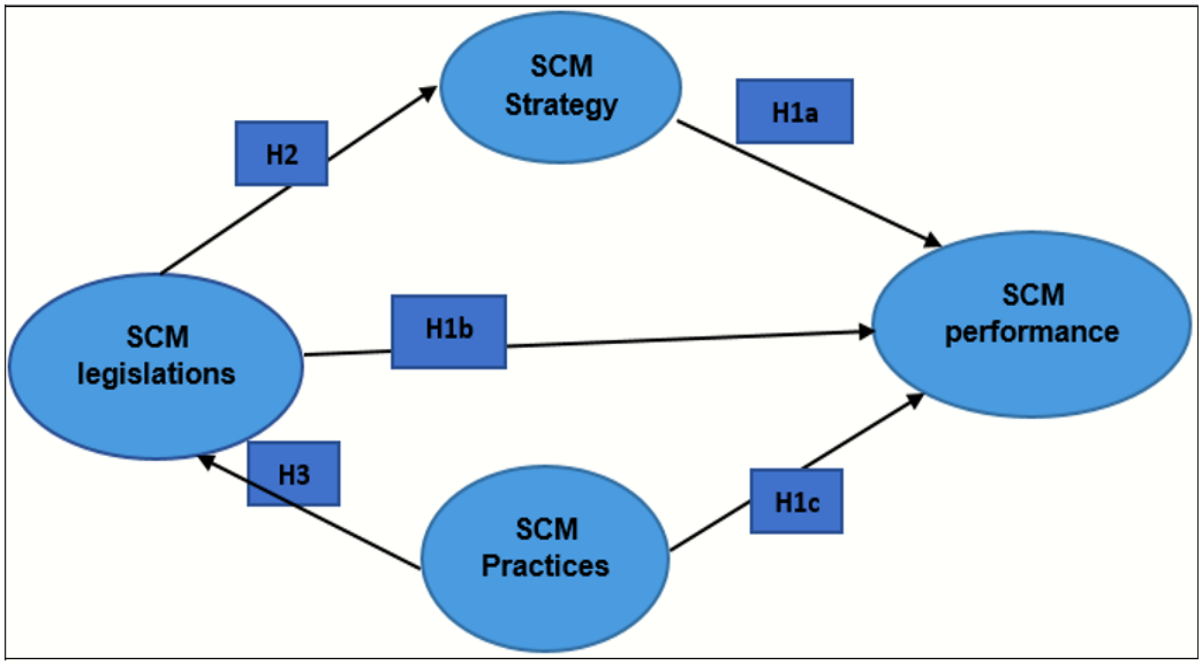

Figure 4.5: Alignment of SCM legislations and policies with SCM practices in SOEs

Source: Researcher's own compilation

The proposed framework (Figure 4.5) is an extension of the National Treasury framework. The framework also incorporates the work of Karimi and Rafiee (2013:3), Gonzalez-Benito (2007:904) and Baeir *et al.* (2008). The SCM practices were extended to include (1) CRM, (2) strategic sourcing, (3) ESD, (4) strategic supplier relationship and contract management, (5) cross-functional teams, (6) workforce and structure, (7) IT, and (8) SCI. The concept of SCM performance was expanded to include compliance to policies and regulations, risk management, cost, time and

quality. To achieve secondary research objective 6, the following hypotheses were formulated:

Table 4.2: Summary of the hypotheses

No	Null hypotheses	No	Positive hypotheses
Ho1:	There is no positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs	H1:	There is a positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs
Ho2:	There is no positive and significant relationship between SCM policies and regulations with supply chain strategy in SOEs	H2:	There is a positive and significant relationship between SCM policies and regulations with supply chain strategy in SOEs
Ho3:	There is no positive and significant relationship between SCM policies and regulations with SCM practices	H3:	There is a positive and significant relationship between SCM policies and regulations with SCM practices

The following sections provide a brief overview of the formulated hypotheses.

4.4.2 Hypotheses development

Based on the framework presented in Figure 4.5, three hypotheses were developed as follows:

Hypothesis 1: there is a positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs.

Hypothesis 2: there is a positive and significant relationship between SCM policies and regulations with supply chain strategy in SOEs.

Hypothesis 3: there is a positive and significant relationship between SCM policies and regulations with SCM practices.

The following sections provide a detailed discussion of each hypothesis.

4.4.2.1 Relationship between supply chain strategy, SCM policies and regulations, practices and SCM performance in SOEs

Further analysis of the constructs was done at an individual level. This necessitated a breakdown of H1 into three namely, H1a, H1b and H1c, with the aim of analysing the

individual relationship of the independent variables (namely, supply chain strategy, SCM policies and regulations, SCM practices) against the dependent variable (SCM performance). The study first considered the relationship between the supply chain strategy in SOEs with SCM performance. This was followed by the relationship between SCM policies and regulations with SCM performance, and lastly, the relationship between SCM practices and SCM performance in SOEs. The relationship between the independent and dependent variables was analysed using a Pearson's correlation analysis. The following sections provide the results of the analysis.

The results were as follows:

(i) Relationship between SOE supply chain strategy and SCM performance in SOEs

(H1a: Relationship between SOE supply chain strategy and SCM performance in SOEs)

SOEs make an important contribution to the realisation of Government's economic and social objectives. The SOEs crucial mandates are related to the delivery of basic services on behalf of Government. SOEs deliver the mandates either through direct interaction with the citizenry or through the outsourcing of service delivery programmes. It is therefore imperative that the SOE's strategy and desired outcomes should be connected to the vision and strategy of the Government.

The SOEs' successes depend on the level of strategic SCM in their organisation (Pohl & Forstl, 2011:231). Once formulated, the SOE's purpose and mission should then be cascaded by the SOE executive management and board of directors to provide clear direction and accountability to the entire organisation (Hofmann, 2010:258).

Due to the high procurement budgets in SOEs, SCM has developed into a functional domain of strategic importance. Strategic SCM focuses on aligning the SCM objectives with the SOE's mandate and corporate strategy and objectives, ensuring that every single activity in SCM contributes to achieving the objectives of the organisation. The corporate objectives of the SOE should be understood in the context of the SOE's mandate, whereas the SCM objectives and strategies should be understood in the context of fulfilling the socioeconomic objectives (Pohl & Forstl, 2011:245; Gonzalez-Benito, 2007).

SOEs have a responsibility to contribute to the socioeconomic objectives of the country. Due to their high procurement spend, SOEs have economic and social power through their SCM decisions. SOEs therefore should leverage on their high purchasing power and their systems should be a mechanism to deliver their service delivery programmes while contributing to Government's socioeconomic goals.

Strategic SCM is a robust market analysis and planning process. The investment in planning, research and analysis helps in identifying the most suitable solutions and strategies for the service delivery programmes and business requirements.

The involvement of SCM in SOE strategic development and planning cannot be overemphasised. The involvement of SCM allows the SOEs to capture cross-enterprise opportunities that not only generate cost and capital efficiencies, but also contribute to the socioeconomic goals, and drive top-line opportunities. The SOEs' corporate strategies and objectives are the basis for the development of SCM strategies and practices.

The SCM strategies and practices should be fully aligned with the service delivery strategy and wider Government imperatives. It is therefore important for SCM objectives and strategies to be aligned with SOE strategies and objectives to reinforce SCM's strategic role in SOEs. This alignment has a great impact on the SCM practices in SOEs. Strategic SCM involves planning, evaluating, and the implementation of and control of the operational activities of the SCM function to meet the objectives of the organisation (Eyaa & Ntayi, 2010:82). Strategic SCM ensures that the organisation has a strategic SCM plan, that strategies are developed to realise the plan, and that they are often reviewed to consider changes in the strategic plan of the company.

There are several SCM strategies that can be implemented in SOEs. These include strategic sourcing, tender process, single sourcing, strategic supplier development, total cost of ownership, to mention a few. These strategies, when implemented well, can increase SCM performance by reducing costs, improving quality of goods, on-time delivery, risk management and compliance to the policies.

The crucial success factors for supply chain strategy in SOEs includes the alignment of supply chain strategy with the corporate strategy of the organisation. A supply chain strategy, aligned with the strategic objectives of the SOEs will deliver on Government's socioeconomic goals. The performance of SCM in SOEs is therefore judged by its

contribution to the socioeconomic goals (Glas *et al.,* 2017:573). Mamiro (2010) asserts that the performance of public SCM is used to measure the integrity of Government's power.

(ii) Relationship between SCM policies and regulations and SCM performance

(H1b: Relationship between SCM policies and regulations and SCM performance)

As discussed in Chapter 3, there is a large range of statutes that have an impact on how SOEs implement and manage their SCM systems. For the purposes of this study, the regulations and policies include the Constitution, PPPFA, PFMA, CIDB and B-BBEE. These legislations are the crucial drivers of socioeconomic transformation in South Africa.

An effective and efficient SCM system will permit SOEs to deliver the quality of services demanded by its constituency in accordance with the South African Government's socioeconomic policy principles. The SCM policies and regulations provide a foundation for the development of an SCM system which comprises subsystems covering the spectrum of SCM practices, SCM processes, and SCM policies and regulations to ensure the alignment with Government imperatives.

According to Lindblom (2013), public sector legislations are meant to protect the public interests. The effective implementation of SCM policies and regulations contributes to the performance of SOEs and reverse poor performance (Mwangangi, 2015:181). According to Gelderman *et al.* (2015), SCM performance in the public sector is greatly influenced by transparency, competitive bidding, professionalism and quality sourcing, which are critical for organisational performance.

Compliance can be defined as "acting in accordance with an influence attempt from the source" (Payan & McFarland, 2005:72). For this study, compliance refers to the degree to which public agencies and their employees act according to the Government's and National Treasury's policies and regulations (Gelderman, Ghusen & Schoonen, 2010:248). Oduma and Getuno (2017:50) assert that compliance with regulations, ethical practices, transparency, and SCM professionalism affect the performance of SCM in Government entities. As indicated in Chapter 3, there are regular and continuous assessments of SOEs concerning their compliance with the

procedures, rules and regulations set up in the country. However, the reports by the South Africa Auditor General confirm that there is a low level of compliance to SCM policies and regulations in SOEs. Amewah, Mensah and Osei-Tutu (2011) established that poor compliance with the law is due to, amongst others, a lack of understanding of the law and a lack of sufficiently proficient procurement personnel to manage the public procurement process.

(iii) Relationship between SCM practices and SCM performance in SOEs

(H1c: Relationship between SCM practices and SCM performance in SOEs)

Many research papers have been written about the relationship between SCM practices and performance (Flynn *et al.,* 2010a; Cook & Heiser, 2009; Ibrahim & Hamid, 2014; Ibrahim & Ogunyeni, 2012). Flynn *et al. (*2010b) investigated the impact of SCI on operational and business performance. They found that internal integration and customer integration were positively related to operational performance, whilst only internal integration was related to business performance. They also found that supplier integration was neither related to operational not business performance. Cook and Heiser (2009) identified the following SCM practices, information sharing, long-range relationships, advanced planning techniques, and leveraging on internet and supply chain distribution network structures. They found a positive effect of supply chain practices on the competitive advantage of the organisation with the moderating effect of SCM.

Ibrahim and Hamid (2014) tested the relationship between SCM practices and supply chain performance. Their study identified the following practices: integration, information sharing, customers delivery and management, suppliers and management, and speed of responsiveness. Their results revealed that SCM practices do have an influence on SCM performance effectiveness.

Ibrahim and Ogunyemi (2012) investigated SCM regarding supplier customer partnerships, and the level and quality of information sharing. They found that SCM practices are positively related to SCM performance. Based on the literature review (Chapter 3), nine SCM practices were identified for this study, namely (1) CRM, (2) strategic sourcing, (3) ESD, (4) strategic supplier relationship and contract management, (5) cross-functional teams, (6) workforce and structure, (7) IT, (8) SCI.

According to Pohl and Forstl (2011:231), SCM practices have a proven record of contributing to the performance of the organisation.

4.4.2.2 Relationship between SCM policies and regulations with supply chain strategy in SOEs

(H2: There is a positive and significant relationship between SCM policies and regulations with supply chain strategy in SOEs.)

The SOE practices should be aligned with the SCM legislatives and with the SOE's business strategy. SCM activities should contribute to the goal of the organisation. For SCM strategies to be successful, the head of the SCM department should be positioned at a strategic level within the SOE reporting directly to the CEO. In this manner the SCM executive should be involved in the SOE strategy development process.

It is only after an organisation has developed its objectives that the SCM strategies can be developed. It is essential that the SCM should be aligned with Government's legislations and the crucial deliverables of the SOE (Murray, 2007:94). The SCM strategies should then be translated into achievable objectives consistent with the business strategy. SCM strategies should focus on efficiency and value creation, create opportunities for supplier development and growth and contribute towards South Africa's socioeconomic objectives. This can be achieved through a vigorous strategic sourcing approach.

Effective strategic sourcing initiatives should not only save costs, but also yield long-term strategic supplier relationships. Successful strategic partnerships play a major role in achieving a high degree of effectiveness and efficiency and service delivery. The SCM policies and practices should align with the organisational strategy (Pienaar & Vogt, 2012:35). SCM strategies ought to drive the implementation of SCM practice instead of best practice. Cousins *et al.* (2008:104) argue that "only when the activities and strategies of SCM function are aligned with the strategies of a firm can SCM be a strategic function".

Pursuing a supply chain strategy which is not aligned with the core objectives and other business functions is said to be dysfunctional (Murray, 2007:94; Walter *et al.*, 2013:1). According to Mitra and Bhardwaj (2010:50), the misalignment of supply chain

strategies can lead to performance problems in SOEs, thus impacting service delivery. Effectively, the SCM practices will support the core objectives of the SOE.

The SCM environment in SOEs is highly regulated. There are therefore are various legislations impacting the implementation of SCM. Compliance to the legislations is mandatory.

4.4.2.3 Relationship between SCM policies and regulation with SCM practices

(H3: There is a positive and significant relationship between SCM policies and regulations with SCM practices.)

There is a natural conflict between the commercial interests of SOEs and the State's developmental interests. SOEs are tasked with the implementation of high-value infrastructure projects, and at the same time, they are subject to Government regulations and guidelines. The SOEPF raised major concerns as far as SCM legislation is concerned. According to SOEPF, amongst other challenges, the empowerment legislative framework is fragmented. Various empowerment instruments impose different, and sometimes conflicting, empowerment obligations on SOEs (PRC, 2012:77). Several SOEs find the legislative environment bureaucratic and time-consuming. The staff responsible for compliance matters in SOEs assert that merely complying with the legislative environment is overwhelmingly time-consuming, leaving reduced capacity to execute the principal objectives of the SOE.

4.5 CONCLUSION

This chapter discussed the SCM practices and policy and regulations and constructed the study's research conceptual framework. The research conceptual framework was also explained. The SCM policies and practices should align with the organisational strategy. SCM strategies ought to drive the implementation of SCM practice instead of best practice. The lack of strategic fit between SOEs and SCM strategies leads to the actions being taken in supply chains not being consistent with the SOE's strategic objectives. To achieve strategic fit, SOEs, in developing their strategies, should consider the external environment (local economy and its challenges, the National Development Plan and legislation geared towards addressing socioeconomic challenges).

SOEs deliver on socioeconomic goals through an SCM system. SCM is therefore critical in delivering the service delivery projects of SOEs; and failure in an SCM system will lead to service delivery failure. The involvement of SCM in the SOE strategy development process is therefore critical, in that it refers to the extent to which supply chain executives actively participate in strategic decision-making processes. The supply chain strategy and other functional strategies should therefore flow from the SOE strategy. Consequently, SCM practices and policies should consider the organisation's mandate, strategic objectives and legislation governing SCM. To achieve these initiatives, SCM positions within SOEs should be elevated to the levels of power and authority.

The head of the SCM department should be elevated to a strategic level, with the executive for SCM reporting directly to the accounting officer instead of the CFO. At this level, the SCM executive will be able to influence decisions related to the business strategy. The proposed framework conceptualises the impact of SCM regulations on the SOEs' SCM strategies and practices, thereby creating a strong foundation for strategic alignment. The framework advocates for the involvement of SCM in developing the SOE's strategies, thus supply chain strategy should only exist to deliver a business strategy.

The next chapter (Chapter 5) focuses on the research methodology and design.

CHAPTER 5:
RESEARCH METHODOLOGY

5.1 INTRODUCTION

The previous chapters presented the theoretical framework for SCM and provided an overview of the global and South African SOEs' supply chain practices and challenges. In addition, the framework for the alignment of SCM with the SOEs' business strategies were discussed. This served as justification for the study and defined the research problem and objectives. In this chapter, the research design and methodology are presented. Research means 'to search again' which refers to a more careful look at data and performing special investigations to discover all that is known about the subject (Zikmund *et al.* 2012:1). Research, therefore involves a series of well-thought-out and carefully executed activities that will enable the researcher to know how organisational problems can be solved, or at least considerably minimised (Quinlan, 2011:25). The chapter deals with the research design, demarcation of the population, specific sampling procedure, data collection and procedure for measurement of the research evaluation framework, the testing of the research evaluation framework and the method of data analysis that was employed in the study.

5.2 RESEARCH PHILOSOPHY AND PARADIGMS

Research philosophy relates to the development of knowledge and the nature of that knowledge (Saunders *et al.,* 2012:148). Although there are numerous research philosophies, this study focuses on three, namely, ontology, epistemology and axiology (Eriksson & Kovalainen, 2008:12). According to Quilan (2011:95), the chosen research framework must be a perfect 'fit' for the research project.

Figure 5.1 presents a graphical demonstration of the research philosophies employed in the current study.

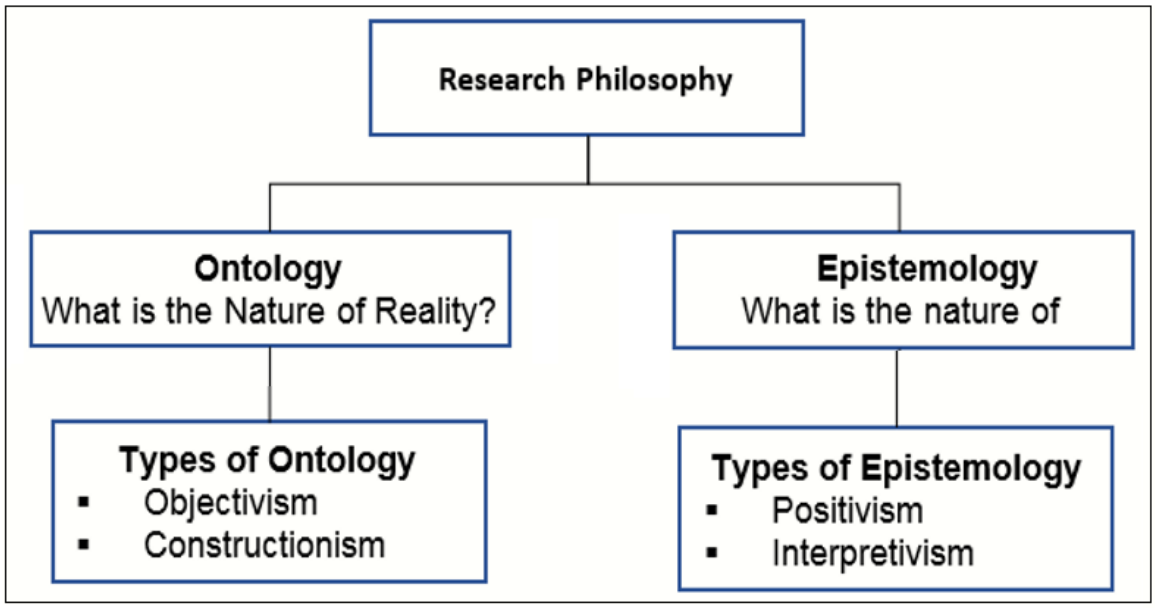

Figure 5.1: Graphical demonstration of the research philosophies

Source: Researcher's own compilation

5.2.1 Ontology

Ontology describes an individual's view (either claimed or assumed) on the nature of truth or reality, whether an objective reality that truly exists, or a subjective reality, shaped in the individuals' minds (Easterby-Smith, Thorpe & Jackson, 2012:1; Saunders *et al.,* 2012:161). Generally, each individual has several ontological assumptions which influence their views on what is true. This can be attributable to the presence of a set of things and the absence of others (Bryman, Bell, Hirschsohn, dos Santos, du Toit & Masenge, 2014:16). The underlying assumptions need to be clearly defined so to avoid possibility of the researcher making biased conclusions on specific aspects of the study, or a phenomenon, because such assumptions are implicitly expected and taken for granted.

Having pre-conceived notions may defeat the whole purpose of conducting research. According to Easterby-Smith *et al.* (2012:1), Bryman *et al.* (2014:17), Wilson (2013:11) and Saunders *et al.* (2012:110), the two main ontologies are objectivism and subjectivism (Saunders *et al.,* 2012:110). As noted by Bryman *et al.* (2014:16), objectivism has a social phenomenon objective, and is independent of, or external to, social actors. Subjectivism holds that social phenomena are created from the perceptions and subsequent actions of those social actors' concern for their existence (Bryman *et al.,* 2014:16). Within these two extremes, this research was positioned

more towards subjectivism. Subjectivism was chosen because it portrays and explores perceptions about the alignment of SCM practices in SOEs with Government policies and regulations in South Africa.

5.2.2 Epistemology

Epistemology can be defined as the theory of knowledge (Strang, 2015:20). Epistemology refers to a general set of assumptions regarding the most appropriate way of investigating the nature of reality in the world (Easterby-Smith *et al.*, 2012:1; Bryman *et al.,* 2014:12). This feature also considers "what knowledge is and highlights the sources and limits of knowledge" (Eriksson & Kovalainen, 2008:57). According to Wilson (2013:9), the crucial question that epistemology asks is "What is the acceptable knowledge?". Bryman *et al.* (2014:12) and Saunders *et al.* (2012:133) identified the following four fundamental epistemologies in the social sciences: interpretivism, realism, positivism and axiology. The following section endeavours to define the unique features of each approach.

5.2.2.1 The Interpretivist paradigm

Interpretivist is an epistemology that supports the view that the researcher must enter the social world of what is being examined (Wilson, 2013:10; Bryman *et al.* 2014:14). According to Petty, Thompson and Stew (2012:30), interpretivist assumes that individuals seek to comprehend the world in which they live. In research that adopts an interpretivist approach, the research question is kept broad to detain discrepancy and the research develops as it proceeds (Petty *et al.,* 2012:30). The research process guided by this paradigm is flexible (Robson, 2012:221) in that the researcher moves about between data collection and data analysis, pursuing leads and interpreting inductively from the data and gradually focusing on issues from the data (Petty *et al.,* 2012:30).

5.2.2.2 Realism paradigm

Realism is another philosophical position used to provide an account of the nature of scientific practices (Bryman *et al.,* 2014:13). Realism is a branch of epistemology, like positivism in that it assumes a scientific approach to the development of knowledge (Saunders *et al., 2012:*136). This paradigm was a result of the critiques of positivism being considered as over-deterministic*,* with little room for choice and interpretivism.

It was regarded as completely relativist being viewed as highly contextual. Even though the critical realist paradigm has its own weaknesses, it can be “seen as useful compromise which can combine the strengths and avoid the limitations of positivist and interpretivist paradigms” (Easterby-Smith *et al*., 2011: 42).

5.2.2.3 Positivist paradigm

Positivism attempts to uncover the one truth about how things are (Bryman *et al.*, 2014:13). It is a structured method, combining logical deduction with precise empirical observations (Collins, 2010:12; Strang, 2015:22). To confirm causal relationships, a deductive approach is advanced by the positivism philosophy. A deductive approach supposes that an empirical study must be grounded in a theory or theoretical framework upon which hypotheses are drawn, and empirical data must be collected from observations to test and confirm the proposed hypotheses (Grafstrom, 2010:85). By its very nature, positivism seeks to uncover the truth and make it possible to control and predict, hence objectivity and precision are important (Remenyi, Money & Swartz, 1998:33).

To ensure objectivity and precision, the measurement and measures, tools and procedures are very important. Thus, to this end, a quantitative study is premised on the positivist philosophy. The predominant criteria for such a study involve the calculation of internal and external validity, reliability, and objectivity (Collins, 2010:12).

In this research, a quantitative study was deemed more appropriate provided that the objective of this research is to test the causal relationships between the research variables of interest. This research adopted a positivism viewpoint and its aim was to determine the implementation of SCM practices in SOEs with the SCM policies and regulations in South Africa (Saunders, 2012:162).

Table 5.1 provides an overview of the worldviews linked to ontology, epistemology and methodology.

Table 5.1: Scientific paradigms

Element	Positivism	Interpretivism	Realism
Ontology	Reality is real and apprehensible	The knowable world is that of meanings attributed by individuals. Relativism (multiple realities): these constructed realities vary in form and content amongst individuals, groups and cultures.	Reality is 'real' but only imperfectly and probabilistically apprehensible and so triangulation from several sources is required to try to know it
Epistemology	Findings true - researcher is objective by viewing reality through a 'one-way mirror'	Created findings - researcher is a 'passionate participant' in the world being investigated	Findings probably true - researcher is value-aware and needs to triangulate any perceptions he or she is collecting
Common methodologies	Mostly concerned with testing theory. Thus mainly quantitative methods such as survey, experiments and verification of hypotheses	In-depth unstructured interviews, participant observation, action research and grounded theory research	Mainly qualitative methods such as case studies and convergent interviews

Source: Adapted from Sobh and Perry (2006:1195) and Quilan (2011:13)

This study adopted a positivism viewpoint and its aim was to determine the alignment of SCM practices in SOEs with the SCM policies and regulations in South Africa.

5.3 RESEARCH APPROACH

The classification of research approaches most often used in literature is the threefold classification of inductive, deductive and abductive approaches (Saunders *et al.*, 2012:143; Bryman *et al.*, 2014:9). The deductive theory represents the most common view of the nature of the relationship between theory and research. Based on what is already known, the researcher formulates hypotheses (Bryman *et al.*, 2014:9). The process of deduction begins with theory and practice, deduced to a hypothesis, followed by data collection and findings. The findings either confirm the hypothesis or rejects it. If the hypothesis is rejected, the process should start again (Bryman *et al.*, 2014:9).

Inductive reasoning starts from specific observations or sensory experiences and then develops a general conclusion from them (Babbie, 2008:24; Sanders, 201:125).

Table 5.2 provides a summary of the deductive, inductive and abduction approaches to research.

Table 5.2: Major differences between the three main research approaches

	Deduction	Induction	Abduction
Generalisability	Generalising from the general to the specific	Generalising from the general to the specific	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework, and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generation and building	Theory generation or modification; incorporating existing theory where appropriate, to construct new theory or modify existing theory

Source: Adapted from Saunders (2012:134)

Data collection serves to explore a phenomenon, identify themes and explain patterns to generate a new, or modify an existing theory, and when subsequently tested through additional data collection, an abductive approach is used (Table 5.2).

A deductive approach was adopted for this research. This approach was chosen because: (1) conclusions were drawn from the empirical findings and compared with existing theories (literature) in the research area, (2) the researcher is independent from the research.

5.4 RESEARCH METHODOLOGICAL CHOICE

There are three types of research methodological choices appropriate for business research, namely, qualitative research, quantitative research and a combination of the two (Bryman *et al.,* 2014:17; Wilson, 2013:14; Saunders *et al.*, 2012:32).

The following sections provide an overview of various research methods.

5.4.1 Qualitative research

Qualitative research is a means for exploring and understanding the meaning that individuals and groups attribute to a social or human problem. The word qualitative implies an emphasis on the qualities of entities and on processes and meanings, not experimentally examined or measured concerning quantity, amount, intensity and frequency (Zikmund *et al.*, 2012:134). Qualitative research focuses on making purer sense, it brings in a newer perspective to existing research areas that were dominated by quantitative methods (Weathington, Cunningham & Pittenger, 2012:399). Qualitative research allows the researcher to gain significant insight into the feelings, motivations and attitudes of individuals in their sample group (Polonsky & Waller, 2011:135). Qualitative research stems from a constructivist viewpoint. The types of qualitative research are: focus groups, in-depth interviews and projective techniques (Polonsky & Waller, 2011:135; Van Zyl, 2014:214).

5.4.2 Quantitative research

Quantitative research is described as a distinctive research approach that entails the collection of numerical data (Bryman *et al.,* 2014:31). This type of research regards the relationship between theory and research as deductive and prefers a natural science approach in general and adopts an objectivist conception of social reality (Bryman *et al.,* 2014:31; Zikmund *et al.*, 2012:134). Essentially quantitative research describes, infers and resolves problems using numbers (Maree, 2016:162). It is also designed to test the hypothesis that has been designed based on theory (Weathington *et al.*, 2012:399). Bryman *et al.* (2014:31) view quantitative research as a means for testing objective theories by examining the relationship between variables. Quantitative research is based on positivism (Bryman *et al.,* 2014:31; Ang, 2014:98). Polonsky and Waller (2011:135), Bryman *et al.* (2014:30), and Saunders *et al.* (2012:26) identified the following types of quantitative research methods, namely, surveys, observation and experimentation.

Table 5.3 provides an overview of the difference between the quantitative and qualitative research methodologies:

Table 5.3: Difference between qualitative and quantitative research

Type	Qualitative	Quantitative
Scientific method	– Inductive or 'bottom-up' – Generate new hypotheses and theory from data collected.	– Deductive or 'top-down' – Test hypothesis and theory with data
Most common research objectives	– Description – Exploration – Discovery	– Description – Explanation – Prediction
Focus	– Wide and deep-angle lenses – Examine the breadth and depth of phenomenon to learn more about them.	– Narrow-angle lens – Testing specific hypotheses – Multi-lens wide and deep-angle lenses – Examine
Nature of study	– Study behaviour in its natural environment or context.	– Study behaviour under artificial, controlled conditions.
Form of data	– Collect narrative data using semi- or unstructured instruments (open-ended survey items, interviews, observation, focus groups, documents)	– Collect numeric data using structured and validated instruments (closed-ended survey items, rating scales, measurable behavioural responses)
Nature of data	– Words, images, themes and categories	– Numeric variables.
Data analysis	– Holistically identify patterns, categories, and themes.	– Identify statistical relationships.
Results	– Particularistic findings. – In-depth understanding of respondent's viewpoint – Respondent framed results.	– Generalisable findings. – General understanding of respondent's viewpoint – Researcher framed results.
Final report	– Narrative report including contextual description, categories, themes, and supporting respondent quotes.	– Statistical report including correlations, comparisons of means, and statistically significant findings.

Source: Adapted from Bryman *et al.* (2014:13)

Due to the descriptive nature of the research question, a quantitative approach was relevant for this study. Quantitative research methods eliminate subjective interpretation of the collected data and measure specific outcomes. The core advantage of quantitative research is that it focuses on testing the strength and persistence of relationships between distinct measures (Creswell, 2014:4; Saunders

et al., 2012:162). To assess the relationships on the phenomenon under study, descriptive and analytic statistics were used for further analysis.

5.4.3 Justification for using a quantitative research method approach

Even though the quantitative research method has its own drawbacks, it was chosen based on its strengths, a closer link to the research aims, and was regarded the best alternative to solving the research problem. The quantitative methodology was deemed appropriate for this research as it uses a survey to draw behavioural manifestations in social phenomena, for example, individuals' product choice or purchase intention amongst others (Bryman *et al.,* 2014:30). It also allows for flexibility in data treatment, statistical and comparative analyses, and repeatability of data gathering, to confirm the reliability of instruments used. Although quantitative methods fail to determine the deeper underlying explanations and meanings of a social phenomenon, they adequately measure the variables under research and their pertinence through a thorough explanation. A quantitative approach is deemed justified for the study.

5.5 RESEARCH STRATEGY

A research strategy is a plan which the researcher uses in an endeavour to answer the research question (Saunders *et al.,* 2012:173). Saunders *et al.* (2012:141) identified seven types of research strategies, namely, experiment, survey, case study, action research, grounded theory, ethnography and archival research. Each of these strategies presents a different way of collecting and analysing empirical evidence. According to Quinlan (2011:179), the research strategy must fit the fundamental philosophy, chosen method and data collection method. Quantitative research is principally associated with experimental and survey research strategies.

In this research, a survey was used. A survey can be defined as "assessment of the status, opinions, beliefs and attitudes by questionnaires or interviews from a known population" (McMillan and Schumacher, 2001:602). The survey research methodology facilitates the study of huge populations and samples that may or may not be geographically scattered (Maree, 2016:175; Thomas, 2013:177). Surveys involve the use of a simple question format, and are therefore useful ways of generating quantitative data (Bryman *et al.*, 2014:17).

Surveys can be performed in different ways, online, email, by post, by telephone or in person (Saunders *et al.,* 2012:180). When carrying out a survey, a sample of the population participates in the survey rather than the entire population. An important aspect of the survey is the response rate. The response rate is the proportion of all individuals who were selected who completed the survey. A structured questionnaire was adopted as the survey method of data collection for the study. Due to time and cost limitations, the respondents completed the questionnaires using the online SurveyMonkey platform. The questionnaires were distributed to 300 SCM managers. A total of 216 responses were received. All questionnaires received were identified as usable for the study (n=216). A response rate of 72% was thus achieved.

5.6 TIME HORIZON

Time horizon is should be seriously considered when developing a research project. The study could either be longitudinal or cross-sectional (Saunders *et al.,* 2012:190). A longitudinal study takes place over a longer period of time and focuses on studying changes or developments in a controlled environment, while cross-sectional research takes place in a short space of time, thus saving time (Quinlan, 2011:180). Due to time and financial constraints, this research employed a cross-sectional research process

5.7 SAMPLING DESIGN

The procedure includes crucial aspects, indicating the target population, the sampling frame, sampling method and the sample size. When preparing a sampling design, it is important to determine to what extent the design will influence the reliability of the results and whether this will be enough to warrant concerns over the dependability of the work, or whether the results will still be regarded as significant.

This analysis is important since an entirely inaccurate sampling design may lead to the acquisition of inconsistent results, pursued by wrongful interpretation, which may produce disastrous consequences.

A sampling design should be easy to implement, well-organised and have large entropy to be generally applicable (Grafstrom, 2010). It should also be exact and any existing supporting information about the population must be considered, since the information may be useful (Grafstrom, 2010).

The steps in the sampling design process is illustrated in Figure 5.2.

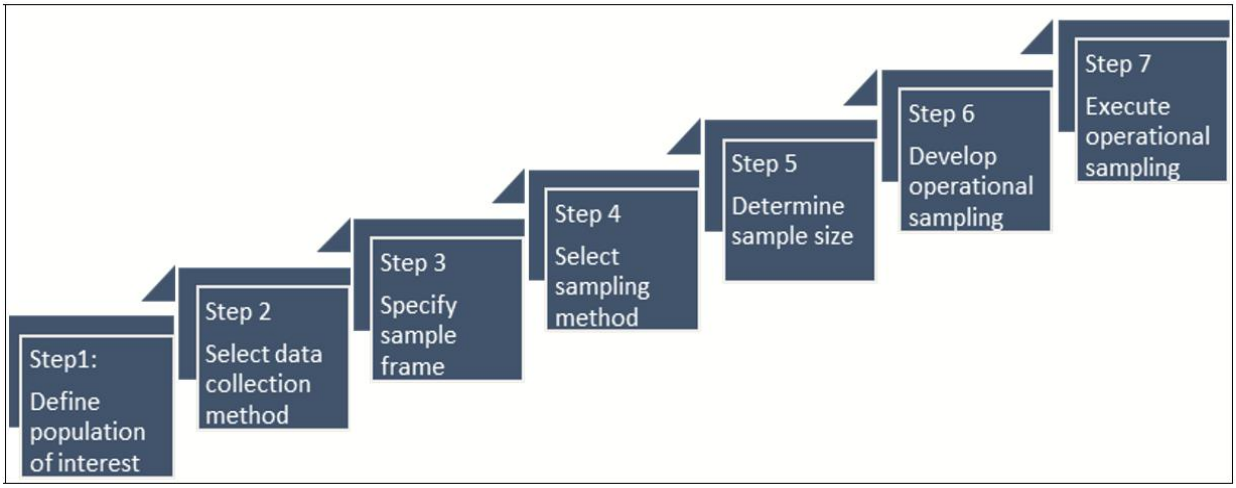

Figure 5.2: Steps for developing a sampling plan

Source: Researcher's own compilation

The following sections provide details of the process encompassed in the sampling plan.

5.7.1 The population

Population is defined as a "set of people, websites, stores, or other objects the researcher wants to study [and] from whom the researcher wishes to collect data" (Clow & James, 2014:36).

According to the PFMA (2011), there are 299 SOEs in South Africa, as stated in Table 5.4.

Table 5.4: List of state-owned entities

Schedule 2: Major Public Entities	Schedule 3B: National Government Business Enterprises	Schedule 3D: Provincial Government Business Enterprises
1. Air Traffic and Navigation Services Company Limited 2. Airports Company of South Africa Limited 3. Alexkor Limited 4. Armaments Corporation of South Africa Limited 5. Broadband Infrastructure Company (Pty) Ltd 6. CEF (Pty) Ltd 7. DENEL (Pty) Ltd 8. Development Bank of Southern Africa 9. ESKOM 10. Independent Development Trust 11. Industrial Development Corporation of South Africa Limited 12. Land and Agricultural Development Bank of South Africa 13. South African Airways (Pty) Limited 14. South African Broadcasting Corporation Limited 15. South African Express (Pty) Limited	1. Amatola Water Board 2. Bloem Water 3. Botshelo Water 4. Bushbuckridge Water Board 5. Council for Mineral Technology 6. Council for Scientific and Industrial Research 7. Export Credit Insurance Corporation of South Africa Limited 8. Inala Farms (Pty) Ltd 9. Khula Enterprises Finance Limited 10. Lepelle Northern Water 11. Magalies Water 12. Mhlathuze Water 13. Namaqua Water Board 14. Ncera Farms (Pty) Ltd 15. Onderstepoort Biological Products Limited 16. Overberg Water 17. Passenger Rail Agency of South Africa 18. Pelladrift Water Board 19. Public Investment Corporation Limited	**EASTERN CAPE** 1. East London Industrial Development Zone Corporation 2. Eastern Cape Development Corporation 3. Mayibuye Transport Corporation **FREE STATE** 4. Free State Development Corporation **KWA-ZULU NATAL** 5. Cowslip Investments (Pty) Ltd 6. Ithala Development Finance Corporation 7. Mjindi Farming (Pty) Ltd 8. Mpendle-Ntambanana Agricultural Company (Pty) Ltd 9. Richards Bay Industrial Development Zone **LIMPOPO** 10. Gateway Airport Authority Limited 11. Limpopo Development Corporation

Schedule 2: Major Public Entities	Schedule 3B: National Government Business Enterprises	Schedule 3D: Provincial Government Business Enterprises
16. South African Forestry Company Limited 17. South African Nuclear Energy Corporation Limited 18. South African Post Office Limited 19. Telkom South Africa Limited 20. Trans-Caledon Tunnel Authority 21. Transnet Limited	20. Rand Water 21. South Africa Bureau of Standards 22. Sasria Limited 23. Sedibeng Water 24. Sentech Limited 25. State Diamond Trader 26. Umgeni Water 27. All subsidiaries of the above national Government business enterprises	**MPUMALANGA** 12. Mpumalanga Economic Growth Agency **NORTH WEST** 13. Mafikeng Industrial Development Zone (Pty) Ltd 14. North West Development Corporation 15. Northwest Transport Investments (Pty) Ltd **WESTERN CAPE** 16. Casidra (Pty) Ltd 17. All subsidiaries of any of the above provincial Government enterprises

Source: Adopted from PFMA

The population comprised of supply chain management managers, head of SCM department and SCM executives, who are members of the SOEPF. According to the SOEPF 2017 database, there are 63 SOEs, with 1 050 supply chain managers. The SOEPF was chosen because of their size and the fact that they are amongst the leading professional boards of SCM in South Africa.

5.7.2 Sampling methods

The crucial principle for selecting a sampling method is representation. According to Quilan (2011:209), the concept of representation relates to the degree to which the sample drawn from a population can be said to be representative of the population. There are two sampling methods, namely, probability and nonprobability sampling methods (Van Zyl, 2014:103; Quinlan, 2011:209; Saunders *et al.*, 2012:261).

Nonprobability sampling is defined as “a sampling technique in which units of the sample are selected on the basis of personal judgement or convenience; the probability of any particular member of the population being chosen is unknown” (Zikmund *et a*l., 2012:395).

Nonprobability sampling involves researchers eliciting samples from a large population devoid of requesting random selection (Quilan, 2011:212; Van Zyl, 2014:103). Quinlan (2011:213) identified the following nonprobability sampling techniques: judgemental or purposive sampling, quota sampling, snowball sampling and convenience sampling. In non-probability sampling the participants are chosen based on the researcher’s judgement on what constitutes a representative sample of the population of interest. The distinctive nature of nonprobability sampling is that prejudiced judgements play a role in the selection of the sample, as the researcher decides which divisions of the population to include.

Probability samples are selected in a way that every element of the population has a known, no-zero likelihood of selection (MacDaniels & Gates, 2011:332). In probability sampling, the rules of selection ensure that the researcher can relate the research findings to the entire population from which the sample is to be drawn (Van Zyl, 2014:103). Literature identifies seven types of nonprobability sampling techniques: convenience sampling, quota sampling, purposive sampling, dimensional sampling, snowball sampling, volunteer sampling and theoretical sampling (Cohen, Marion & Morrison, 2013; Quilan, 2011:212).

Sampling is identified as comprising of six types: simple random sampling, systematic sampling, stratified sampling, cluster sampling, stage sampling and multiphase sampling (Cohen *et al.,* 2013:132).

This research used probability sampling, more specifically, the simple random sampling technique. Random sampling provided greater precision to randomly select a small sample size without any bias to the research and to make generalisations about the larger group. A random sampling method was used to draw a smaller sample size of 300 respondents from the larger population of 1 050 members. This was done to randomly select participants within the different classified sectors or industries from the supply chain practitioners on the SOEPF database without any bias to the research and to be able to make generalisations about the larger group.

5.7.3 Sample frame

The sample frame is a list of elements from which the sample is drawn (Cooper & Schindler, 2011:188; Zikmund *et al.*, 2012:391) on a specified procedure for generating such a list (MacDaniels & Gates, 2011:330). A sampling frame is also called the working population (Zikmund *et al.*, 2012:391). According to Wilson (2013:150), the three characteristics of a good sample to be considered are: comprehensiveness, probability of selection and efficiency. The 300 supply chain/procurement managers who are members of the SOEPF in South Africa constitute this study's sampling frame.

5.7.4 Sample size

Sample size is defined as the identified and selected population subset for the survey, chosen because it represents the entire group (McDaniel & Gates, 2010:335). The size of the sample depends on several considerations. The sample size for the research was 300, consisting of supply chain managers in SOEs who are members of SOEPF. The sample size was influenced by the budget availability, rules of thumb and number of sub-groups to be analysed. Due to the complexity of the research, only SOEs who are members of SOEPF were included in the sample.

5.8 DATA COLLECTION METHODS

Data can be described as the facts presented to the researcher (Cooper & Schindler,2015:92). Data collection therefore, is the process used to gather or collect information (Zikmund *et al.,* 2012:55). There are various processes and methods of collecting data. The chosen data collection approach determines how the data will be collected (Cooper & Schindler, 2015:87). The process can only begin once the sampling process has been established and formalised. Various studies rely on different sources of evidence in presenting their arguments and solutions. There are two basic types of data sources in scientific research, the secondary and the primary data sources (Saunders *et al.*, 2012:45). Secondary data involves information that already exists, whilst primary data refers to primary information that is collected for a specific purpose (Wilson, 2013:147; Hair *et al.*, 2014:39; Cant e*t al.*, 2003:48).

The primary data sources are data collected by the researcher for the research at hand (Quinlan, 2011:242). According to Crowther and Lancaster (2009:74), primary data does not exist unless generated through the research process. Primary data is collected through interviews and observations. Primary data for this research was collected over a period of three months by means of an online survey using SurveyMonkey, a free internet-based survey platform. Secondary data includes already existing sources such as textbooks, conference proceedings, journal articles, newspapers, reports, theses and dissertations, Government documents and organisations' websites (Mouton, 2001:71). Secondary data is used in several studies because it can be obtained at a fraction of the cost and time involved in primary data collection (Wilson, 2013:148).

The secondary objectives of this research clearly necessitated a thorough literature study of the topic of SCM in the public sector. Numerous secondary data sources were consulted in the literature study. The main sources included books written by authors specifically on the topics of SCM, relevant articles in journals or accessed from the internet, and supply chain-focused papers delivered at conferences. Other sources included talks and meetings with supply chain practitioners and academics. Each data collection method should fit the research strategy, thus creating a report, significant to indicate and identify the challenge. The nature of the collected data in this research

included the SCM practices in SOEs and the demographic information of the participants.

5.8.1 Cover letter

Cover letters are crucial for the data collection process as they are used to provide the background of the study and to gain permission from the targeted respondents to participate in the study. According to Dillman (2007:6), Chidlow, Ghauri, Yeniyurt and Cavusgil (2015:2), and Bryman *et al.* (2014:194), a cover letter for the questionnaire enhances the response rate. Consequently, the prepared questionnaires for the study had a covering letter attached to them, which served to briefly introduce and clearly define the purpose of the research (Bryman *et al.,* 2014:194). The letter explained the reasons for the research, why was it important and why the recipient was selected. The letter also served as a request for informed consent from the respondents and voluntarily participation.

The significance of the research, the importance of the respondents' assistance, and the assurance of confidentiality, along with anonymity of the responses, are highlighted in the cover letter. The study followed the guidelines provided by Dillman (2007:6) and Bryman *et al.* (2014:194) regarding the contents of a cover letter, and a cover letter was designed to accompany the research questionnaire. To improve the response rate, the cover letter was provided to all the respondents.

5.8.2 The questionnaire design

A questionnaire is defined as "a preformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives" (Zikmund *et al.*, 2012:45). The main purpose of a questionnaire is to obtain information that cannot be easily observed or is not readily available or written. The various types of questionnaires include: mail or self-completion questionnaires, telephone surveys and face-to-face interviews (Quinlan, 2011:220; Saunders *et al.*, 2012:12). As such, a questionnaire is an instrument for gathering survey information, presenting structured, often numerical data, which can be managed without the presence of a researcher, and is typically relatively simple to analyse (Zikmund *et al.*, 2012:46; Quinlan, 2011:220).

When designing a questionnaire, it is important to carefully consider the wording of the questions, the design of the forms, and the instructions related to the questions, to ensure that valid results are obtained. The questions in the questionnaire can be either open-ended or closed-ended. Open-ended questions require more thought and more than a simple one-word answer, and respondents answer in a way that suits their interpretation of the question. Closed questions are questions that either allow only a yes or no answer, or they are questions for which a researcher provides the respondents with options from which to choose a response. Closed questions will be used for this research as they are cheaper to use, easily analysed and permit comparability between people's answers (May, 2011: 111).

A structured questionnaire, based on the previous studies relevant to this research, was designed. The questions in the questionnaire were based on the following constructs: SOE corporate and supply chain strategy (8 items), SCM practices (47 items), SCM Government policies and regulations (20 items) and SCM performance (7 items). All the items were measured on a 5-point Likert-type scale that were rated from 1=strongly disagree to 5=strongly agree.

The questionnaire, containing 97 items, comprised of six sections:

- Section A collected the respondents' demographic information. The questions in this section were aimed at obtaining some biographical information from the respondents and also general information regarding the entities.
- Section B: This section contained eight statements regarding the success factors of the implementation of SCM strategies in SOEs.
- Section C: The aim of this section was to determine the extent of the SOE's compliance to Government policies and regulations. The section contained 20 statements.
- Section D: This section contained forty-seven 47 statements aimed at determining the implementation of SCM practices in SOEs.
- Section E: The section contained seven statements regarding the key indicators for SCM performance.
- Section F: The aim of the section was to determine SCM challenges in SOEs.

This study utilised a survey questionnaire as the primary data collection instrument.

5.8.3 Measurement and scaling

According to Aaker *et al.* (2011:247),

> *"measurement is a standardised process of assigning numbers or other symbols to certain characteristics of the objects of interest, according to pre-specified rules. Scaling is the process of creating a continuum on which objects are located according to the amount of the measured characteristics they possess".*

Bryman *et al.* (2014:33) identified three characteristics of measurement as follows: it allows the researcher to quantify fine differences in magnitude relating to the concept in question, measurement also provides a consistent yardstick or device for making such distinctions and gauging differences, and lastly, it provides a basis for more precise estimations of the extent of the relationship between concepts.

Lengthy words, leading and complex (or vague) questions must be avoided (Kent, 2007:161). Measurement, in research, comprises assigning numbers to empirical events, objects or properties or activities in compliance with a set of rules. The goal of measurement is to provide the highest-quality, lowest error data for testing the hypothesis, estimation or prediction.

The measurement scales that were used in this study for each section of the assessment instrument (for each phase of SCM) are presented in Table 5.5.

Table 5.5: Assessment instrument

Types of scale	Characteristics of data	Section
Nominal	Classification (mutually exclusive and collectively exhaustive categories), but no order, distance or natural origin	Section A: Demographics Section B: Corporate and supply chain strategy Section C: Supply chain practices
Ordinal	Classification and order, but no distance or natural origin	Section D: Government and SCM policies and regulations
Interval	Classification, order and distance but no natural origin	Section D: Government and SCM policies and regulations

Source: Researcher's own compilation

Supply chain practitioners who are not active SOEPF members, although the details of their SOEs are contained on the SOEPF database, were considered in the pilot test administered by the SOEPF. The collected data was analysed to assess the practicality of data collection and analysis plan. The purpose of the pilot test was to refine the questionnaire so that respondents would have no problems in answering the questions and to identify any possible problems in recording the data (Saunders *et al.*, 2012:451). The research encountered no problems in the pilot testing of the questionnaire.

5.9 DATA PREPARATION

Before analysing the collected data, certain checks related to the legitimacy of the data have to be conducted. Trochim (2006:115) advises that data must first be screened for accuracy, which will enable the researcher to identify errors. The collected data was coded in an Excel spread sheet before analysis. Data description is a typical first step in any data analysis (Diamantpoulos & Schegelmich, 2005:114). To gain comprehension of the attributes of each variable, a descriptive statistics analysis was utilised.

Literature review indicates that the raw data obtained through data collection must be cleansed before they can be analysed using statistical techniques. The data preparation process involves first editing of data, coding responses into categories and tabulating responses into frequencies or tables (Aaker *et al.*, 2011:356, Hair *et al.,* 2014:78). Based on the above, editing and coding are the two main crucial elements of data preparation.

5.9.1 Editing the data

Editing of data involves a process of ensuring that the questionnaires were completed properly, and all questions were answered. Editing therefore, entails a comprehensive and serious investigation of the completed questionnaires to ensure that the criteria was complied with and that it is accurate and usable (McDaniel & Gates, 2005; Aaker *et al.,*2011:25).

5.9.2 Coding

Coding process involves of categorising of data and assignment of numeric codes or symbols to the responses (McDaniel & Gates, 2005:321, Cooper & Schindler (2011:491). Data can be coded into various forms such as abbreviations, coloured dots or numbers. In this study, numbers were used for coding. For the statements that were measured using Likert scale, coding was done from one (1) to five (5).

5.9.3 Data screening

Data screening process is the third stage of data preparations process. The data was screened to ensure that is presentable for further statistical analysis (Cooper & Schindler,2011:400). The screening process provides characteristics of the data. The data screening process include verification of the questionnaire, editing, coding and tabulation of the data. As indicated under 5.9.2, the data was coded with an identification number related to a specific questionnaire. Using SPSS, each item was run through a frequency analysis. The ethical issues were also considered to ensure reliability and adherence to ethical standards.

5.10 DATA ANALYSIS METHODS

Data analysis is a mechanism for reducing and organising data to produce findings that require interpretation by the researcher (Quinlan, 2011:365). The data collected for this research was analysed and interpreted by the researcher, and this process is discussed in this section of the thesis.

As this research used a quantitative approach, the data analysis was descriptive. Histograms and pie charts were also plotted for descriptive purposes. The questionnaire used Likert scales, which made it possible to determine the mode, proportions and spread for each of the questions (variables).

Analytical statistics were used to assess the relationship between the achievement of excellent supply chain practices, as the outcome of interest, and the factors that could influence firms in the achievement of it, as the independent variable.

Figure 5.3 below provides an overview of the data analysis methods used for this study.

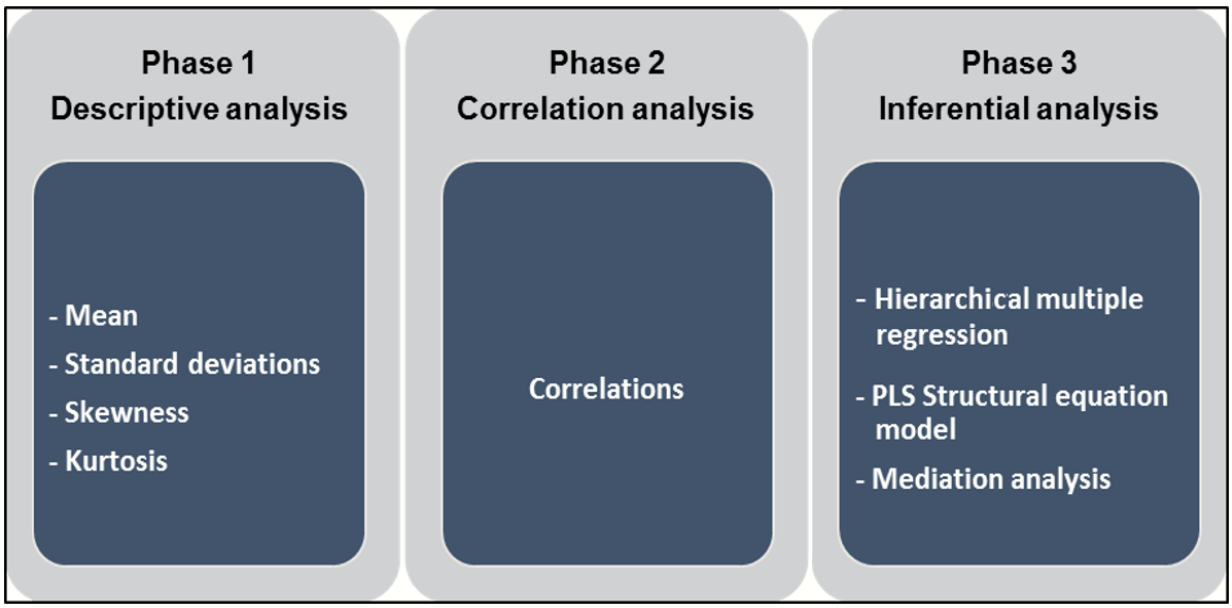

Table 5.6: Data analysis methods

Source: Researcher's own compilation

5.10.1 Descriptive analysis

Descriptive statistics define the characteristics of a set of scores (Salkind, 2012) and it assists researchers to understand and summarise the data (Adams, Khan, Raeside & White, 2012). The means and standard deviations for supply chain strategy, SCM policies and regulations, SCM practices, SCM challenges, and SCM performance were determined in the empirical study (Saunders *et al.,* 2012:507).

- **Mean.** The mean (M) is perceived as the sum of all the scores divided by the number of scores across the distribution (Cohen *et al.,* 2013). The intended mean is used to compute the score averages, obtained in the various dimensions of the instruments (Cohen *et al.*, 2013).
- **Standard deviations.** Standard deviations were also applied. The standard deviation is referred to as a measure of the dispersal, or range of scores, calculated as the square root of the variance. (Cohen *et al.,* 2013:507). Krieg (2012:118) describes the standard deviation as the square root of the mathematical average of the sum of squared deviations from the mean. Tredoux and Durrheim (2013) assert that standard deviation (SD) and minimum and maximum values are used to describe the spread of the results around the mean. A low SD indicates that the scores cluster together, while a high SD indicates that the scores are widely dispersed (Cohen *et al.,* 2013:507).

- **Skewness and kurtosis.** The skewness and the kurtosis are used in the study. **Skewness** refers to a measure of symmetry or lack of symmetry (Cohen *et al.,* 2013:504). A set of data is categorised as symmetrical if its centre-most point is lying in the middle of the distribution, and the distribution of scores to the left and the right of the centre-most point are mirror images of each other (Hair *et al.,* 2014:34). Asymmetrical distribution may be positively or negatively skewed. The distribution is positively skewed if most of the sample scores are in the lower range of the variable. Conversely, it is negatively skewed if most of the scores are in the upper range of the variable (Hair *et al.,* 2014:34). **Kurtosis** refers to a measure of whether the data is peaked or flat in relation to a normal distribution. Skewness and kurtosis values ranging between the -1 and +1 normal range are recommended for conducting parametric tests (Cohen *et al.*, 2013:504; Hair *et al.,* 2014:34).

5.10.2 Correlational analysis

The researcher used the Pearson correlation coefficient to estimate the relationship between each variable and the effectiveness of the implementation of SCM at SOEs. Pearson's correlation is a measure of the strength of the association between two variables (Van Zyl, 2014:204). Pearson's correlation coefficient *r* can range from -1 to 1. An *r* of -1 indicates a perfect negative linear relationship between the variables and an *r* of 1 (one) indicates a perfect positive relationship between the variables (Cohen *et al.,* 2013:530; Van Zyl, 2014:204).

The study used the Guilford's informal interpretation of magnitude of *r,* as listed in Table 5.7.

Table 5.7: Guilford's informal interpretation of the magnitude of r

Value of r (+ or -)	Informal interpretation
<0.2	Slight; almost no relationship
0.2 - 0.4	Low correlation; definite but small relationship
0.4 -0.7	Moderate correlation, substantial relationship
0.7-09	High correlation; strong relationship
0.9 -1.0	Very high correlation, very dependable relationship

Source: Adapted from Tredoux and Durrheim (2013:184)

Correlation statistics tests the direction of the strength of the relationship between two or more variables, and the strength of this relationship is represented by a correlation coefficient (Tredoux & Durrheim, 2013:185; Cohen *et al.,* 2013:530; Maree, 2016:264). The Pearson product moment (*r*) is typically used to describe the strength of the linear relationship between supply chain strategy, SCM policies and regulations and SCM practices with the SCM performance of SOEs.

5.10.3 Hierarchical multiple regression analysis

As discussed in the previous section, the correlation analysis was conducted to check the associations between the independent variables, and the associations between the independent variables and the dependent variable. Following the correlation analysis, hierarchical multiple regressions were performed to determine the proportion of variance explained by the independent variable, SCM performance, in the scores of the dependent variables, namely, supply chain strategy, SCM policies and regulations, and SCM practices. According to Cohen *et al.* (2013:539) and Hair *et al.* (2014:10), multiple regression enables us to predict and weigh the relationship between two or more explanatory - independent - variables and an explained - dependent - variable.

The procedure is used to shape models for explaining the scores of the dependent variable in relation to the scores of the independent variables (Tredoux & Durrheim, 2013:184). The first step was to test for multicollinearity problems amongst the independent variables. The second step was to test the associations between the dependent variable and the independent variables. In correlation analysis, the values of multiple correlation coefficients (r) range between -1 and +1. A perfect positive association is reflected as +1, and a perfect negative association is reflected as a correlation of -1. The absence of an association produces a correlation close to zero. As a result, the coefficient value between the variables should not be more than 0.4.

Multiple regression analysis results emphasise two important elements. Firstly, the R^2 values indicate how well the independent variable explains the dependent variable, and secondly, the regression results measure the direction and size (magnitude) of the effect of each variable on a dependent variable (Cohen *et al.*, 2013:539).

In this study, hierarchical multiple regressions were performed, step-by-step, to determine the independent contribution of each set of predictor variables on the

criterion variable, over and above, the effect of the other independent variables entered first. Each set of independent predicting variables are relevant for the model if they significantly increase the variance (ΔR^2).

In the present study, a three-step model was adopted. This approach enables the researcher to examine the contribution of each independent variable to the regression model (Hair *et al.,* 2014:205). Each variable was considered for inclusion prior to developing the equation. The independent variable with the greatest contribution was added first. The independent variables were then selected for inclusion, based on their incremental contribution over the variable(s) already in the equation.

5.10.4 Structural model

To empirically examine the hypotheses of the research, a Partial Least Squares (PLS) analysis was employed. The Smart PLS structural model is a combination of path analysis, regression analysis, and principal component analysis techniques to evaluate theory simultaneously (Vinzi, Trinchera & Amato, 2010:47).

The evaluation of the model followed a two-step approach. The first stage (1) evaluated the measurement model by investigating the reliability and the convergent and discriminant validity of the constructs. The second stage (2) involved evaluating the structural model by testing the significance of the relationship between the model constructs (Chin, 2010).

5.10.4.1 Measurement results model

PLS does not provide goodness-of-fit statistics as is done by covariance-based structural equation models. Instead, it determines fit with measures of reliability. The internal consistency reliability measures used for the reflective measurement are composite reliability (CR), convergent reliability, and discriminant reliability which assist to confirm the suitability of the construct indicators.

The measurement model was examined based on the reliability and validity of the constructs of the model. Reliability is the degree to which the instrument consistently measures what it is supposed to measure (Dusick, 2011). There are several approaches and tests that can be used to measure the reliability of measures, the study employed the Cronbach's Alpha (α), Composite Reliability Coefficient (CR) (>0.7) and AVE (average variance extracted) to test the measurement reliability (Table

5.8). Each of the reliability measures are briefly discussed in the section below the table.

Table 5.8: Summary of the reliability measures

Reliability measure	Description	Acceptable fit
Cronbach's alpha coefficient (α)	Measures the indicators' uni-dimensionality (inter-correlation) with their latent construct.	Value > 0.6 (Hair *et al.*, 2014) and value > 0.8 or 0.9 is better (Nunnally & Bernsein, 1994)
CR	Is a measure of internal consistency and is calculated by the formula CRη= (Σλyi)2/[(Σλyi)2+ (Σεi)], where CRη = Composite Reliability, (Σλyi)2= square of the summation of the factor loadings; (Σεi)= summation of error variances.	Value > 0.7 (Hair *et al.*, 2014; Bagozzi and Yi, 1991)
AVE	The AVE values in this study were manually calculated using a formula suggested by Hair *et al.* (2014:17) as follows: Vη= (Σλy2i)/[(Σλy2i)+ (Σεi)], where Vη= AVE; Σλy2i= Summation of the squared factor loadings; Σεi= Summation of error variances.	>0.4 and above

Source: Researcher's own compilation

- ***Cronbach's Alpha Coefficient (α)***

The Cronbach's Alpha Coefficient, also known as the coefficient alpha, is an internal consistency measurement index used to evaluate the extent to which several measurement items measure the same latent variable (Baarda, De Goede & Van Dijkum, 2004:71). According to Iacobucci and Churchill (2010:259) the Cronbach Alpha Coefficient α is one of the most known and used internal consistency techniques for establishing the mean reliability coefficient for all possible ways of splitting a set of items in half.

The Cronbach's Alpha Coefficient values can range from 0.00 to 1.00, and signify the level of internal homogeneity in the measurement items. An α value of 0.00 indicates a complete lack of similarities amongst the measurement items that are used to measure a latent variable. Conversely, an α value of 1.00 means that there

is total homogeneity amongst the latent variable's measurement items. In other words, the closer the α value is to 1, the higher the level of reliability. Where the α value is low, there may be little homogeneity amongst the measurement items due to too few measurement items. There are no fixed rules for assessing the magnitude of reliability coefficients and it depends mostly on the purpose of the study in question (Iacobucci & Churchill, 2010:259). This study computed the coefficient α values for the four latent variables using the reliability procedure in the SPSS (version 21) software. The standardised Cronbach's Coefficient Alpha was used to assess the internal reliability of each latent variable in this study. A higher level of Cronbach's Coefficient Alpha (particularly closer to 1) indicates a higher level of reliability in the measurement item. The study also used the higher item-total correlations to complement the Cronbach's Coefficient Alpha in showing statistical agreement amongst the measured items.

- ***Composite reliability (CR)***

The internal reliability of a measurement model (besides the item-to-total values and the Cronbach's Alpha) can also be measured using a CR index. The CR estimates the "reliability based on the inter-correlations of the observed indicator variables" (Hair *et al.*, 2014:101). The index is manually calculated using a formula from Hair *et al.* (2014:22) as follows: (CR): $CR\eta = (\Sigma\lambda yi)^2/[(\Sigma\lambda yi)^2 + (\Sigma\varepsilon i)]$, where $CR\eta$ = Composite Reliability, $(\Sigma\lambda yi)^2$= square of the summation of the factor loadings; $(\Sigma\varepsilon i)$= summation of error variances. The calculated CR coefficient is then compared with the Cronbach's α and must show some similarities with it. The recommended threshold value for CR should be 0.7 or above (Hair *et al.*, 2014:22). As noted earlier, the research uses CR tests to assess the internal reliability of each research latent variable. Previous evidence (Nunnally & Bernstein, 1994:23; Hair *et al.*, 2014:55) contend that a CR coefficient exceeding 0.7 indicates a satisfactory level of internal reliability of a variable.

- ***Average variance extracted (AVE)***

The AVE "calculates the grand mean value of the squared loadings of the indicators" (Hair *et al.*, 2014:103). An AVE of 0.40 or higher is considered acceptable because it is deemed to explain more than half of the variance. An AVE of less than 0.40 is insignificant and suggests that there are more significant errors

in the items not yet explained. An AVE value of at least 0.4 indicates sufficient convergent validity, meaning that a latent variable can explain more than half of the variance of its indicators on average. The AVE as described by Kline (2005:47), is an estimate that indicates the total amount of variance in the measurement items used to measure a latent variable.

Higher AVE values of greater than 0.4 are said to show an adequate representation of a latent variable by its measurement items. An AVE, as originally proposed by Fornell and Larcker (1981), attempts to measure the amount of variance that a construct captures from its measuring items relative to the amount due to measurement error. The AVE values in this study were manually calculated using a formula suggested by Hair *et al.* (2014:17) as follows: $V\eta = (\Sigma\lambda y2i)/[(\Sigma\lambda y2i) + (\Sigma\varepsilon i)]$; where $V\eta$= AVE; $\Sigma\lambda y2i$= Summation of the squared factor loadings; $\Sigma\varepsilon i$= Summation of error variances.

5.10.4.2 Validity

Validity tests are done to identify whether an instrument or measurement tool performed its intended measurement function (Hair *et al.,* 2014:96). Validity can also be best described as the degree to which the results obtained from the analysis of the data represent the phenomenon. Ways of establishing validity are: face validity, construct validity, predictive validity, convergent validity and discriminant validity.

The research study validates whether both the convergent and discriminant validity of the research constructs are meeting the required threshold (Bryman *et al.,* 2014:39).

Discriminant validity was assessed using the inter-construct correlation matrix and comparing the research constructs AVE and their shared variance (SV). As for convergent validity, the item-total correlation values and factor loading was used for the purpose. Table 5.9 provides a summary of the validity measures.

Table 5.9: Validity measures

Validity measure	Descriptions	Threshold
Construct validity	This is the degree to which two conceptually similar concepts are distinct (Hair *et al.*, 2014). It ensures that each latent variable shares more variance with its own block of indicators than with another latent variable.	√AVE>latent variable correlation (Fornell & Larcker, 1981)
Convergent validity	This is the degree to which two measures of the same concepts are correlated. It is demonstrated by the uni-dimensionality using AVE= (Σλi2) var F/ (Σλi2) var F+ Σ0u, where F and 0u are the factor loadings, factor variance, and error variance respectively (Fornell & Larcker, 1981).	>0.5 (Fornell & Larcker, 1981)

Source: Researcher

The following section provides an overview of each validity measure.

- ***Construct validity***

Construct validity refers to the degree to which a test or other measure assesses the underlying theoretical construct it is supposed to measure (Sekeran, 2012:173; Tredoux & Durrheim, 2013:218), and it requires a compilation of multiple sources of evidence (Bryman *et al.,* 2014: 39). Construct validity asks the question: Does the instrument tap the concept as theorised? Construct validity can be assessed in two ways, through convergent and discriminant validity, discussed in the following section.

- ***Convergent validity***

Convergent validity ascertains construct validity through comparing the scale with measure of an allied construct (Tredoux & Durrheim, 2013:218). According to Bryman *et al.* (2014:39), the validity of a measure should be gauged by comparing it to other measures of the same concept. According to Sekeran (2012), convergent validity is established when two different instruments measuring the same concepts are highly correlated. Convergent validity asks the question: Do two instruments measuring the concept correlate highly? In this study, convergent was measured by assessing whether the individual measurement item loadings for each corresponding research latent variable exceeded the recommended threshold

value of 0.5. The measurement items with factor loadings of less 0.5 were deleted, as they accounted for less than half (50%) of the measured latent variable.

- ***Discriminant validity***

According to Diamantopolous and Schlegelmilch (2005:35), discriminant validity can be described as the extent to which a measure is not related to other measures of different concepts with which no theoretical relationships are expected. Discriminant validity is established when, based on theory, two variables are predicted to be uncorrelated, and the scores obtained by measuring them are indeed empirically found to be so (Bryman *et al.,* 2014:39; Sekaran, 2012:173). The study applied the AVE values of <1, the pair-wise correlation matrix coefficients <1 and comparison of the AVE values against the highest SV.

Discriminant validity requires that where the research variables are unrelated, their pair-wise correlation values should be less than one (1.0). According to (Gatignon, 2014:83) a correlation value between the variables of less than 0.7, is adequate to confirm the existence of discriminant validity.

5.10.4.3 Structural model results

After the construct measured was found to be reliable and valid, the next step is to assess the PLS-SEM results. Therefore, the second (2) stage evaluates the structural model by testing the significance of the relationships between the model constructs. Prior to surmising the path coefficients, the structural model for collinearity was explored, which was pertinent, because the estimation of the path coefficients was based on ordinary least squares regressions (Ringle, Sarstedt & Mooi, 2010). The first step involves the examination of the structural model for collinearity, the second step is involved with the crucial criteria considered for assessing the structural model in the significance of the path coefficients, the final step (step 3) is involved with the level of r^2 values.

The standardised path coefficients are expected to be at least 0.2, and preferably greater than 0.3. The essential criteria used for the assessment of the structural model in this study were: coefficient of determination (r^2) for endogenous variable, estimation of path coefficient (β), effect size (f^2), and prediction relevance (q^2) (Chin 2010, Henseller, Ringle & Sonovics., 2009; Tenenhause,Amato and Espisito, 2004).

5.10.4.4 Collinearity assessment

The first stage was to examine the collinearity between the constructs of supply chain strategy, SCM practices, and Government supply chain policies and regulations, as these served as exogenous constructs in predicting supply chain performance. The variance inflation factor (VIF) values of this analysis were 1.000, indicating that the structural model outcomes were not affected by the collinearity.

Blindfolding was also used to evaluate the model's predictive accuracy for each of the endogenous constructs. Running the blindfolding procedure with an omission distance of 7, yielded cross-validation redundancy values well above zero (0) for both endogenous constructs, providing support for the model's predictive accuracy or relevance.

5.10.4.5 Path coefficients (β)

In the second step the inner model was considered. Path estimation (β): The path coefficients have standardised values between -1 and + 1. Estimated path coefficients close to+ 1 represent strong positive relationships (and vice versa for negative values), almost always statistically significant (different from zero in the population) (Cohen *et al.,* 2013:171). The closer the estimated coefficients are to 0, the weaker the relationships. Very low values close to zero are usually nonsignificant (not significantly different from zero). Whether a coefficient is significant ultimately depends on its standard error, obtained by means of bootstrapping (Hair *et al.,* 2014:171).

The significance of regression coefficient β is based on t-value, which was obtained using PLS Bootstrap process. The bootstrapping procedure was applied to assess whether a formative indicator for significance contributed to its corresponding constructs (Hair *et al.,* 2014:171). As the final step, the significance and relevance of the structural model associations were assessed.

5.10.4.6 Coefficient of determination (R^2)

The R^2 value indicates the amount of variance in dependent variables, explained by the independent variables. Thus, a larger R^2 value increases the predictive ability of the structural model. In this study, the SmartPLS algorithm function is used to obtain the R^2 values, whilst the SmartPLS bootstrapping function is used to generate the t-statistics values.

It is difficult to provide rules of thumb for acceptable R^2 values, as this depends on the model complexity and the research discipline. Whereas R^2 values of 0.20 are considered high in disciplines such as consumer behaviour, in success driver studies (such as studies that aim to explain customer satisfaction or loyalty), researchers expect much higher values of 0.75 and above. In scholarly research that focuses on marketing issues, R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables can, as a rough rule of thumb, be respectively described as substantial, moderate, or weak (Hair *et al.*, 2014).

5.10.4.7 Mediation analysis (f^2)

This research also employed SmartPLS to analyse mediation effects. The mediating effects examine the relationship between the independent variables and the dependent variable and the mediating construct. The goal of using the SmartPLS for this research is not only to identify the significant path coefficient in the structural model but also its implications on direct and indirect effects. According to (Hair *et al.,* 2014:223), certain important conditions for this mediation to be considered include:

- The independent variable must reveal significant variation in the assumed mediation;
- The mediation must reveal measurable influence on the dependent variable; and
- A controlled effect on the path of the mediator should influence the dependent and independent variables.

The goal of the mediating analysis is to establish a theoretical indirect relationship between the paths and the constructs (Hair *et al.,* 2014:223). This is done by determining the degree to which indirect effects through the mediating variables modify the direct hypothesised paths.

The results of the mediating effects (Figure 5.3) showed the relevancy of the complexity interaction (collectivist dynamics) construct in explaining creativity as mediated by stimulant new thinking (entity based). According to Baron and Kenny (20101:1), a mediating factor refers to a third variable that accounts for the relations between the independent (predictor) and dependent (outcome) variables. A mediator is the mechanism through which a predictor influences an outcome variable.

When analysing a mediation relationship, Baron and Kenny's (1986:1) guideline is the most common method used by previous researchers. These authors outlined four guidelines to show that the mediating relationship exists between a predictor and an outcome variable. Figure 5.3 is used to illustrate Baron and Kenny's (1986:1) guideline.

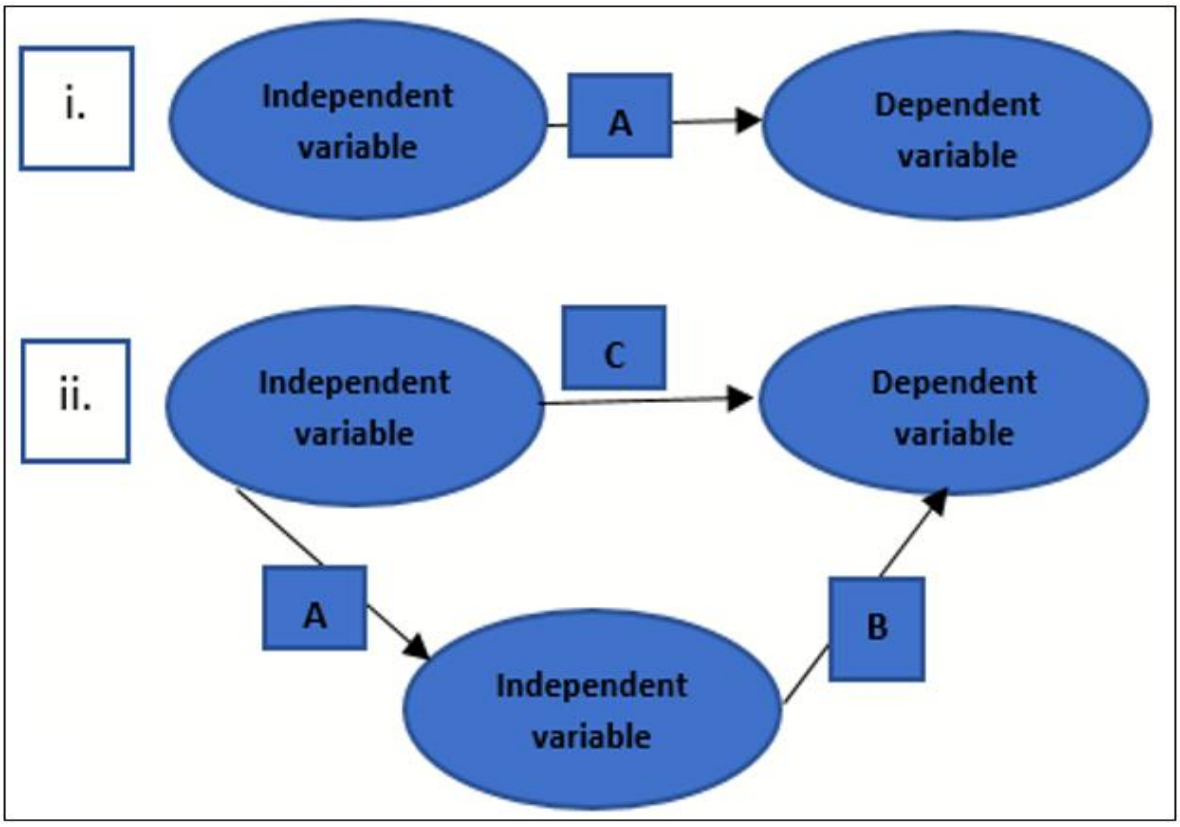

Figure 5.3: Steps of mediation analysis

Source: Adopted from: Baron and Kenny (1986)

- Step 1: Shows that the causal variable is correlated with the outcome. This step establishes that there is an effect that may be mediated. Path A in the above model (i) is called the total effect.
- Step 2: Shows that the causal variable is correlated with the mediator. This step essentially involves treating the mediator as if it were an outcome variable.
- Step 3: Shows that the mediator affects the outcome variable. It is not sufficient just to correlate the mediator with the outcome because the mediator and the outcome may be correlated as they are both caused by the causal variable. Thus, the causal variable must be controlled in establishing the effect of the mediator on the outcome.

- Step 4: To establish that C completely mediates the independent variable-dependent relationship. The effects in both Steps 3 and 4 are estimated in the same equation.

After all four guidelines are met, it indicates that the relation between predictor and outcome variables is mediated fully by a mediator variable (Kenny, Kashy & Bolger, 1998). If just the first three steps were met, it indicates that the relationship between predictor and outcome variable is mediated partially. After the relationship between mediator, predictor and outcome has been demonstrated, the significance of mediated effect needs to be evaluated.

5.11 CONCLUSION

This chapter discusses the philosophical position of the study. It also includes the methods of analysis and the form of survey developed for this study. The measurement issues are identified, and PLS-SEM is introduced as a data analysis technique. The method used to develop the research instrument are explained in this chapter. The discussions on how the questionnaire is structured, formatted and administered are included. Finally, the preliminary details of the actual survey are also reported. The following chapter describes the findings concerning both the measurement and structural model.

CHAPTER 6:
DATA ANALYSIS AND INTERPRETATION OF RESULTS

6.1 INTRODUCTION

The previous chapter (Chapter 5) provided details related to the research philosophies, methods and design, as well as with the sampling design, data collection methods and data analysis methods. The population of this study comprised of supply chain managers who are responsible for SCM in SOEs. This chapter (Chapter 6) presents data analysis and interpretation of results. The results of the empirical research are presented in the form of tables and figures. The results for the demographic profiles of the respondents are presented first. The responses for the demographic profiles were analysed using frequency distribution utilising graphical methods such as pie charts and bar charts. After the construction, a frequency distribution, numerical measures were used to determine the central location and variability of interval data.

The key variables, namely, supply chain strategy, SCM practices, SCM policies and regulations, and SCM performance were analysed using the mean, standard deviation, skewness and kurtosis. To determine the linear relationships between variables, a Pearson correlation coefficient analysis was applied. This was done to ensure that there is minimal collinearity. Hierarchical regression was used to determine the relationship between the independent and dependent variables. To maximise the prediction, a hierarchical regression was used to analyse the relationship between the dependent and independent variables, and the PLS Structural Equation Modelling was discussed. For measuring reliability, the Cronbach's Alpha, the CR and AVE were used. The results were interpreted and integrated with the literature review. SPSS version 21.0 was used to statistically analyse and provide the descriptive analysis results (in the form of graphs and tables) and Smart PLS 2.0 M3 was used for Structural Equation Modelling.

6.2 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

This section presents the responses for the questions related to the demographic profiles of the respondents (Section A in the questionnaire). The respondents were asked to indicate their position within SCM, their educational level, their years of experience in SCM and the category of SOE they represent. As indicated in Chapter 5, the questionnaire was administered to all senior SCM management from SOEs affiliated with the SOEPF. The data received was analysed and presented in the form of histograms and or bar charts (Figures 6.1, 6.2, 6.3, 6.4 and 6.5).

6.2.1 Distribution of the position within supply chain management

The respondents were asked to state their position or title in the SOE for which they work. The study sought to determine the level of standardisation of position names at various SOEs. Figure 6.1 presents the distribution of the respondents per position in percentages.

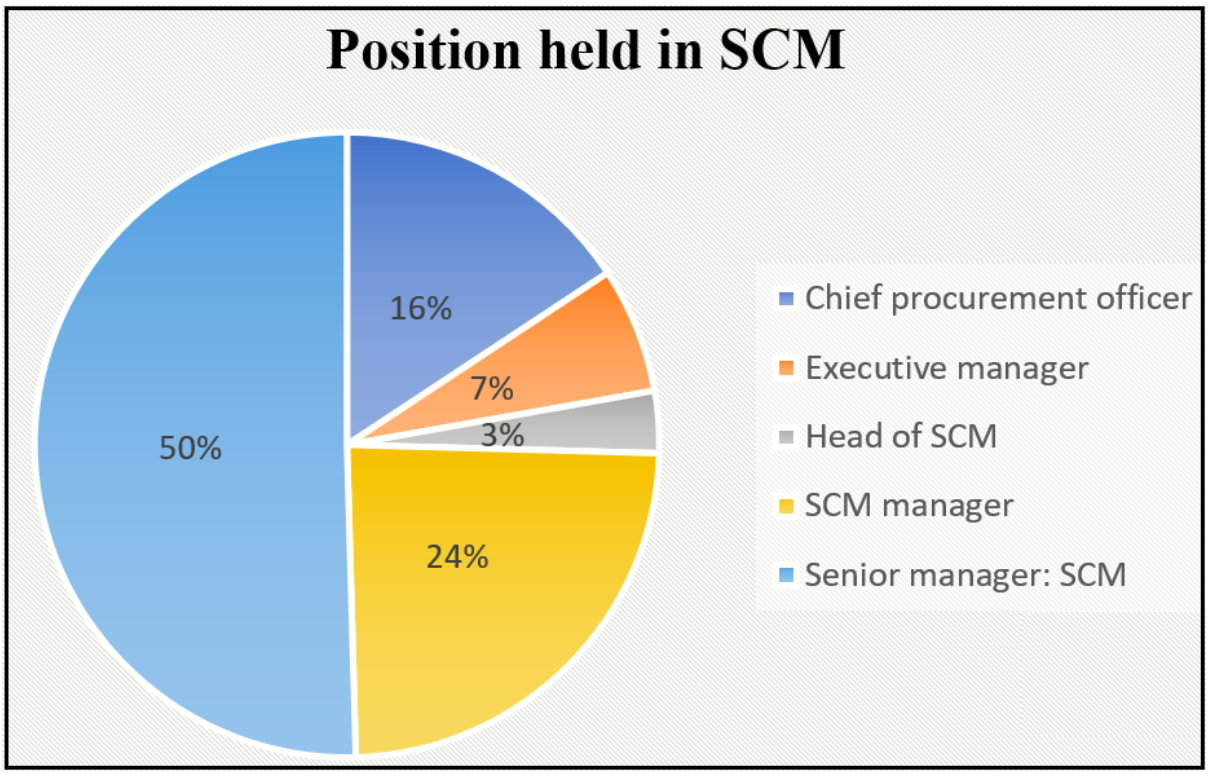

Figure 6.1: Distribution of the respondents per position within the supply chain management (N = 216)

Source: Research data (2018)

The results reveal that 50% of the respondents were Senior Supply Chain Managers, followed by 24% supply chain managers, 16% Chief Procurement Officer, 7% held Executive Manager positions, and 3% were in the head of SCM position. These results reveal that most senior manager in SCM are addressed by several titles in SOEs. SOEs such as Transnet, Denel, Telkom, Eskom and Passenger Rail Agency of South Africa (PRASA) have the Chief Procurement Officer as the highest SCM position at their organisation. Whereas other SOEs, such as Special Investigation Unit (SIU) and Council for Scientific and Industrial Research (CSIR) referred to the highest SCM position as Senior Manager SCM. The executive manager SCM title is also widely used to refer to the head of SCM for a divisional entity within an organisation, and this position name is commonly used at Transnet, Eskom and Denel for divisional head of SCM positions.

Regional SCM managers were also considered due to the seniority and level of their positions. The title of Regional manager SCM was found in SOEs that operate in more than one province. The results therefore reveal that there is no uniformity of position names in SOEs. The position title in an organisation is the determining factor to indicate to shareholders outside the organisation that the incumbent is authorised to act as a company representative, on behalf of the employer on his or her capacity as a manager or any other specified designation.

6.2.2 Distribution of the educational level

The respondents were asked to indicate their level of education, with options ranging from matric to doctorate degree. This question was meant to test the education level of the supply chain managers in SOEs.

Figure 6.2 below indicates the distribution of the participants per educational level.

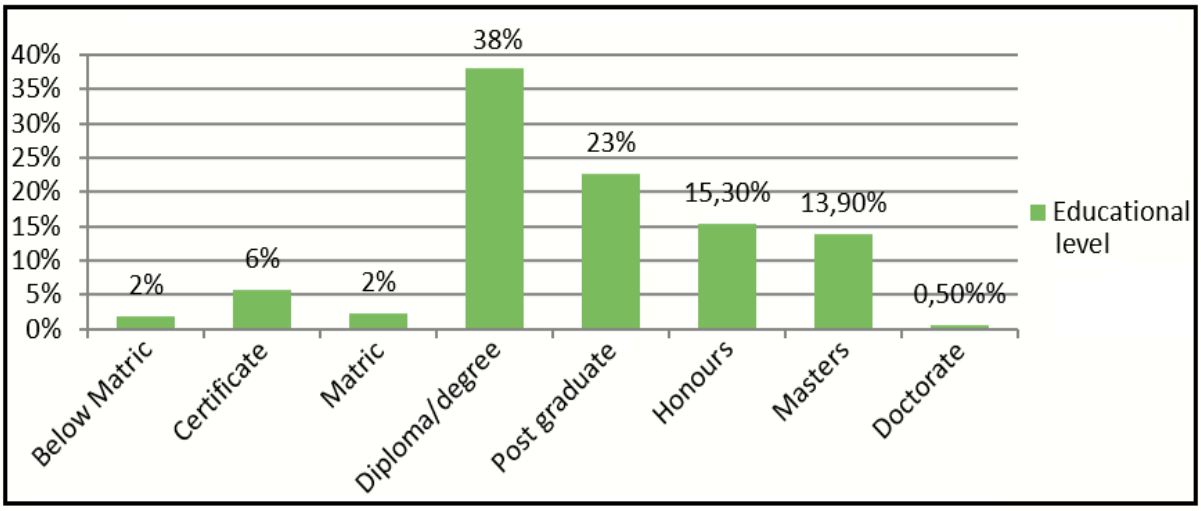

Figure 6.2: Distribution of respondents per educational level (N=216)

Source: Research data (2018)

The findings of the study reveal that more than a third (38.0%) of the respondents have a degree or diploma, while more than a quarter (22.7%) have a post-graduate diploma, followed by those with an honours degree (15.3%). There were 13.9% with master's degrees, while there were only a few (0.5%) with doctoral degrees. The respondents with national certificates made up 5.6%, and only a few (1.9%) of the respondents had qualifications below matric.

These findings reveal that the educational qualifications of respondents in SOEs follow a normal distribution pattern, dominated by first-degree holders. This implies that the distribution of the qualification variable is symmetrical and bell-shaped (Keller, 2012:37). The results indicate a certain level of compliance by SOEs to the National Treasury's basic requirements of a grade 12 certificate plus a national diploma or B degree as a prerequisite, and a master's degree, as an added advantage for occupying a managerial role in SCM. However, 38% is considered low considering the magnitude of the work that SOE SCM practitioners must deal with. These results further indicate a gap in the market.

6.2.3 Distribution of respondents per years of experience in supply chain management

The respondents' years of service in SCM were measured according to categories, ranging from 1 to 2 years, 3 to 5 years, and over 5 years. Figure 6.3 below indicates the distribution of the participants per years of experience.

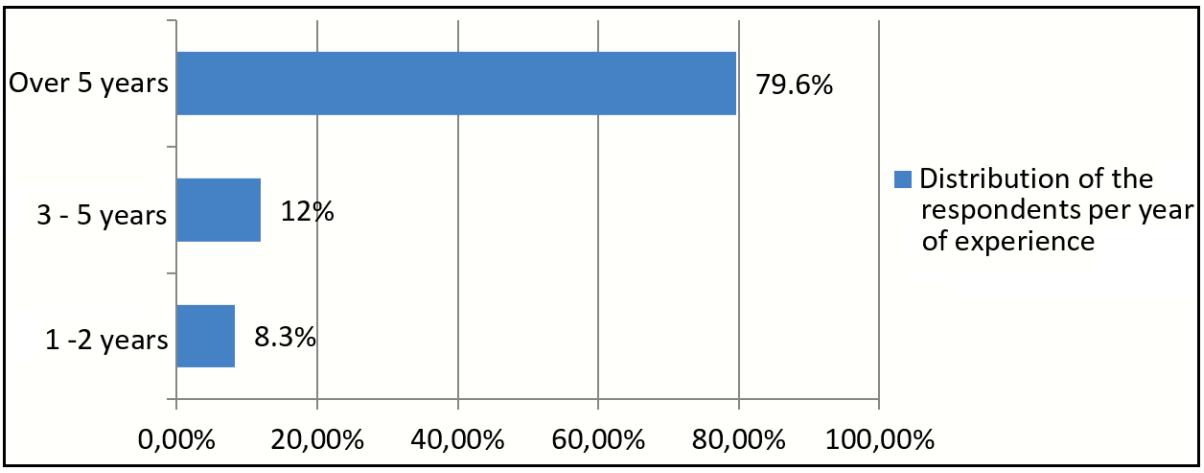

Figure 6.3: Distribution of respondents per years of experiences (N=216)

Source: Research data (2018)

The frequency seemed to be concentrated around over 5 years of experience (79.6%). This was followed by respondents with 3 to 5 years' tenure (12.0%), lastly those between 1 and 2 years at 8.3%. The results reveal that most of the respondents (79,5%) have more than 5 years' working experience in SCM. It can be concluded that there are seasoned managers in the SCM profession, thus they could respond to SCM-related questions in SOEs. Experience of 5 years or more in an industry is enough for one to acquire knowledge and understanding of SCM from a management point of view.

6.2.4 Distribution of the category of state-owned entity

The respondents were asked to indicate the category of the SOE they work for. The options that were provided to the participants included Schedule 2, 3B and 3D or other. Figure 6.4 below indicates the distribution of the participants per category of SOE.

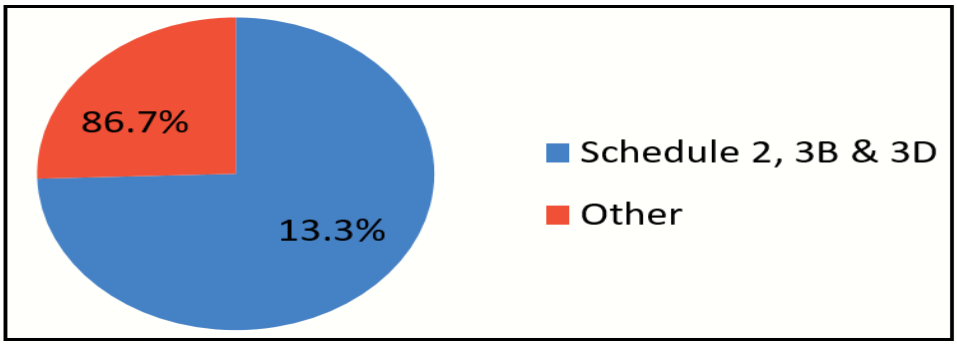

Figure 6.4: Distribution of respondents per category of state-owned entity (N=216)

Source: Research data (2018)

Most of the respondents fell under the category of SOE schedule 2, 3B and 3D (74.5%), followed by another category (25.5%). The results further revealed that the majority (86.7%%) of the respondents were from Schedule 2 (major public entities), 3B (national Government business enterprises) and 3D (Provincial Government business enterprises) SOEs, and the remainder (13.3%) were from other SOEs.

The major entities are listed in Schedule 2 (National Treasury, 2013), and are regarded as the highest contributing entities towards GDP of South Africa, for example, in 2016 it was reported that these entities contributed 8% to GDP (PRC, 2015:50). This is supported by Forstas (2010:55) whose results indicated the SOEs play a critical role in promoting economic growth and deepening industrialisation.

6.2.5 Distribution of the state-owned entity core business function

The respondents were asked to indicate the core business function of the SOE they work for. The options that were provided to the respondents included electrical services, manufacturing, transportation, logistics, and other. Figure 6.5 below indicates the distribution of the participants per core business functions of the SOE.

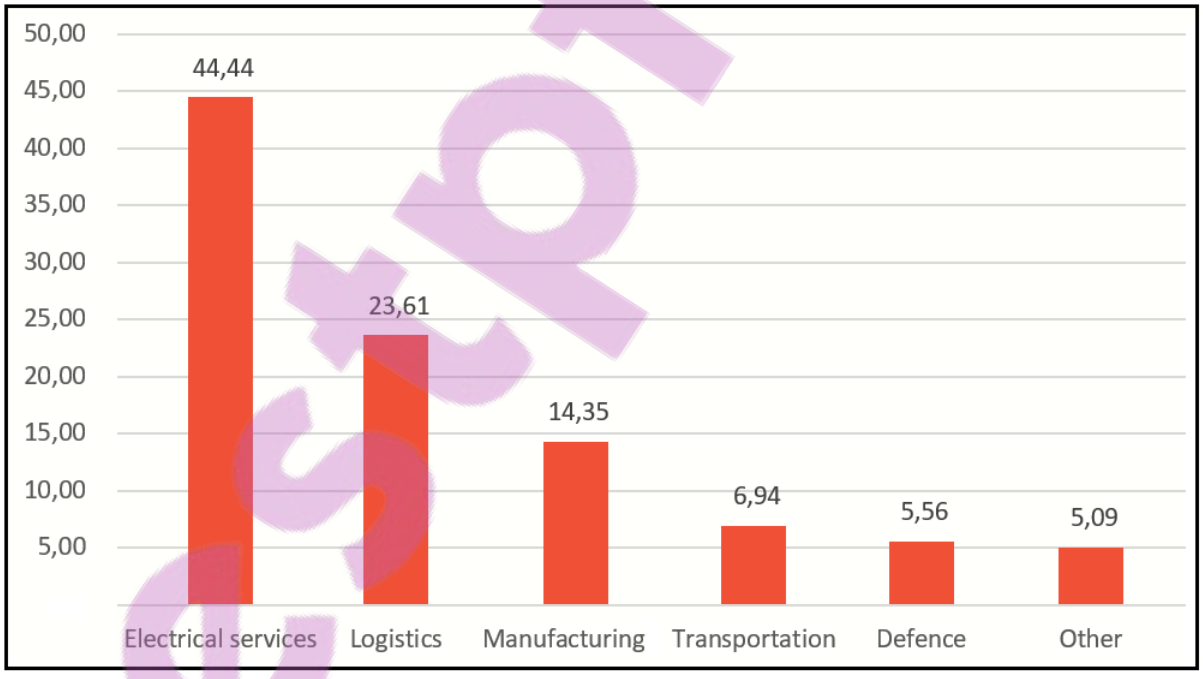

Figure 6.5: Distribution of core business function of state-owned entity (N = 216)

Source: Research data (2018)

The responses were as follows: 44.44% were from electrical services, 23.61% logistics, 14.35% manufacturing, 5.56% defence and 5.09% from other. The 'other' categories included defence, water utilities, gaming and hospitality, human settlements, mining, petrochemicals and petroleum.

6.3 SUCCESS FACTORS FOR IMPLEMENTATION OF SUPPLY CHAIN STRATEGY IN STATE-OWNED ENTITIES

The respondents were asked to indicate the success factors (SFs) for supply chain strategy in SOEs. Section B contained ten (10) statements. The respondents were asked to indicate their level of agreement on a five-point Likert response format, which ranged from 1 (strongly disagree) to 5 (strongly agree) to the statements raised. The mean scores were interpreted as follows, 0-1.5 means that respondents strongly disagreed, between 1.50 to 2.50 means they disagreed, between 2.50-3.50 means they were not sure, and between 3.50-4.50 means that they agreed, while above 4.50 means they strongly agreed.

Table 6.1: Success factors for implementation of SCM strategies in SOEs

Statements	Mean	Std. Dev.	Skewness	Kurtosis
SCM policy is aligned with SCM policies and regulations	4.17	0.97	-1.39	1.87
The annual procurement plan is budgeted for	4.11	0.93	-1.24	1.70
SCM utilises the procurement plan for procurement of goods and services	4.08	0.97	-1.12	0.94
SOE generates an annual procurement plan	4.05	0.91	-1.05	1.19
The SCM processes are well documented	4.01	1.07	-1.06	0.47
The SOE's business strategy supports Government policies and regulations	3.95	0.92	-1.11	1.40
The SOE business strategy is translated into an annual performance plan	3.91	0.96	-0.94	0.75
The supply chain strategy is supported by the SOE SCM policy	3.90	0.96	-0.98	0.92

Supply chain strategy is developed in support of the SOE strategy	3.88	0.99	-0.80	0.26
SOEs develop functional strategies to deliver on Government's imperatives	3.87	0.87	-1.05	1.39

Source: Research data (2018)

This analysis was meant to examine the SFs for the implementation of SCM strategies in SOEs. The responses to the statements were ranked according to the highest mean score achieved. The highest mean score obtained (M=4.17, SD=0.97) was regarding the alignment of the SOEs' SCM policy with SCM policies and regulations, which was followed by (M=4.11, SD=0.92) which indicated that the annual procurement plan of their entities was budgeted for. The third place (M=4.08, SD=1.07) indicated that SCM processes in their SOEs were well documented, while in fourth place, (M=4.05, SD=0.91) SCM utilised the procurement plan for the procurement of goods and services, in fifth place, SOE generated an annual procurement plan (M=4.05, SD=0.91), in sixth place, SOE strategy supported Government policies and regulations (M=3.95, SD=0.918), in seventh place, SOE strategy was translated into an annual performance plan (M=3.92, SD=0.95), in eighth place, the supply chain strategy was supported by SOE SCM policy (M=3.89, SD= 0.95), in ninth place, the supply chain strategy was developed in support of the SOE strategy (M=3.88, SD=0.99), and lastly in tenth place, SOEs develop functional strategies to deliver on Government imperatives (M=3.87, SD=0.87).

The results for SFs for the implementation of supply chain strategy obtained a mean score ranging from (4.17 and 3.87). The high mean score is an indication that most of the identified SFs for the implementation of supply chain strategy in SOEs are well recognised across the board. Skewness values for the SFs for supply chain strategy in SOEs ranged between -.80 and -1.24, thereby falling within the -1 and +1 normality range recommended for these coefficients. Most of the sample's scores were in the higher range of the variable, which indicates that the SFs for supply chain strategy in SOEs were properly implemented (Tredoux & Durrheim, 2013:29).

The kurtosis values ranged between 0.26 and 1.87, falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim., 2013:29).

6.4 THE IMPLEMENTATION OF SUPPLY CHAIN MANAGEMENT PRACTICES IN STATE-OWNED ENTITIES

The research study identified that SCM practices comprise of eight dimensions: CRM, strategic sourcing, cross-functional teams, strategic supplier relationships, workforce structure, SCI, ESD and IT.

6.4.1 Customer relationship management

The respondents were asked to indicate the effectiveness of CRM in SCM, and the statements were answered using a five-point Likert scale. The respondents were asked to indicate the extent to which they agree with the statements, namely, 5=Strongly agree, 4=Agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree.

The questions raised to the respondents sought to establish the implementation of customer relationships in SCM in SOEs, internally (with other departments) and externally with crucial stakeholders.

Table 6.2 below provides the respondents' results on the implementation of CRM in SOEs.

Table 6.2: Customer relationship management in SOEs

Statement	Mean	Std. Dev.	Skewness	Kurtosis
SCM manages internal relationships with user departments	3.98	1.070	-1.045	.545
SCM enters into SLAs with the external customers	3.84	1.094	-.814	-.107
SCM enters into SLAs with user departments	3.79	1.109	-.852	.046
SCM customer service performance is reviewed quarterly	3.70	1.098	-.668	-.311
Customer service is incorporated into SCM KPIs	3.44	1.160	-.419	-.672

Source: Research data (2018)

Questions were asked relating to the sub-processes of CRM and the responses thereof ranked as follows; the highest number of respondents (M=3.98, SD=1.070) indicated that SCM manages the internal relationships with user departments. The

was followed by SCM enters SLAs with the external customers (3.84, SD=1.094), thirdly the respondents (M=3.84, SD=1.09) indicated that customer service is incorporated into SCM KPIs, fourthly they (M=3.79, SD=1.09) indicated that SCM manages their interdepartmental relationships through an SLA with external customers. The lowest ranked responses indicated that SCM customer service performance is reviewed quarterly (M=3.70, SD=1.09).

The results reveal the effective implementation of CRM by SCM in SOEs as supported by the results of the analysis (M=3.67 and SD=0.85). This indicates that most entities have a clear understanding of their customer needs and focus. The findings are in line with Kürşad Özlen and Hadžiahmetović (2013:126) who indicated that good relationships with supply chain members, including customers, are needed for the successful implementation of SCM in SOEs.

The skewness values for customer relationship management in SOEs ranged between -.491 and -1.045, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013). The kurtosis values ranged between 0.46 and -.672, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.2 Strategic sourcing

The respondents were asked to indicate the level of implementation of strategic sourcing in SOEs, by answering nine statements using a five-point Likert scale and indicating the extent they agree with the statements through 5=Strongly agree, 4=Agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree. Table 6.3 provides the responses to the statements relating to strategic sourcing.

Table 6.3: Strategic sourcing

Statement	Mean	Std. Dev.	Skewness	Kurtosis
We advertise tenders on the National Treasury eTender portal	4.26	0.98	-1.683	2.801
We utilise CSD for all quotations	4.11	1.03	-1.291	1.257
We recognise local content when procuring goods and services	4.08	1.00	-1.176	1.051
We make use of NT transversal contracts	3.82	1.01	-0.680	-0.042
Strategic sourcing is aligned with the organisation's annual procurement plan	3.79	1.04	-0.678	-0.330
Procurement plan is analysed for the purposes of developing sourcing strategies	3.75	1.01	-0.593	-0.390
We take into account total cost of ownership	3.63	1.06	-0.616	-0.148
We conduct industry analysis	3.51	1.12	-0.532	-0.477
We make use of SITA transversal contracts	3.57	1.17	-0.481	-0.630

Source: Research data (2018)

The main aim of these questions was to determine the implementation of strategic sourcing at SOEs. The mean scores were arranged from the highest to the lowest values. The highest ranked response (M=4, 26, SD=0.98) indicated that the majority of the SOEs advertise tenders on the National Treasury eTender portal, followed by (M=4.11 and SD=1.03) which indicated that SOEs utilise CSD for all quotations. The high utilisation of the eTender centralised database is welcomed as this supports the National Treasury e-Procurement strategy and transparency in SCM opportunities. The third highest ranked responses (M= 4.08, SD=1.00) indicated that their SOEs recognise local content when procuring goods and services. This outcome suggests that SCM in SOEs is moving in the right direction in delivering the constitutional goals. The results further revealed that of the respondents (M=3.82 and SD= 1.01) are utilising the transversal contracts that have already been set up by treasury. This was followed by strategic sourcing is aligned with organisation's annual procurement plan (M=3.79, SD=1.04), the procurement plan is analysed for the purposes of developing sourcing strategies (M=3.75, SD=1.01), We take into account total cost of ownership (3.63, SD=1.05), followed by We utilise SITA transversal contracts (M=3.57, SD=1.16). The least ranked responses were regarding the implementation of industry analysis in SCM at SOEs at (M=3.51, SD=1.12).

These results are an indication that there is significant improvement and maturity on SOE strategic sourcing when compared to the results of research conducted by Accenture (2010) and Africa Vukani (2012). The results regarding strategic sourcing revealed the positive implementation of strategic sourcing in SOEs, supported by a (M=3.84 and SD=0.77).

Skewness values for the SFs for strategic sourcing in SOEs ranged between -0.481 and -1.683, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013). The kurtosis values ranged between -0.042 and 2.801, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.3 Enterprise Supplier Development

The respondents were asked to indicate the level of the implementation of ESD in SOEs, by answering seven statements using a five-point Likert scale and indicating the extent to which they agreed with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree. Table 6.4 provides the responses to the statements relating to ESD.

Table 6.4: Enterprise supplier development

Statement	Mean	Std. Deviation	Skewness	Kurtosis
We report progress monthly to our executive management team	3.33	1.14	-0.306	-0.690
We have an ESD strategy in place	3.22	1.11	-0.368	-0.571
Our ESD Strategy was translated to clear crucial performance indicators	3.16	1.09	-0.241	-0.583
We have an ESD implementation plan	3.14	1.08	-0.167	-0.553
There is dedicated personnel for ESD implementation	3.08	1.16	-0.057	-0.685
Our ESD strategy is fully integrated with strategic sourcing processes	3.06	1.08	-0.107	-0.513
At least 2% of our Net Profit After Tax is set aside for ESD initiatives	2.90	0.97	0.065	0.184

Source: Research data (2018)

The responses were ranked by mean scores from highest to lowest. The highest scoring statement was “We report progress monthly to our executive management team” at (M=3.33, SD=1.14), followed by “We have an ESD strategy in place” (M=3.22, SD=1.11), “We have an ESD implementation plan” (M=3.14, SD=1.08), “Our ESD Strategy was translated to clear key performance indicators” (3.14, SD=1.08), “there are dedicated personnel for ESD implementation” (M=3.08, SD=1.16), Our ESD strategy is fully integrated with strategic sourcing processes (M=3.06. SD=1.08) and the lowest ranking indicated that at least 2% of our Net Profit After Tax is set aside for ESD initiatives (M=2.90, SD=0.97). The score for ESD (M =3.14; SD = 0.97). The results reflect an inadequate the implementation of ESD in SOEs. The results reveal that most of the respondents were not aware of the implementation of ESD at their entities. According to Glas *et al.* (2017:579), although the achievement of regulatory and commercial goals is important, opportunities to deliver enterprise supplier development through public SCM should be pursued extensively.

The skewness values for the implementation of ESD in SOEs ranged between 0.065 and -0.368, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.571 and 0.184, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.4 Strategic supplier relationships

The respondents were asked to indicate the level of implementation of strategic supplier relationships in SOEs, using a five-point Likert scale and indicating the extent to which they agree with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree. The subsections of strategic supplier relationships comprised of seven statements.

Table 6.5 provides responses to the statements relating to the implementation of strategic supplier relationships.

Table 6.5: Strategic supplier relationship

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Our contracts management process is fully documented	3.98	1.06951	-1.045	0.545
We utilise National Treasury standardised contract documents	3.83	1.09402	-0.814	-0.107
Our approach to supplier management is fully documented	3.78	1.10854	-0.852	0.046
We settle supplier invoices within 30 days of receipt	3.75	1.24359	-0.804	-0.380
Our suppliers are held accountable for poor performance	3.70	1.09764	-0.668	-0.311
We conduct supplier performance reviews quarterly	3.43	1.15958	-0.419	-0.672

Source: Research data (2018)

The results were ranked from the highest to lowest mean scores. The respondents' perceptions of strategic SRM were relatively high with a M =3.75 and SD = 0.85. The majority of the respondents indicated that the contracts management process in their entities is fully documented (M=3.98, SD= 1.06) and the majority of the respondents utilise National Treasury standardised contract documents (M=3.83, SD=1.09), their entities response to supplier management is fully documented (M=3.78, SD=1.10), the respondents settle supplier invoices within 30 days of receipt (M=3.75, SD=1.24), the suppliers are held accountable for poor performance (M=3.70, SD=1.09), and the least scored responses indicated that they conduct supplier performance reviews quarterly (M=3.43, SD=1.15).

These results mirror findings by Green *et al.* (2012:1010) which indicated that strategic SRM is crucial for the management of the contract and ultimately SCM performance. The findings are also consistent with those of Krause *et al.* (2007) who found that the commitment of the buying firm to a long-term relationship with the major suppliers, shared goals and values with suppliers and the involvement of supplier development initiatives were positively associated with the performance of the organisation. The findings are also in line with Maraka, Kibet and Iravo (2015:23) who identified that lack

of SRM strategies lowers the effectiveness of SCM functions, thus recommending the application of supplier collaboration strategies.

The skewness values for the implementation of strategic SRM in SOEs ranged between -0.668 and -1.045, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.672 and 0.046, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.5 Cross-functional teams

The respondents were asked to indicate the level of implementation cross-functional teams in SOEs, using a five-point Likert scale and indicating the extent to which they agree with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1=strongly disagree. The subsections of cross-functional teams comprised of seven statements. Table 6.6 provides responses to the statements relating to the implementation of cross-functional teams.

Table 6.6: Cross-functional teams

Statement	Mean	SD	Skewness	Kurtosis
We have three bid committee systems in place	4.32	0.92	-1.74	3.36
We have clearly defined roles for bid committee members	4.31	0.92	-1.68	2.94
Our bid committee members sign code of conduct	4.29	0.95	-1.71	3.13
Our SCM is implemented in collaboration with end-user departments	4.14	0.97	-1.18	1.18
Our SCM processes enhances joint decision-making	4.06	0.96	-1.28	1.76
We take collective ownership for our SCM decisions	3.93	1.09	-1.05	0.48
We encourage innovative thinking amongst team members	3.81	1.13	-0.86	-0.03

Source: Research data (2018)

The results were ranked from the highest to lowest mean scores. A large majority of the respondents have three bid committee systems in place (M=4.3, SD=0.916), have clearly defined roles for bid committee members (M=4.31, SD=0.92), the bid committee members sign code of conduct (M=4.29, SD=0.94), SCM is implemented in collaboration with end-user departments (M=4.13 and SD=0.96), SCM processes enhance joint decision-making (M=4.05, SD=0.96), CFTs take collective ownership for SCM decisions (M=3.93, SD=1.08), and there is innovative thinking amongst team members (M=3.81, SD=1.12). The mean score on the cross-functional teams was a high (M = 4.12; SD = 0.84) which indicates that respondents generally believe that their entities enable the implementation of cross-functional team practice.

These results are in line with the results of Pellathy (2016) who found that the effectiveness of the cross-functional team has a positive impact on supply chain performance. The results further indicate that generally the bid committee systems at SOEs are effective and operational. The involvement of SCM in cross-functional teams is therefore evident. These results are in line with the study by Gelderman *et al.* (2015:12) that the output of the cross-functional team is measured by the effectiveness of the SCM team in the process.

The skewness values for cross-functional teams in SOEs ranged between -0.86 and -1.74, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.03 and 3.36, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.6 Workforce structure

The respondents were asked to indicate the level of the implementation of workforce structure in SOEs, using a five-point Likert scale and indicating the extent of their agreement with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1=strongly disagree. The subsections of the implementation of workforce structure comprised of six statements.

Table 6.7 provides responses to the statements relating to the implementation of workforce structure.

Table 6.7: Workforce structure

Statement	Mean	Std. Deviation	Skewness	Kurtosis
SCM personnel are highly skills required for the positions they are occupying	3.63	1.04	-0.68	-0.00
SCM personnel have relevant qualifications	3.62	0.98	-0.72	0.18
We invest in training and development for SCM personnel	3.61	1.08	-0.73	-0.11
SCM personnel have career development plans	3.50	1.05	-0.48	-0.33
SCM is represented at board level	3.53	1.20	-0.60	-0.57
SCM personnel are affiliated to a professional body	3.20	1.16	-0.18	-0.86

Source: Research data (2018)

The study sought to find out whether SCM staff had the necessary skills to carry out their functions effectively. The responses were arranged according to the highest value of their mean scores. The responses to each statement were as follows: SCM personnel are highly skills as required for the positions they are occupying (M=3.63, SD=1.04), SCM personnel have the relevant qualifications (M=3.61, SD=1.08), SCM is represented at board level (M=3.53, SD=1.20), SCM personnel have career development plans (M=3.50, SD=1.04), the respondents indicated that their entities invest in training and development for SCM personnel (M=3.50, SD=1.93), and SCM personnel are affiliated to a professional body (M=3.20, SD=1.16).

The score of SCM workforce structure was (M= 3.52 and SD = 0.83). The results suggest that participants feel that the implementation of the structure is well integrated, there is a clear decision-making process, good channel of communication and SCM is well operationalised. The results suggest that SCM practitioners in SOEs have the required skills for the job they do but they would still require an expanded set of skills to implement the policies and regulations. However, the number of SCM officials affiliated with professional organisations was very low. According to McKevitt and Davis (2014:553) & Leenders and Fearon (2008:400) the low participation of SCM officials in professional bodies and other SCM fraternities derail the efforts to professionalise SCM.

The respondents indicated that their SOEs invested in training and development for SCM personnel but there were no clear personnel career development plans. These findings also concur with Lan, Riley and Cayer (2005:67) that hiring and retaining dedicated, energetic and ethical employees' skills is always hard. According to Gharakhani *et al.* (2012:5941), individuals who believe that the SCM structure and the linkages of each component of the chain are synchronised believe that this combination increases SCM performance.

The skewness values for the implementation of workforce structure in SOEs ranged between -0.182 and -0.73, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.005 and 0.182, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.7 Information technology

The respondents were asked to indicate the level of the implementation of IT in SOEs, using a five-point Likert scale and indicating the extent to which they agree with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree. The subsections of the implementation of IT comprised of five statements. Table 6.8 provides the responses to the statements relating to the implementation of IT.

Table 6.8: The implementation of Information technology

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Our ERP system is fully utilised	3.11	1.12	-0.26	-0.63
Our ERP system ensures flawless information sharing	3.11	1.08	-0.27	-0.51
Our SCM process is fully automated	3.03	1.19	0.04	-0.99
Our ERP system is integrated with CSD	3.00	1.17	-0.05	-0.79
Our contracts management system is fully automated	2.85	1.14	0.22	-0.87

Source: Research data (2018)

The responses were arranged according to the highest value of their mean scores. The responses to each statement were as follows: Our ERP system ensures flawless information sharing (M=3.12, SD=1.10), while the respondents also indicated that ERP systems in SCM are not fully utilised (M=3.11, SD=1.11). The results reveal that the SCM processes in SOEs are not fully automated (M=3.03, SD=1.18), this is in line with the research conducted by Mofokeng and Luke (2015:7). Contract management is also performed manually, posing the risk of manipulation of information tantamount to fraud (M=2.85, SD=1.13). The respondents indicated that the CSD system is not integrated in their systems (M=3, SD=1.16), which then means that the SOEs are using two systems in parallel. IT portrayed the lowest mean score (M =3.03; SD = 0.97).

These results correspond with the findings of Mofokeng (2014:5) which indicated that the majority of SOEs are ineffective in application of leading IT systems in SCM. This is further confirmed by the Accenture report (2010:34) that there is limited use of e-Sourcing and e-Procurement capabilities across the SOEs. According to Dzuke and Naude (2015:4), the use of manual procurement systems at participating SOEs results in a prolonged public SCM process.

According to (MacManus, 2002), the speed at which SOEs are implementing IT in SCM is slower than in the private sector. According to Fagan (2011), this is because there is still a lack of appreciation about the impact of e-procurement as in various levels of Government in developing countries. Subramani and Venkatraman (2003:46) state some of the reasons for not using e-procurement are political and legislations challenges. Whilst the majority of SOEs have ERP systems, they are not being effectively utilised, with manual activities taking place.

The skewness values for IT in SOEs ranged between 0.04 and -0.27, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.51 and -0.99, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.8 Supply chain integration

The respondents were asked to indicate the level of the implementation of SCI in SOEs, using a five-point Likert scale and indicating the extent to which they agree with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1=strongly disagree. The subsections of the implementation of SCI comprised of three statements.

Table 6.9 provides the responses to the statements relating to the implementation of SCI.

Table 6.9: The implementation of supply chain integration

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Our SCM system is an integrated process	3.50	1.13	-0.66	-0.31
Our SCM system enhances efficiencies in internal processes	3.51	1.10	-0.68	-0.28
Our suppliers are fully integrated to the SCM system	3.34	1.17	-0.42	-0.66

Source: Research data (2018)

The responses were arranged according to the highest value of their mean scores. The score for SCI was (M = 3.45; SD = 1.05) which indicates a positive trend towards the successful implementation of SCI in SOEs. The subsections of SCI comprised of three statements, focusing on the integration of systems, internal process and external SCI. The responses were arranged according to the highest value of mean scores. The highest responses obtained relates to the ability of SCM system to enhance efficiencies in internal processes (M=3.51, SD=1.10), followed by the responses for SCM system is an integrated process (M=3.50, SD=1.12), and lastly the responses indicated that their suppliers are fully integrated to the SCM system (M=3.33, SD=1.17). The SCI results are low if compared to other practices.

These results indicate a minimal integration of SCM internally and externally in SOEs. The respondents indicated that their respective SCM system were meant to enhance efficiencies in internal processes. The integration of suppliers into the SCM system of SOEs seems to be significantly low.

The skewness values for supply chain integration in SOEs ranged between -0.42 and -0.68, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.*, 2013).

The kurtosis values ranged between -0.28 and -0.66, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.4.9 Summary of the supply chain management practices

The responses of all the SCM practices were arranged from the lowest to the highest value of their mean score.

Table 6.10 provides a summary of the mean, SD, skewness and kurtosis of all SCM practices in SOEs.

Table 6.10: SCM practices in SOEs (n=216)

Statements	Mean	SD	Skewness	Kurtosis
Cross-functional teams	4.12	0.84	-1.26	1.84
Strategic sourcing	3.84	0.77	-0.65	0.61
Strategic SRM	3.75	0.85	-0.66	0.21
CRM	3.67	0.85	-0.68	0.51
SCM workforce structure	3.52	0.83	-0.35	0.02
SCI	3.45	1, 05	-0.63	-0.19
ESD	3.14	0.97	-0.29	-0.31
IT	3.03	0.97	-0.05	-0.37

Source: Research data (2018)

Table 6.10 indicates the statistical results for SCM practices. The mean scores of the SCM practices ranged from 4.12 to 3.03 which indicates a positive implementation of SCM practices in SOE. The mean scores were ranked from highest to lowest to determine the most and the least implemented SCM practices. The results revealed that cross-functional teams were the highest implemented practice (M=4.12), followed by strategic sourcing (M=3.84), strategic SRM (M=3.75), CRM M=3.67), SCM workforce structure (M=3.52), SCI (M=3.45), ESD (M=3.14), and IT (M=3.03).

The average mean score of 4.12 indicates a strong implementation of SCM practices in SOEs.

The kurtosis values ranged between -0.02 and 1.84, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

The sections that follow provide a detailed analysis of each practice and the scores obtained.

6.5 COMPLIANCE TO SCM POLICIES AND REGULATIONS

The respondents were asked to indicate the level of compliance to Government supply chain legislations and policies in SOEs, using a five-point Likert scale and indicating the extent of their agreement with the statements: 5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree and 1= strongly disagree. The subsections of Government supply chain policies and regulations comprised of five elements. The literature revealed that there are more than 80 legislations governing SCM in South Africa. The study will only focus on five of the legislations, namely, the Constitution, Public Finance Management Act (PFMA), Preferential Procurement Policy Framework Act (PPPFA), Construction industry development board (CIDB) and Broad-Based Black Economic Empowerment Act (BBBEEA).

The following sections provide the results of individual policies and legislations, followed by a summary of the results in Section 6.5.6.

6.5.1 The Constitution

The respondents were asked to rate statements regarding the compliance to Constitutional requirements on SCM processes. All responses to the questions were above a mean score of four. The subsections of Constitution comprised of five statements. The responses were arranged according to the highest value of their mean scores as in Table 6.11.

Table 6.11: The Constitution

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Our SCM process is unbiased	4.00	1.05	-1.09	0.73
Our bidding process is equitable	4.07	1.04	-1.18	0.91
Our bidding process is fair	4.07	1.07	-1.21	0.85
Our bidding process is transparent	4.08	1.04	-1.17	0.80
Our bidding process is competitive	4.15	1.01	-1.37	1.59

Source: Research data (2018)

The highest responses obtained related to the competitive bidding process (M=4.15, SD=1.01), followed by transparency (M=4.08, SD=1.04), fairness and equitability (M=4.07;SD=1.07) (M=4.07, SD=1.04), and lastly the responses indicated that their SM processes is unbiased (M=4.00, SD=-1.09).

Table 6.11 provides a summary of the responses. The score for Constitution was (M = 4:15; SD = 1.01) which indicates a positive trend of successful implementation of the Constitutional requirements in SOEs. The Constitution plays an important role in setting the principles of sound SCM in public sector. These results are an indication that the Constitutional imperatives are embedded in the SCM processes of SOEs. The implementation of Constitutional requirements in SCM contributes to fairness, equitability, transparency and competitiveness in SCM.

The results are in line with the findings of Ratemo and Karanja (2017:7043) who established that the crucial principles of competition, objectivity (including fair treatment) and particularly transparency assist in achieving other SCM goals.

6.5.2 Public Finance Management Act (PFMA)

The respondents were asked questions regarding the compliance to PFMA requirements in SCM. The questions only focused on the PFMA sections concerning SCM. All the responses to the questions were above a mean score of four. The subsections of the PFMA comprised of three statements. The responses were arranged according to the highest value of their mean scores (Table 6.12).

Table 6.12: Public Finance Management Act (PFMA)

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Bid evaluation criteria is clearly stipulated in our bid documents	4.38	0.84	-1.83	4.17
We utilise SBD forms	4.37	0.85	-1.58	2.82
Our SCM unit is within the office of the CFO	4.25	1.00	-1.56	2.19

Source: Research data (2018)

The highest response relates to the statement: “Bid evaluation criteria is clearly stipulated in our bid documentations” (M=4.38, SD=0.84), followed by utilisation of SBD forms (M=4.37, SD=0.85), and lastly indicated that their “SCM unit is within the office of the CFO” (M=4.25, SD=-1.00). The score for PFMA were (M = 4:33; SD = 0.80) which indicates a positive trend of successful implementation of the PFMA requirements in SOEs. The results are in line with the PFMA requirements that SCM unit must be within the office of the CFO, that SCM practitioners in Government must utilise the SBD forms when procuring goods and services, and that the bid evaluation criteria must be clearly stipulated on the bid documentation.

6.5.3 Preferential procurement policy framework (PPPFA)

The respondents were asked questions regarding the integration of PPPFA requirements in SCM processes. All responses to the questions were above a mean score of 4. The subsections of the PFMA comprised of four statements. The responses were arranged according to the value of their mean scores, from highest to lowest (Table 6.13).

Table 6.13: Preferential procurement policy framework (PPPFA)

Statement	Mean	Std. Deviation	Skewness	Kurtosis
90/10 point system is used for transactions above R50 million	4.27	1.01	-1.56	2.08
80/20 point system is used for transactions between R30 million - R50 million	4.15	1.14	-1.44	1.28
We check our suppliers for compliance when subcontracting of work after tender award	3.85	1.13	-0.84	0.01
Subcontracting is considered a prerequisite for transactions above R30 million	3.83	1.05	-0.60	-0.16

Source: Research data (2018)

The highest response relates to the question: “90/10 point system is used for transactions above R50mil” (M=4.27, SD=1.01), followed by “80/20 point system is used for transactions between R30 mil - R50 mil” (M=4.37, SD=0.85), “we check our suppliers for compliance when subcontracting work after tender award” (M=3.85, SD=1.13), and lastly, the responses indicated that “subcontracting is considered a prerequisite for transactions above R30 mil (M=3.83, SD=-1.05). The score for PPPFA was (M = 4:03; SD = 0.89) which indicates a positive trend towards the successful implementation of the PPPFA requirements in SOEs.

The responses indicate compliance to the revised PPPFA regulations (2011) which requires that procurement transactions above R50 million be evaluated in terms of the 90/10 preference point systems, and that transactions between R30 million and R50 million be evaluated using an 80/20 preference points system (Preferential Procurement Regulations, 2011 (2) (3) (ab)). The revised PPPFA regulations (2011) also introduced subcontracting as a prerequisite for transactions above R30 million.

6.5.4 Construction industry development board (CIDB)

The respondents were asked questions regarding CIDB requirements in SCM processes. All responses to the questions were above a mean score of 3.5. The responses were arranged according to the highest value of their mean scores. The subsections of the CIDB comprised of five statements (Table 6.14).

Table 6.14: Construction Industry Development Board Act (CIDBA)

Statement	Mean	Std. Deviation	Skewness	Kurtosis
We utilise the CIDB database for all construction related projects	3.97	0.96	-0.74	0.20
Our construction contracts are only awarded to CIDB registered contractors	3.97	0.95	-0.61	-0.30
SCM policies take into account the CIDB Act	3.90	0.92	-0.45	-0.18
Our construction works tenders are advertised on the CIDB i-tender	3.79	1.00	-0.32	-0.63
The outcome of the tenders are published on CIDB website	3.78	1.00	-0.34	-0.62

Source: Research data (2018)

The highest response relates to the question: “We utilise the CIDB database for all construction related projects” (M=3.97, SD=0.96), followed by “Our construction contracts are only awarded to CIDB registered contractors” (M=3.97, SD=0.95), “SCM policies take into account the CIDB Act” (M=3.90, SD=0.92), “Our construction works tenders are advertised on the CIDB i-tender” (M=3.79, SD=1.00) and lastly indicated that “The outcome of the tenders are published on CIDB website” (M=3.78, SD=-1.00).

The high responses (M = 3:89; SD = 0.87) indicate a clear adherence to CIDB regulations in SOEs. The score for CIDB indicates a positive trend towards the successful implementation of the CIDB requirements in SOEs.

According to Zitha, Sebola and Mamabola (2016:67), compliance with CIDB will see “Government contracting with companies that have a requisite skills and capability to execute construction projects and thus enhancing the delivery of sustainable quality services”.

6.5.5 Broad-Based Black Economic Empowerment Act (BBBEEA)

The respondents were asked questions regarding B-BBEE requirements in SCM processes. All the responses to the statements had a mean score below 3.5. The responses were arranged according to the highest value of their mean scores. The subsections of the B-BBEE comprised of three statements (Table 6.15).

Table 6.15: Broad-Based Black Economic Empowerment Act (BBBEEA)

Statement	Mean	Std. Deviation	Skewness	Kurtosis
50% of our B-BBEE Procurement spend is from Black-owned suppliers	3.37	1.05	-0.30	-0.39
Our annual procurement spend for B-BBEE is above 80%	3.32	1.07	-0.22	-0.57
15% of our B-BBEE Procurement Spend is from black women-owned entities	3.20	1.04	-0.15	-0.28

Source: Research data (2018)

The highest response relates to the question: “50% of our B-BBEE Procurement Spend is from Black-owned suppliers” (M=3.37, SD=1.05), “Our annual procurement spend for B-BBEE is above 80%” (M=3.20, SD=1.04), and lastly, “15% of our B-BBEE Procurement Spend is from black women-owned entities” (M=3.20, SD=1.04).

The score for CIDB was (M = 3.30; SD = 0.96) which indicates a neutral trend of successful implementation of B-BBEE in SCM of SOEs.

This study confirms the findings of PRC (2014: 33) which established that the majority of SOEs do not comply to the B-BBEE Act and did not have transformation certificates from the accredited verification agencies.

6.5.6 Summary of results for state-owned entities’ compliance to Government supply policies and regulations.

The detailed results for individual policies and regulations were discussed under Sections 6.5.1 to 6.5.5. above.

Table 6.16 provides a summarised view of the five legislations relevant to this study.

Table 6.16: Government supply chain policies and regulations

Statements	Mean	SD	Skewness	Kurtosis
Public financial management Act	4.33	0.80	-1.59	3.46
The Constitution	4.08	0.98	-1.15	0.89
Preferential procurement policy	4.03	0.89	-0.94	0.89
CIDB Act	3.89	0.87	-0.31	-0.32
Broad-based BEE	3.30	0.96	-0.20	0.04

Source: Research data (2018)

The responses were ranked in accordance to the highest value of mean (Table 6.16). The highest mean score was for the Public Financial Management Act (M= 4.33; SD = 0.80), followed by the Constitution (M = 4.08; SD = 0.98). Third on the rank was the Preferential procurement policy which was relatively high (M = 4.03; SD = 0.89), fourth was theCIDB Act (M =3.89; SD = 0.87), whilst broad-based BEE (B-BBEE) displayed the lowest mean score (M =3.30; SD = 0.96). The results indicate that the mean scores for Government supply chain policies and regulation ranged from (4.33 to 3.30).

The findings concur with the findings of Mrope *et al.* (2017:43) who established that compliance is critical to the achievement of the objectives of the SCM legal framework and its attendant regulations such as transparency, competition, and value for money, accountability and the efficient use of public resources.

The skewness values for the Government supply chain policies and regulation ranged between -0.20 and -0.92, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.,* 2013:511).

The kurtosis values ranged between 0.04 and 3.46, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.6 SUPPLY CHAIN PERFORMANCE

The respondents were asked to indicate the level of implementation supply chain performance in SOEs, using a five-point Likert scale and indicating the extent to which they agree with the statements, namely, 5=strongly agree, 4=agree, 3=neither agree

or disagree, 2=disagree and 1= strongly disagree. The subsections of SCM performance comprised of seven elements.

Table 6.17 provides the responses to the statements relating to the implementation of supply chain performance in SOEs.

Table 6.17: SCM performance in SOEs

Statements	Mean	SD	Skewness	Kurtosis
We monitor SCM compliance to policies	4.07	0.94	-1.22	1.45
We ensure quality in the procurement process	4.03	0.93	-1.29	1.83
We have an SCM risk register	3.83	1.02	-0.83	0.29
SCM produces monthly reports indicating performance	3.78	1.09	-0.811	0.07
We take cognisance of total costs of ownership for our procurement process	3.71	1.07	-0.67	-0.17
We ensure reduction of procurement cycle	3.70	1.02	-0.69	0.13
We benchmark our performance with other entities	3.37	1.18	-0.29	-0.84

Source: Research data (2018)

The responses were ranked in accordance to the highest value of mean. The highest mean scores for SCM performance was with SCM compliance to policies (M=4.07, SD=0.94), followed by ensuring quality in the procurement process (M=4.03, SD=0.96), we have an SCM register (M=3.83, SD=1.02), highest number of respondents indicated SCM produce monthly reports indicating performance (M=3.78, SD=1.09), followed by those that indicated that their entities have an SCM risk register (M=3.71, SD=1.07), and respondents who indicated that they strive to reduce procurement cycle scored (M=3.70, SD=1.02), those that indicated that they take cognisance of total costs of ownership for our procurement process, and the lowest at (M=3.37, SD=1.18) who indicated that they benchmark their performance with other entities.

The highest mean score for SCM compliance reverberates the results of Roman (2015:51) who indicated that public sector SCM practitioners are impressive enforcers of rules, policies and values, ensuring governance in the process. Supply chain

performance obtained a mean score of (M = 3.79; SD = 0.87). This indicates that participants perceive compliance to norms and standards and the cost efficiency of SCM process. This implies that performance management systems support the corporate goals and objective, and this will likely assist management to distinguish between good and mediocre SCM practices (Taghipour *et al.*, 2015:15).

The skewness values for the Government supply chain policies and regulation ranged between -0.29 and -1.29, thereby falling within the -1 and +1 normality range recommended for these coefficients (Cohen *et al.,* 2013:511).

The kurtosis values ranged between 0.07 and 1.83, thereby falling within the -1 and above the +1 normality range recommended for these coefficients (Tredoux & Durrheim, 2013:181).

6.7 SUPPLY CHAIN CHALLENGES IN STATE-OWNED ENTITIES

Section F of the questionnaire contained ten statements which were focused at determining supply chain challenges that impacts the supply chain performance in SOEs. The respondents were asked to indicate their level of agreement on a five-point Likert response format 1 (strongly disagree) to 5 (strongly agree). For analysis, the following abbreviations were used: SD for strongly disagree, D for disagree, DN for do not know, A for agree and SA for strongly agree.

The frequency for distributions (in %) per statement is indicated in Table 6.18.

Table 6.18: Supply chain challenges facing SOEs in South Africa

Challenges	SD	DA	DN	A	SA
We do not always comply with SCM policies	26.9%	26.4%	14.4%	25.5%	6.9%
Contract management is adequately implemented	5.6%	19.4%	18.1%	43.1%	13.9%
Our strategic sourcing and SCM policies are not aligned	17.65%	34.3%	23.1%	20.4%	4.6%
Our business strategy is not effectively communicated	15.3%	28.7%	22.7%	26.9%	6.5%
Our supply chain strategy is not integrated with the business strategy	19.9%	33.3%	24.5%	17.6	4.6%
We have an effective procurement planning process	3.7%	13.9%	14.8%	47.2	20.4%
We have is a high rate of irregular expenditure	25.0%	28.7	23.6%	16.2%	6.5%
We have high rate of fruitless expenditure	26.4%	30.6%	22.2%	13.9	6.9%
Our Broad-based BEE strategy is ineffective	14.4%	27.3%	31.0%	18.5%	8.8%
We do not have a consequences management system in place	15.7%	25.0%	28.2%	20.4%	10.6%
SCM does not have of top management support	18.5%	31.5%	22.7%	17.6%	9.7%

Source: Research data (2018)

Most of the respondents agreed with the statement “we have an effective procurement planning” (67.7%), whilst 17.6% felt that this was still a challenge. Half (56.9%) of the respondents agreed to the statement that “we have an adequate implementation of contract management” whilst 25% perceived this to be still a challenge. More than half (53.3%) of the respondents disagreed to the statement that “we do not always comply with SCM regulations and policies” whilst 32.4% believed that this is still a challenge. Of the respondents, 51.9% disagreed with the statement “our strategic sourcing and SCM policies are not aligned”, 53.2% of the respondents disagreed with the statement “our business strategy is not effectively communicated” whilst 33% believed that this is still a challenge.

More than half (53%) of the respondents disagreed to the statement “our supply chain strategy is not integrated with the business strategy”, 22.2% believe that this is still a problem, 53.7% disagreed to the statement “we have higher irregular expenditure”, whilst 22.7% agreed that this is still an issue. More than half (57%) disagreed with the statement that “we have high rate of fruitless expenditure”, whilst 20% indicated that this is still a challenge, 40% disagreed with the statement “B-BBEE strategy is ineffective”, whilst 31% indicated that they do not know, and 27% agreed that this was an issue.

This confirms that the implementation of B-BBEE in SOEs as a challenge, as 40.7% disagreed to the statement “we do not have a consequence management system”, whilst 28.2% did not know, and 31% agreed to the statement. Confirming consequence management is a challenge in SOEs.

Half (50%) of the respondents disagreed with the statement “SCM does not have top management support”, with 27.3% believing that this is still a challenge.

The study revealed two challenges that are still prevalent in SCM in SOEs, indicating the implementation of B-BBEE strategy and the implementation of consequence management. This confirms the results of PRC (2014:39) who found that the implementation of B-BBEE strategy in SOEs was not effective. Regarding consequence management, the results confirm the findings of the Audit General (2016:13) which found that the majority of SOEs did not have the required mechanisms for consequence management to ensure that those who transgress are held accountable for their actions.

6.8 RELATIONSHIP BETWEEN THE DEPENDANT AND INDEPENDENT VARIABLES

This section will discuss the relationship found in the study between the independent variables, Supply Chain Strategy, SCM policies and regulations, and SCM practices with the dependent variable Supply Chain Performance In SOEs.

The Pearson product moment (r) correlation analysis was performed to describe the strength of the linear relationship between the variables (Cohen *et al.,* 2013:511). Correlation coefficients provided a numerical summary of the direction and the strength of the linear relationship between two variables (Tredoux & Durrheim,

2013:181). Concerning statistical significance, it was decided to set the value at 95% confidence interval level ($p \leq .05$) and the practical effect size at $r \geq .30 \geq .50$ (medium to large effect) (Tredoux & Durrheim, 2013:181).

Table 6.19 provides the results of the relationships between supply chain strategy, SCM policies and regulations, SCM practices and SCM performance.

6.8.1 Relationship between independent variables

This is the relationship between supply chain strategy, SCM policies and regulations, SCM practices and the dependent variable (SCM performance).

To examine the relationships between the variables in this study, descriptive statistics had to be transformed into explanatory statistics to test research hypotheses Ha1 (Cohen *et al.*, 2013). The relationship between the variables was calculated by means of Pearson product moment correlations. These correlations aided to determine the strength and direction of the relationship between the variables under investigation.

Table 6.19 provides the results of the correlations between the independent variables (supply chain strategy, SCM policies and regulations and SCM practices). The variables that correlated positively and significantly are discussed below.

Table 6.19: Correlations between supply chain strategy, Government SC policies and regulations, SCM practices, and SCM performance in SOEs

Variables	Supply chain performance	Supply chain strategy	Customer relationship management	Strategic sourcing	Enterprise supplier development	Strategic supplier relationship management	Cross-functional teams	SCM workforce structure	Information technology	Supply chain integration	The Constitution	Public financial management Act	Preferential procurement policy	CIDB Act	Broad-based BEE
Supply chain performance	1	.56***	.66***	.69***	.45**	.62***	.66***	.61***	.44**	.61**	.70***	.62***	.61***	.53***	.59***

Source : Research data (2018)

- ***Relationship between supply chain strategy and SCM performance in SOEs.***

A significant positive correlation was evidenced between the success factors of supplier chain strategy and supply chain performance (r = 0.56; large effect; p ≤ 0.05), The results are in accord with the findings of Mikalef *et al.* (2014:310) who established that SCM alignment leads to increased performance over time. The results also support the views of Lear (2012:90) who indicated that the success of any organisation is dependent on effective and efficient metrics systems that aligns all the strategic objectives of the organisation.

- ***Relationship between SCM policies and regulations with SCM performance.***

The results indicated that SCM policies and regulations correlated positively with supply chain performance (r = 0.79; large effect; p ≤ 0.05). The findings concur with those of Odumo and Getuno (2017:65) who established that the increase in compliance to Government SCM regulations and policies will lead to increase in SCM performance. The results indicated that the Constitution correlated positively with supply chain performance (r = 0.70; large effect; p ≤ 0.05). The results indicated that Public financial management Act correlated positively with supply chain performance (r = 0.62; large effect; p ≤ 0.05). The results indicated that preferential procurement policy correlated positively with supply chain performance (r = 0.61; large effect; p ≤ 0.05). The results indicated that CIDB Act correlated positively with supply chain performance (r = 0.53; large effect; p ≤ 0.05). The results indicated that broad-based BEE correlated positively with supply chain performance (r = 0.59; large effect; p ≤ 0.05). These results indicate that the performance of SCM in SOEs is determined by its contribution to the socioeconomic goals (Glas *et al*, 2017:573). Mamiro (2010) asserts that the performance of public SCM is used to measure the integrity of Government power.

- ***Relationship between SCM practices and SCM performance in SOEs.***

A significant positive correlation was observed between the SCM practices and supply chain performance (r = 0.78; large effect; p ≤ 0.05). This is in line with

the study of Ibrahim and Hamid (2014:192) and Zimmermann and Foerstil (2014:37) who found SCM practices influence supply chain performance and consequently the performance of an organisation. A significant positive correlation was observed between the *CRM* and supply chain performance ($r = 0.66$; large effect; $p \leq 0.05$).

A significant positive correlation was observed between the *strategic sourcing* and supply chain performance ($r = 0.69$; large effect; $p \leq 0.05$). These results are in sync with the findings of Gilderman and Semeihn (2017:8) and (Driedonks *et al.,* 2014:20) who established that strategic sourcing has a positive influence in SCM as it achieves the supports the organisation's strategic objectives.

A positive correlation was observed between the *ESD* and supply chain performance ($r = 0.45$; medium effect; $p \leq 0.05$). According to (Naude, Ambe & King, 2013:4), ESD can be used as an instrument for SOEs to achieve socioeconomic goals. Failure to implement ESD would be interpreted as failure to implement the legislation that governs ESD, which is BBBEEA.

A significant positive correlation was observed between the *strategic SRM* and supply chain performance ($r = 0.62$; large effect; $p \leq 0.05$). The study of Nyamasege and Biraori (2015:30) indicates that strategic supplier relationship greatly determines the effectiveness of SCM. Strategic SRM plays a crucial role in delivering SOEs service delivery projects, such a relationship ensures risk sharing, quality management and requires maintenance on long-term basis (Naude, Ambe & King, 2013:4).

A significant positive correlation was observed between the *cross-functional teams and supply chain performance* ($r = 0.66$; large effect; $p \leq 0.05$). This is line with the study of Foerstl *et al.* (2013:709) who found that the cross-functional teams lead to higher SCM and organisation performance. Successful collaboration between SCM department and specialists from other departments results in efficiencies in the process as SCM leverages on the skills and capacity of other functional departments. Juma(2011:17) asserts that an organisation's interdepartmental cooperation is a critical cornerstone in creating superior supply chain performance before even embarking on an external coordination.

A significant positive correlation was observed between the *supply chain workforce* and supply chain performance (r = 0.61; large effect; p ≤ 0.05). According to Chigudu (2014:25), Ambe and Badenhorst-Weiss (2011:11011), full knowledge and understanding of SCM, appropriate structures and professional personnel is crucial for successful implementation of the policy and strategies.

A significant positive correlation was observed between the *Information Technology* and supply chain performance (r = 0.44; medium effect; p ≤ 0.05). The results validate the impact of IT on SCM performance. As indicated by Ngai, Chau and Chan (2011:10) IT is a critical resource for supply chain agility. The results are in accord with Wang *et al.* (2013:379) who found that IT facilitates information sharing, to improve SCM and organisational performance.

A significant positive correlation was observed between the *SCI* and supply chain performance (r = 0.61; large effect; p ≤ 0.05). The results are in line with Ibrahim and Hamid (2014:193) who indicated that effective integration serves as crucial to the effectiveness of SCM in an organisation.

The sections above validate Ha1: There is a positive and significant relationship between supply chain strategy, policies and regulations, SCM practices and SCM performance in SOEs.

6.8.2 Relationship between independent variables

The relationship under review is that between supply chain strategy, SCM policies and regulations and SCM practices.

To examine the relationships between the variables in this study, descriptive statistics had to be transformed into explanatory statistics to test research hypotheses Ha2 and Ha3 (Cohen *et al.*, 2013). The relationship between variables were calculated by means of Pearson product moment correlations.

Table 6.20 provides the results of the correlations between the independent variables (Supply chain strategy, SCM policies and regulations, SCM practices) and the dependent variable (SCM performance). The variables that correlated positively and significantly are discussed below.

Table 6.20: Correlations between supply chain strategy, SCM policies and regulations and SCM practices

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Supply chain strategy	1	.58***	.51***	.60***	.28**	.46**	.57***	.41***	.30**	.41**	.61**	.61***	.55***	.46**	.39**	.33**
SCM practices		1	.76***	.83***	.70***	.83***	.77***	.75***	.68***	.77***	.71***	.62***	.49**	.50***	.53***	.58***
CRM			1	.65***	.49**	.60***	.52***	.48**	.39**	.54***	.55***	.50***	.38**	.39**	.36**	.52***
Strategic sourcing				1	.46**	.68***	.65***	.55***	.41**	.53***	.66***	.60***	.52***	.46**	.50**	.43**
ESD					1	.49**	.38**	.44**	.43**	.42**	.37**	.22**	.11*	.23*	.39**	.45**
Strategic SRM						1	.64***	.55***	.49**	.60***	.56***	.53***	.36**	.34**	.43**	.46**
Cross-functional teams							1	.52***	.37**	.53***	.67***	.71***	.62***	.52***	.44**	.34**
SCM workforce structure								1	.50***	.57***	.56***	.51***	.37**	.43**	.37**	.44**
IT									1	.72***	.41**	.31**	.26**	.27*	.31**	.46**
SCI										1	.56***	.49**	.43**	.41**	.37**	.48**
Government SC policies and regulations											1	.85***	.78***	.83***	.76***	.61***
The constitution												1	.69***	.65***	.47**	.40**
PFMA													1	.65***	.49**	.29*
PPFA														1	.52***	.40**
CIDB Act															1	.37**
BBBEEA																1

The following sections present discussions of the results of the relationships between the independent variables in the study.

- ***Relationship between SCM policies and regulations and supply chain strategy in SOEs.***

  A significant positive correlation was established between supply chain strategy in SOEs and SCM policies and regulations (r = 0.61; large effect; p≤ 0.05), the Constitution (r = 0.61; large effect; p ≤ 0.05), Public Financial Management Act (r = 0.55; large effect; p ≤ 0.05), preferential procurement policy (r = 0.46; medium effect; p ≤ 0.05), CIDB Act (r = 0.39; medium effect; p ≤ 0.05) and broad-based BEE (r =0.33; medium effect; p ≤ 0.05). The correlations result provided supportive evidence for the research hypothesis Ha2: There is a statistically significant relationship between SCM policies and regulations and supply chain strategy in SOEs in South Africa.

- ***Relationship between SCM policies and regulations and SCM practices in SOEs.***

  The results indicate that SCM policies and regulations correlated significantly with SCM practices (r = 0.71; large effect; p≤.05), the Constitution (r =0.62; large effect; p ≤.05), Public Financial Management Act (r = 0.49; medium effect; p ≤.05), preferential procurement policy (r = 0.50; large effect; p ≤.05), CIDB Act (r = 0.53; large effect; p≤.05) and the broad-based BEE (r = 0. 58; large effect; p ≤ 0.05). The correlations results provided supportive evidence for the research hypothesis Ha3: There is a statistically significant relationship between SCM policies and regulations with SCM practices in SOEs in South Africa.

6.9 HIERARCHICAL MULTIPLE REGRESSION ANALYSIS

This section focuses on the two-variable unrealistic relationships. To address the gap, the study further performed a hierarchical multiple regression analysis to examine the statistical significance relationship between the independent variables (SCM strategies, SCM policies and SCM practices) (Tabachk & Fidel, 2007:138).

The hierarchical multiple regression analysis was used to examine hypothesis Ha4 and Ha5 (Tabachk & Fidel, 2007:138). Hierarchical was applied, step by step, the independent contribution of each set of predictor variables on the criterion variable over and above the effect of the other independent variables entered first; each set of independent predicting variables are relevant for the model if they significantly increase the variance (ΔR^2). In the present study, a three-step model was adopted.

6.9.1 Supply chain strategy and SCM practices as predictors of supply chain performance

Table 6.21 below contains the regression results. The hierarchical regression revealed that, at Step 1, *SOE supply chain strategy* contributed significantly to the regression model, F (1.214) = 98.448, p <.05, and accounted for 3.15% of the variation in *Supply chain performance*. In Step 2 introducing the supply chain strategy*, ESD, CRM, strategic sourcing, strategic SRM* variables explained an additional 6.58% % of the variation in *supply chain performance*. This change in R^2 was significant, F (9, 201) = 44.057, p <.001. In Step 3 adding *ESD, CRM, strategic sourcing, strategic SRM, cross-functional teams, SCM workforce structure IT and SCI* to the regression model explained an additional 6.43% of the variation in *supply chain performance*, and this change in R^2 was significant, F (14.201) = 41.431, p <.001. When all nine independent variables were included in Step 3 of the regression model, SOE supply chain strategy, ESD, strategic SRM and IT were not significant predictors of supply chain performance.

The most important predictor of supply chain performance were strategic sourcing and cross-functional teams, which uniquely explained 2.0% of the variation in supply chain performance respectively. Together, the nine independent variables accounted for 64.3% of the variance in *supply chain performance*.

Table 6.21: Hierarchical regressions: supply chain strategy and SCM practices as predictors of supply chain performance

Variables	B	B	T	Sr^2	R	R^2	ΔR^2
Step 1	1.37		5.49***		.315	.312	.315
Supply chain strategy	.06	.56	9.92***	0.31			
Step 2	.07		.289		.588	.579	.273
Supply chain strategy	.02	.17	2.97**	0.04			
Enterprise supplier development	.01	.07	1.35	0.00			
Customer relationship management	.05	.24	3.79***	0.06			
Strategic sourcing	.04	.29	4.12***	0.07			
Strategic SRM	.03	.17	2.57*	0.03			
Step 3	-.16		-.742		.658	.643	.070
Supply chain strategy	.01	.09	1.69	0.01			
Enterprise supplier development	.00	.03	.600	0.00			
Customer relationship management	.04	.19	3.24**	0.04			
Strategic sourcing	.02	.20	2.89**	0.04			
Strategic supplier relationship management	.00	.01	.093	0.00			
Cross-functional teams	.03	.20	3.27**	0.00			
SCM workforce structure	.03	.18	3.26**	0.03			
Information technology	-.01	-.05	-.853	0.00			
Supply chain integration	.05	.18	2.61*	0.03			

Note. N = 216; *p <.05, **p <.01, ***p <.001, B = unstandardised regression coefficients, β = standardise regression coefficients, t = t-statistics, Sr^2 = partial correlations, R = R-square, R^2 = Adjusted R-square, ∆R2 = R-square change

The results in Table 6.21 show that supply chain strategy, strategic sourcing and cross-functional teams significantly and positively predicted supply chain performance. This is supported by Cook *et al.* (2011:104) who established that proper implementation of SCM practices lead to improvement in SCM performance.

6.9.2 Supply chain strategy and SCM policies and regulations as predictors of supply chain performance

The hierarchical regression revealed that, at Step 1, supply chain strategy contributed significantly to the regression model, F (5.210) = 81.055 *p* <.05, and accounted for 3.12%% of the variation in *Supply chain performance*.

Step 2, introducing the Constitution, *Public Finance Management Act (PFMA), preferential procurement policy framework act (PPPFA), Construction Industry Development Board Act (CIDB) and broad-based black empowerment Act (BBBEEA)* variables explained an additional 6.63% % of the variation in *supply chain performance*. This change in R^2 was significant, F (9,201) = 51.942, *p* <.001. When all six independent variables were included in Step 2 of the regression model, preferential procurement policy was not a significant predictors of supply chain performance.

The most significant predictor of supply chain performance was BBBEEA and the Constitution, which uniquely explained 3.2% and 3.0% of the variation in supply chain performance respectively.

Together, the six independent variables accounted for 65.4% of the variance in *supply chain performance*.

Table 6.22 below contains the regression results of supply chain strategy and SCM policies and regulations as predictors of SCM performance.

Table 6.22: Hierarchical multiple regressions analysis: Supply chain strategy and SCM policies and regulations as predictors of supply chain performance

Variables	B	β	t	Sr^2	R	R^2	ΔR^2
Step 1	9.57		5.49***		.315	.312	.315
Supply chain strategy	.424	.56	9.92***	0.31			
Step 2	-1, 34		-.858		.663	.654	.348
Supply chain strategy	.084	.11	2.12*	0.02			
The Constitution	.366	.30	4.69***	0.10			
PFMA	.403	.16	2.61*	0.03			
PPPFA	.129	.08	1.27	0.00			
CIDBA	.159	.11	2.30*	0.03			
BBBEA	.668	.32	6.88***	0.18			

Note. N = 216; *p <.05, **p <.01, ***p <.001, B = unstandardised regression coefficients, β = standardise regression coefficients, t = t-statistics, Sr^2 = partial correlations, R = R-square, R^2 = Adjusted R-square, ∆R2 = R-square change

The results reveal that supply chain strategy and BBBEEA and the Constitution significantly and positively predicted supply chain performance. This implies that effective implementation of supply chain strategy, BBBEEA and the Constitution associated with high-level of supply chain performance. These findings corroborate with those of previous study by Fourie (2014:38) who confirmed that the role of SOEs is crucial to achieve Government's developmental objectives.

6.10 EVALUATING THE MEASUREMENT MODEL

The research model for the study was tested using PLS. Smart PLS 2.0 M3 were used to assess the measurement and structural model of the study. The measurement model was examined based on reliability and validity of the constructs of the model (Figure 6.23). The following subsections present the findings for each of the analysis used to evaluate the validity of the measurement model of this study.

6.10.1 Reliability tests of the constructs

In this study reliability tests were performed using the following three (3) procedures, Cronbach's Alpha test, composite reliability (CR) and average variance extracted (AVE) test. Table 6.23 assessed the reflective measurement models for reliability and validity.

Table 6.23: Accuracy analysis statistics

Constructs/dimensions		R^2 value	α value	CR value	AVE value	Factor loading
Supply chain strategy	SCMS 1	0.363	0.897	0.917	0.583	0.831
	SCMS 2					0.879
	SCMS3					0.847
	SCMS4					0.835
	SCMS5					0.786
	SCMS6					0.869
	SCMS7					0.889
SCM policies and regulation	BBBEEA	0.527	0.829	0.881	0.599	0.652
	CONSTITUTION					0.851
	CIDB					0.723
	PPFA					0.837
	PFMA					0.813
SCM practices in state-owned entities	CFT	0.000	0.923	0.938	0.685	0.779
	ESD					0.641
	IT					0.626
	CRM					0.772
	SCM WFT					0.756
	SC INTEGRATION					0.798
	STRATEGIC SOURCING					0.828
	STRATEGIC SUPPLIER RELATIONSHIP					0.836
SCM performance	SCP1	0.745	0.945	0.954	0.722	0.859
	SCP2					0.842
	SCP3					0.872
	SCP4					0.851
	SCP5					0.833
	SCP6					0.873

Notes: N = 216; CR = composite reliability; AVE = average variance extracted; α value = Cronbach alpha value; R^2 value.

All the indicators were retained, as they had loadings above 0.70 except for the Constitution, ESD and IT indicators.

6.10.1.1 Cronbach's Alpha test

In this study, the internal reliability of each construct was assessed using the standardised Cronbach's coefficient alpha. A higher Cronbach alpha values indicate the higher internal consistency of the items in the scale (Sekaran, 2003; Bryman *et al.,* 2016:38).

According to Table 6.23, the Cronbach alpha were greater than 0.7 which indicates a high reliability of the data. The results of scale reliability tests are shown in Table 6.23. Further, the item-to-total values ranged from 0.829 to 0.945, which were above the cut-off point of 0.8 as recommended by Bryman *et al.* (2014:38). Cronbach's Alpha value, equal or greater than 0.7 suggested by Blunch (2008:35) indicates satisfactory reliability.

This means that all the Cronbach's Alpha values exceeded the recommended threshold of 0.7 reported in literature (Hair, *et al*,2014:44) and, therefore, confirming that the measures used in this study are reliable.

6.10.1.2 Composite reliability

The internal reliability of each construct was also evaluated using the CR index test. Following the formula earlier (See Chapter 5, Section 5.12.2) provided to calculate CR the results are tabulated in Table 6.23.

According to the literature, a CR index, greater than 0.7 depicts an adequate internal consistency of the construct (Nunnally & Bernstein, 1994; Hair *et al.,* 2014:334).

The results in Table 6.23 indicate that all CR were above 0.80, therefore exceeding the required threshold of 0.7 for the constructs ranged between 0.881 to 0.954, thus inferring satisfactory CR. (Cohen *et al.*, 2013; Hair *et al.,* 2014:334).

6.10.1.3 Average variance extracted

In this study, the AVE estimate, reveals that the amount of variance in the indicators was accounted for by the latent construct. Higher values for the variance extracted

estimate (greater than 0.40) revealed that the indicators represented the latent construct, all AVE values were above 0.5 (Table 6.23), thus accepted according to the literature (Fraering & Minor 2006:284).

The results in Table 6.23 indicate that AVE indexes were between 0.904 and 0.937. These results provide evidence for acceptable levels of reliability of the research scale because they exceeded the threshold of 0.5. Altogether, the construct reliabilities and the AVE estimates suggest the scales are internally consistent. The AVE values for this model exceeded 0.50 for the reflective constructs (Hair *et al.*, 2014), thus indicating convergent validity for all constructs.

6.10.2 Validity tests of the constructs

The purpose of the validity test had to do with whether a measure of a concept was really measuring the concept it was designed to measure (Bryman *et al.,* 2014:38). Validity of the constructs for this study was determined through convergent and discriminant validity tests.

6.10.2.1 Convergent validity tests

According to Tredoux and Durrheim (2013:218), convergent validity ascertains construct validity through comparing the scale with a measure of an allied construct. In this study convergent validity was assessed by examining the items loaded significantly on their constructs (loadings above 0.50). Items which did not comply with these requirements were omitted (Kaptein, 2008).

As indicated in Table 6.23, the factor loadings ranged from 0.6 to 0.8. The factor loadings are all close to one showing a very close perfect fit status. All the items used, had a factor loading greater than the recommended 0.5, indicating acceptable individual item convergent validity as more than 90 percent of each item's variance was shared with its respective construct. This evidence supported the convergent validity of all scale items. Moreover, the CR was above the recommended threshold of 0.6 and, therefore, further confirming the existence of convergent validity

6.10.2.2 Discriminant validity tests

One of the techniques used to check on the discriminant validity of the research constructs was the assessment of whether the correlations amongst latent constructs were less than or equal to 0.6. In this study, the measurement model's discriminant validity was assessed using Fornell and Larker's (1981) criterion.

Table 6.24: Discriminant validity

Research Constructs	SCM policies and Regulations	SCM Performance	SCM Practices	Supply chain strategy
SCM policies and regulations	0.744			
SCM performance	0.809	0.842		
SCM practices	0.726	0.793	0.764	
Supply chain strategy	0.602	0.581	0.591	0.858

Note: n= 216, inter-correlation

As indicated in Table 6.24 all the inter-correlation values for all paired latent variables are less than 1.0. they all range between 0.5 and 0.8 thus confirming the existence of discriminant variable. Table 6.24 based pm on the criterion of Fornell and Larcker (1981), showed that all the AVE values for the reflective constructs were lower than the squared inter-construct correlations, indicating discriminant validity.

6.11 VALIDATION OF STRUCTURAL MODEL AND HYPOTHESIS

To test the proposed relationships simultaneously, PLS analysis was employed. After the construct measured was found to be reliable and valid (Section 6.9), the next step was to assess the PLS-SEM results (Figure 6.5). Prior to surmising the path coefficients, the structural model for collinearity was explored, which was pertinent, because the estimation of the path coefficients was based on ordinary least squares regressions (Ringle *et al.*, 2010). First step involved examination of the structural model for collinearity (step 1), the crucial criteria considered for assessing the structural model was the significance of the path coefficients (step 2) and step 3 the level of R^2 values

The statistical significance of each path was estimated using a PLS bootstrapping method utilising 216 resamples to obtain t-values ().

The evaluation of the empirical model according to the PLS followed a two-stage process (Chin, 2010). The first stage (1) is the measurement model by investigating the reliability and the validity of the constructs (discussed under Section 6.10). The second (2) stage is evaluating the structural model by testing the significance of relationships between the model constructs.

Figure 6.6 and Table 6.25 below presents the results of the Path model and PLS-SEM estimate. The standardised path coefficients are expected to be at least 0.2, and preferably greater than 0.3.

6.11.1 Structural model evaluation

The following subsections discuss the validity of the structural model for the study. After the construct measured was found to be reliable and valid, the next step was to assess the SEM results (Figure 6.6).

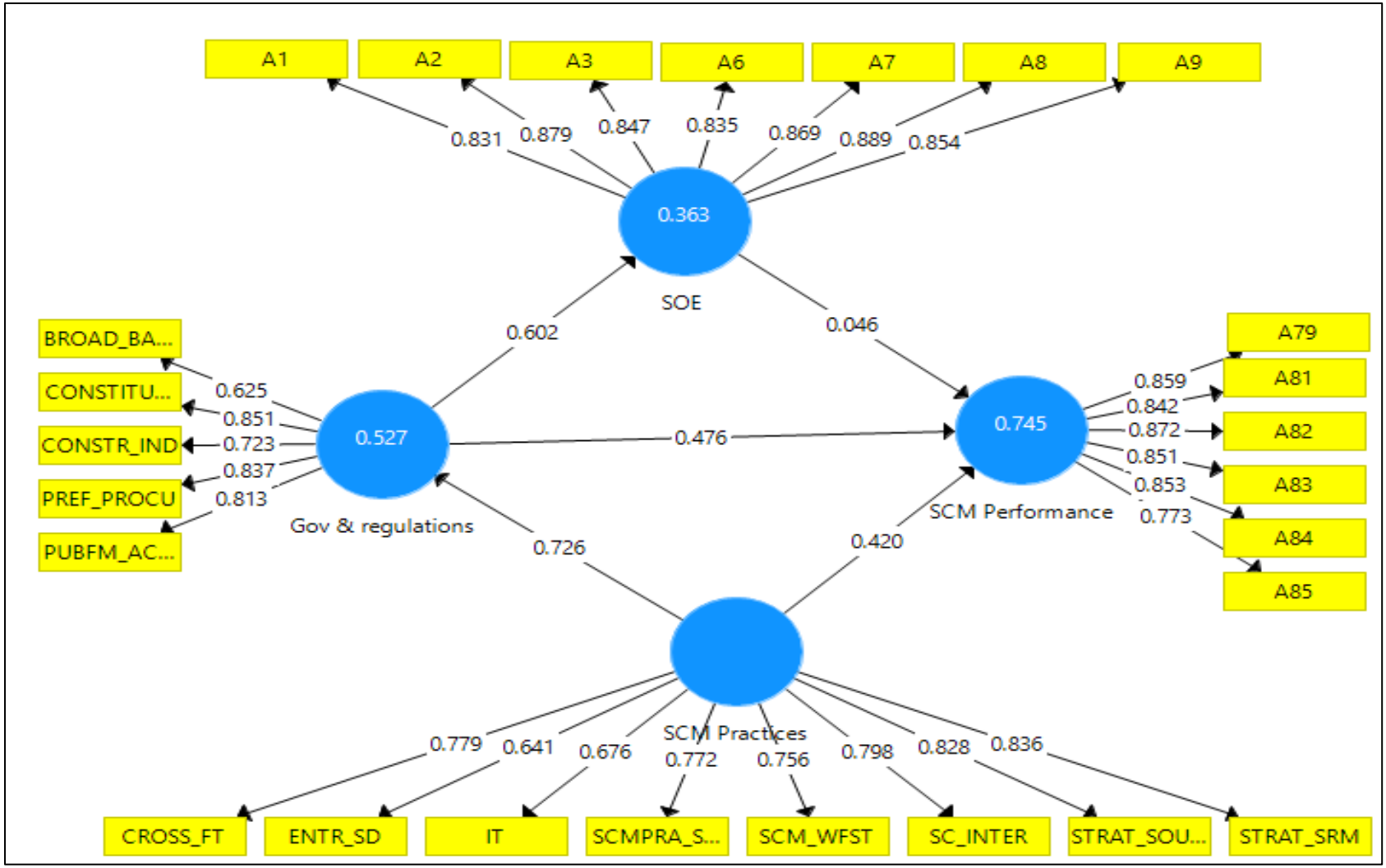

Figure 6.6: SEM results

Note: $p \leq 0.05$; $p \leq 0.01$

Prior to surmising the path coefficients, the structural model was assessed for collinearity, which was pertinent, because the estimation of the path coefficients was based on ordinary least squares regressions (Ringle *et al.*, 2010). The following sections present the results of the analyses conducted.

6.11.1.1 Collinearity assessment

The first stage was to examine the collinearity between the supply chain strategy, SCM practices, and SCM policies and regulations constructs, as these served as exogenous constructs in predicting supply chain performance. VIF values of this analysis were 1.000, indicating that the structural model outcomes were not affected by the collinearity. The endogenous construct's predictive power (Figure 6.5) indicated that the values of association, the primary outcome measure of the model, had a substantial R^2 value of 0.745. The prediction of SCM policies and regulations was higher, with an R^2 value of 0.527; considering the rule of thumb (Hair *et al.*, 2014), this construct's R^2 values were satisfactory.

Blindfolding was also used to evaluate the model's predictive accuracy for each of the endogenous constructs. Running the blindfolding procedure with an omission distance of seven yielded cross-validation redundancy values well above zero for both endogenous constructs (*SCM performance*: 0.490; *SCM policies and regulation*: 0.290), providing support for the model's predictive accuracy or relevance.

6.11.1.2 Structural model coefficients

In the second step the inner model was considered. The bootstrapping procedure was applied to assess whether a formative indicator for significantly contributed to the to its corresponding constructs. The results from the bootstrapping procedure (125 cases, 5 000 samples, no sign changes option) indicated that all fourth structural relationships were significant ($p \leq 0.05$). The p value of 5% was found to be acceptable (Cohen, *et al*, 2013: 172). Except for the *SOE* supply chain strategy, the results in Figure 6.5 highlight the role of SCM practices and SCM policies and regulations in influencing supply chain performance, with path coefficients of 0.726, 0.602, 0.476 and 0.046 respectively (Table 6.18).

According to Cohen *et al.* (2013:171), the path coefficients standardised values can be between -1 and +1. Estimated path coefficient close to a +1 represent strong positive relationships (and vice versa, with negative values), always statistically significant. The closer the estimated coefficients are to 0, the weaker the relationships. Very low values close to zero are usually nonsignificant. The *SOE* corporate and supply chain strategy has no significant effect on supply chain performance, the path coefficient of 0.046.

6.11.1.3 Coefficient of determination (R2)

As the final step, the significance and relevance of the structural model associations were assessed. The results from the bootstrapping procedure (125 cases, 5 000 samples, no sign changes option) indicated that all four structural relationships were significant ($p \leq 0.05$).

Except the SFs of supply chain strategy, the results in Figure 6.5 highlight the role of the relationship between SCM practices and SCM policies and regulations on supply chain performance, with path coefficients of 0.726, 0.602, 0.476 and 0.420 respectively. The SFs of supply chain strategy have no significant effect on supply chain performance, the path coefficient of 0.046. The R^2 value indicates the amount of variance in dependent variables, explained by the independent variables. Thus, a larger R^2 value increases the predictive ability of the structural model.

In this study, the SmartPLS algorithm function is used to obtain the R^2 values, whilst the SmartPLS bootstrapping function is used to generate the t-statistics values. The coefficient of determination is a measure of the model's predictive accuracy and is calculated as the squared correlation between a specific endogenous construct's actual and the predicted values. R^2 of endogenous is considered as substantial =0.26, moderate =0.13 and weak 0.02. In this study, R^2 value for the structural is 0.745 which indicates that the model has the substantial power of explaining all constructs on performance.

6.11.1.4 Path coefficients (β)

Within a structural model, each path connecting two latent variables presented a hypothesis. The structural model allows for the researcher to confirm of disconfirm

hypothesis and to understand the strength of the relationship between dependent and independent variables. The validation of each of the hypothesis was done based on two criteria. The first criterion deals with path coefficients (beta). The SmartPLS software calculates standardised coefficients ranging from +1 and -1 for relationships in both the structural and measurement models (Hair *et al.*, 2014:79). The relationships close to +1 are considered strong positive relationships and the relationships close to -1 are considered strongly negative. Coefficients of zero are considered to have no relationship (Hair *et al.,* 2014:79). Secondly, to test the significant level, t-statistics for all parts generated using the SmartPLS bootstrapping function. Based on the t-statistics output, the significant level of each hypothesis was determined.

Figure 6.25 lists the path coefficient, t-statistics and the p-values of the hypothesised path.

Table 6.25: Path Coefficients, observed T- Statistics, significant level for all hypothesised paths

Statements	Path Coefficient B	T-Statistics	P-Values
Supply chain strategy -> SCM Performance	0.046	0.981	0.327
SCM policies and Regulations -> SCM Performance	0.476	6.330	0.000
SCM Practices -> SCM Performance	0.420	6.072	0.000
SCM policies and Regulations -> SCM Practices	0.726	18.927	0.000
SCM policies and Regulations -> Supply chain strategy	0.602	8.926	0.000

***$p < 0.01$

6.11.1.5 Hypothesis testing

To validate the proposed hypothesis and the structural model, the path coefficient between the two latent variables were assessed. Table 6.25 provided the path coefficient, t-statistics and p-values of the hypothesis paths. Table 6.26 provides a summary of the hypotheses, followed by the analysis of the results.

Table 6.26: Summary of hypothesis

No	Positive hypothesis	Result
H1	There is positive and significant relationship between supply chain strategy, governance policy and regulations, SCM practices and SCM performance in SOEs	Supported
H2	There is a positive and significant relationship between SCM policies and regulations with supply chain performance in SOEs	Supported
H3	There is no positive and significant relationship between SCM policies and regulations and SCM practices	Supported
H4	Supply chain strategy and SCM practices predict SCM performance	Supported
H5	Supply chain strategy and SCM policies and regulations predict SCM performance	Supported

Source: Research data (2018)

Based on the analyses (Table 6.26), the results indicate that supply chain strategy is influenced directly by SCM performance (β=0.046, t=0.981, p<0.05), SCM policies and regulations and SCM performance (β=0.476, t=6.330, p< 0.01) and SCM practices and SCM performance (β=0.420, t=6.072, p< 0.01). As a result, hypothesis H1a, H1b and H1c were supported. Based on the analysis, SCM policies and regulations and SCM practices (β=0.726, t=18.927, p<0.05), as a result hypothesis Ha2 were supported.

The results also revealed a positive and significant relationship between SCM policies and regulations and supply chain strategy (β=0.602, t=8.926, p<0.001) as a result, hypotheses Ha1, Ha2 and Ha3 are supported.

6.11.2 Mediation analysis

The mediating effects analysis was calculated in this study. Mediating analysis involves establishing theoretical indirect relationship between constructs; and it determines the degree to which indirect effects through the mediating variables modify the hypothesised direct paths. According to Henseller *et al.* (2009), assessing the direct and indirect relationships between the exogenous and endogenous latent variables is another important evaluation of a structural model. This direct and indirect relationship can be examined by conducting mediating or moderating analysis. In this section, it only

assessed the significance of the mediating relationships. This is based on the theoretical reasoning that suggests trust and commitment as two crucial mediating factors that influence long-term relationships (Morgan & Hunt, 1994).

The post-hoc analysis was performed in two steps, started by (i) examining the mediation of supply chain strategy on the relationship between SCM policies and regulations and SCM performance (Figure 6.7), followed by (ii) examining the mediation effects of policies and regulations on the relationship between SCM practices and SCM performance (Figure 6.8).

6.11.2.1 Step 1: Mediation effects of supply chain strategy on the relationship between SCM policies and regulation and SCM performance

The analysis drew on the suggestions of Hair *et al.* (2014) in answering the following questions: (1) Is the direct effect between SCM policies and regulations and supply chain performance significant when the mediator variable is excluded from the path model? (2) Is the indirect effect through the mediator variable significant after *supply chain performance* was excluded in the path model? (3) How much of the direct effects does the indirect effect through the mediator absorb? To answer the first question, supply chain strategy was excluded from the path model and the bootstrapping procedure was run with the previously described specifications. The direct effect between SCM policies and regulations and *supply chain performance* was 0.476 and significant at $p \leq 0.01$.

Answering the second question required re-estimating the indirect effect's significance. The corresponding bootstrapping results showed that the indirect effect 0.046 was not significant at $p \leq 0.01$. Lastly, the variance accounted for (VAF) was computed. The VAF = indirect effect/total effect. The result was a VAF value of 0.452, which, according to Hair *et al.* (2014), meant that SOE corporate and supply chain strategy did not mediate the relationship between SCM policies and regulations and supply chain performance. In the first mediation, a different picture emerged when considering the indirect effect of SCM policies and regulations on supply chain performance through the mediation of SOE corporate and supply chain policies and regulations. The

corresponding total effects indicate the following equation: total effect = 0.504+0.046 = 0.509.

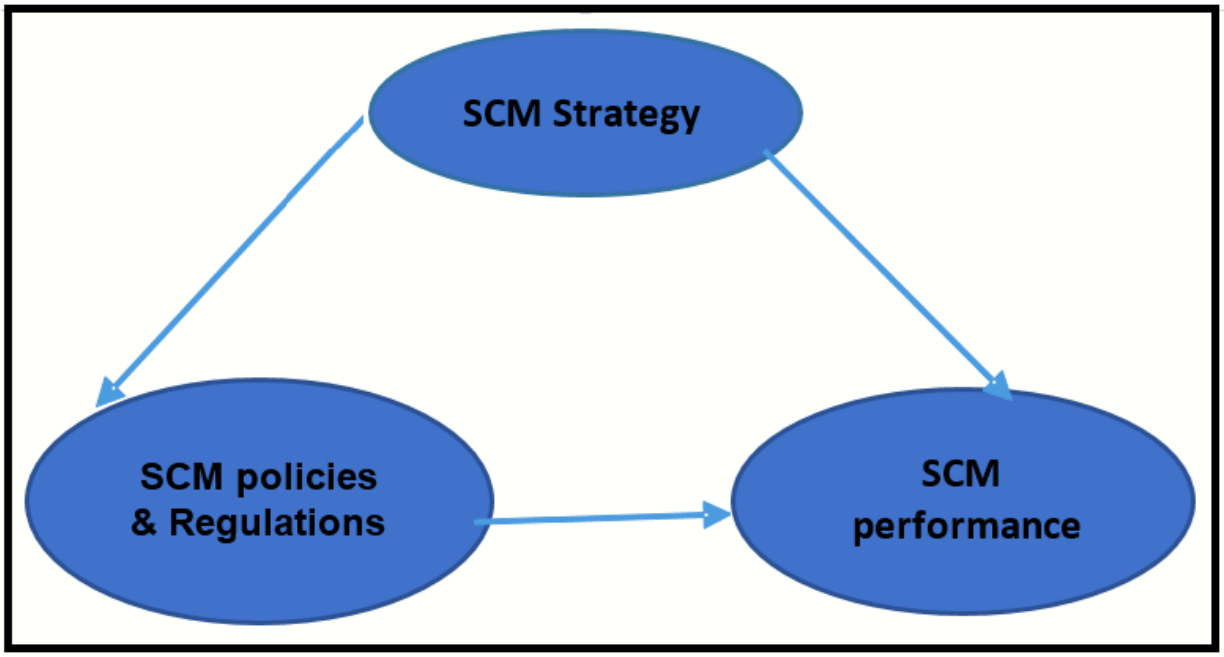

Figure 6.7: Results of post-hoc analysis (i)

Source: Research data (2018)

As can be observed, the total effect was much weaker than the direct effect of 0.602, emphasising that SCM policies and regulations was a concern. These results suggest that because of the influence of government policies and regulations, the SOE corporation and supply chain strategy did not act as a mediator in the relationship between SCM policies and regulations and supply chain performance.

6.11.2.2 Step 2: Mediation effects of SCM policies and regulations on the relationship between SCM practices and SCM performance

The analysis in the study drew on the suggestion of Hair *et al.* (2014) in answering the following questions: (1) Is the direct effect between SCM practices and regulations and supply chain performance significant when the mediator variable is excluded from the path model? (2) Is the indirect effect through the mediator variable significant after *supply chain performance* was excluded in the path model? (3) How much of the direct effects does the indirect effect through the mediator absorb?

To answer the first question, SCM policies and regulations were excluded from the path model and the bootstrapping procedure was run with the previously described specifications. The direct effect between SCM practices and supply chain performance was 0.420 and significant at $p \leq 0.01$.

Answering the second question required re-estimating the indirect effect's significance. The corresponding bootstrapping results showed that the indirect effect 0.476 was significant at $p \leq 0.01$. Lastly, the variance accounted for (VAF) was computed. The VAF = indirect effect/total effect. The result was a VAF value of 0.871, which, according to Hair *et al.* (2014), means that SCM policies and regulations mediated the relationship between SCM practices and supply chain performance. Therefore, SCM policies and regulations did mediate the relationships between SCM practices and supply chain performance.

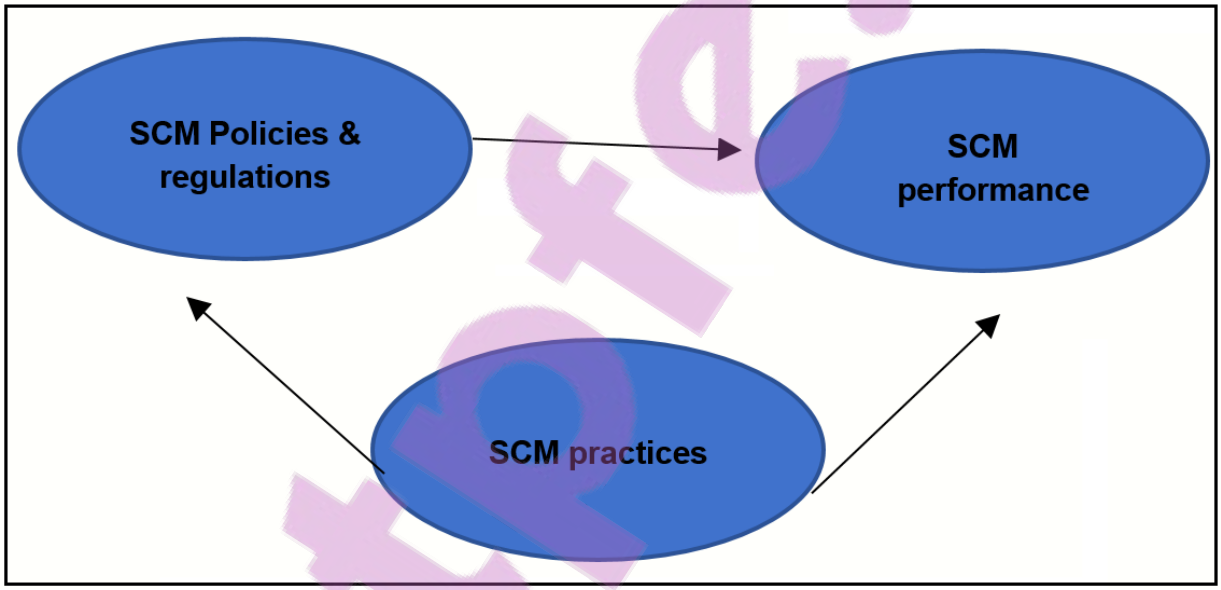

Figure 6.8: Results of post-hoc analysis (ii)

Source: Research data (2018)

In the second mediation, a different picture appeared when considering the indirect effect of *SCM practices* on *Supply chain performance* through the mediator SCM policies and regulations. The corresponding total effects indicate the following equations: total effect = 0.346 + 0.420 = 0.766. As can be observed, the total effect was much stronger than the direct effect of 0.420, emphasising the importance of SCM

practices. In addition, these results evidenced that a SCM policies and regulations mediate the relationship between SCM practices and supply chain performance.

6.12 CONCLUSION

This chapter reported on and interpreted the findings of the empirical investigation into the nature of the statistical interrelationships and relationships between supply chain strategy, SCM policies and regulations, SCM practices and supply chain performance in SOEs. Statistical analysis was done using the following: quantitative statistical methods, descriptive statistics (mean, SDs, skewness, kurtosis and Cronbach's Alpha for all the study variables presented), principal component analysis, frequency distribution, correlations analysis, hierarchical analysis and PLS structural model.

The measurement items were found to be reliable, valid and therefore acceptable. Furthermore the findings of the research model in this study indicate that the conceptualised model provides a good fit to the specified sample data.

The next chapter focuses on revisiting the study objectives, drawing conclusions and making recommendations to the study. Potential areas for further studies will also be reflected on.

CHAPTER 7:
CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter provides a summary of the study, it begins by revisiting of the research questions and objectives and shows how they were achieved . Thereafter the recommendations are suggested that are applicable to supply chain managers, researchers and policy makers. This chapter therefore summarises the main ideas, conceptual frameworks and empirical results developed in the preceding sections of the study. Finally, the chapter highlights some areas where more research work needs to be done in future research.

7.2 REVISIT RESEARCH QUESTIONS AND OBJECTIVES

The primary objective of the study was to examine the alignment of SCM practices with policies and regulations to enhance performance in SOEs. The study also sought to develop an SCM implementation framework to enhance SCM performance in SOEs in South Africa. The research question therefore is: *To what extent are the SCM practices aligned with SCM policies and regulations to enhance SOE performance?*

To answer the main research question, the following secondary research questions needed to be answered:

1. What are the success factors for the implementation of supply chain strategy in SOEs in South Africa?
2. To what extent are SCM practices implemented in SOEs in South Africa?
3. To what extent do SOEs in South Africa comply with SCM policies and regulations?
4. What are the key performance indicators for SCM in SOEs in South Africa?
5. What are the challenges impacting the implementation of SCM in SOEs in South Africa?

6. What is the impact of the relationship between supply chain strategy, policies and regulations, and SCM practices on SCM performance in SOEs in South Africa?

7.3 RESEARCH OBJECTIVES

The main purpose of the study was to examine the alignment of SCM practices with policies and regulations to enhance performance in SOEs. To achieve the main objective, the following secondary objectives needed to be achieved:

1. To assess the success factors for the implementation SCM strategy in SOEs in South Africa.
2. To assess the implementation of SCM practices in SOEs in South Africa.
3. To assess the extent of the compliance of SOEs to SCM policies and regulations.
4. To assess key SCM performance indicators in SOEs.
5. To assess the challenges impacting the implementation of SCM in SOEs.
6. To determine the impact of the relationship between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs in South Africa.
7. To develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices so as to enhance SCM performance.

To answer the secondary research objective 6 the following hypothesis were formulated:

Table 7.1: Hypotheses

No	Null hypotheses	No	Positive hypotheses
Ho1:	There is no positive and significant relationship between Supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs.	H1	There is a positive and significant relationship between Supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs.
Ho2:	There is no positive and significant relationship between SCM policies and regulations with Supply chain strategy in SOEs.	H2	There is a positive and significant relationship between SCM policies and regulations with Supply chain strategy in SOEs.
Ho3:	There is no positive and significant relationship between SCM policies and regulations with SCM practices.	H3	There is a positive and significant relationship between SCM policies and regulations with SCM practices.
Ho4:	Supply chain strategy and SCM practices do not predict SCM performance.	H4	Supply chain strategy and SCM practices predict SCM performance.
Ho5:	Supply chain strategy and SCM Policies and regulations do not predict SCM performance.	H5	Supply chain strategy and SCM policies and regulations predict SCM performance.

Source: Own compilation (2018)

7.4 DISCUSSION OF THE RESEARCH FINDINGS

This section discusses the results of the study. The discussion of this study is based on the results and interpretation and inferences made from the results in accordance with the research question. To answer the main research question, the secondary questions were answered first.

7.4.1 Secondary research question 1

What are the success factors for the implementation of supply chain strategy in SOEs in South Africa?

To answer the first research question, various sources of literature were reviewed to determine the success factors for implementation of supply chain strategy in SOEs in South Africa. In Chapter 3 and 4 of this study, the literature revealed that if an organisation is to achieve its corporate objectives, the SCM strategies of that

organisation must be consistent with the corporate strategy and contribute towards the objectives of the organisation (Chapter 3). Chapter 3 also revealed the three strategic objectives of SCM in SOEs as: (1) regulatory goals, (2) commercial goals and (3) socioeconomic goals (Glas *et al.,* 2017:573) and emphasised the importance of balancing the three strategic objectives. As a result, SOEs, as public entities in charge of public money, cannot only concentrate on price but also in other government imperatives essential for progressive growth of South Africa. Pienaar & Vogt, (2012:34) therefore advise that for SOEs to realise full SCM performance benefits, the supply chain strategy of their organisation must be derived from the corporate strategy. The successful implementation of supply chain strategy in an organisation is therefore dependent on the alignment between the organisation's corporate strategy with the supply chain strategy.

Strategic alignment or 'fit' was explained through the structural contingency theory in Chapter 4 (Section 4.2.1). Strategic 'fit' in the context of SCM in SOEs was described as congruency of SOEs Corporate strategy with its supply chain strategy. The success factors of SCM strategies identified in literature included, development of procurement plan and alignment of such a plan with the budget (Kiage, 2013:55), clear goals and objectives (Feizabadi *et al.,* 2014:474), senior management buy-in, alignment with corporate strategy (Pienaar & Vogt, 2012:34), clear monitoring and review plan, alignment of goals with policies and regulations and budget availability (Leyh & Thomschke, 2015:1404). Feizabadi *et al.* (2014:474) counsel that for SCM to make an impact in an organisation, the organisational position of SCM must be at a higher level in the organisational structure and preferably report to the Accounting Officer.

The literature also revealed (Chapter 4, Section 4.3.1) that the alignment of SOE corporate strategy with supply chain strategy will ensure that processes and activities in SCM deliver on the mandate, strategic objectives of the SOEs and the Government socioeconomic objectives. The literature review was followed by an empirical study.

The empirical results indicated a positive implementation of SOE strategy in SOEs at mean score ranging from (4.17-3.87). The first highest scoring element was regarding the alignment of SOEs' SCM policy with government SCM policies and regulations,

followed by the strong indication that the annual procurement plan is budgeted for. These positive results regarding procurement plan opine the findings of Onyago (2012:447) who established that procurement plans must be integrated into the budgetary process, based on the indicative or approved budgets. Kiage (2013:55), Okong'o and Muturi (2017:122) and Owuoth and Mwangangi (2015:171) asserted that a procurement plan is a crucial tool for budget implementation.

The results also revealed that the SCM processes in SOEs are well documented. The results further revealed that the supply chain strategy of SOEs support the business strategy and the SCM policies and regulations. The results were also in line with the findings of Mafunisa (2008:81) who established that clear procurement policy, guidelines are important as they provide the guidelines to be followed when carrying out the assigned responsibilities. The results revealed that supply chain strategy in SOEs is supported by SOE SCM policy. The results which indicate the high and positive implementation of supply chain strategy in SOEs opine the findings of Soni and Kodali (2011) who established that the alignment of SCM competences with the corporate strategy of the organisation will contribute positively to the competitive advantage of the organisation. Chopra and Meindl (2013) and Ambe (2012) assert that following the alignment of the strategies, the SCM activities and goals of SCM must be coherent and related to the activities and strategic objectives of the firm.

7.4.2 Secondary research question 2

To what extent are SCM practices implemented in SOEs in South Africa?

This research question was meant to explore the extent of implementation of SCM practices in SOEs. To answer this question, the study explored SCM practices in two ways (1) the generic concept of SCM practices (Chapter 1), various definitions (Chapter 1), dimensions of SCM practices followed by (2) testing the implementation of SCM practices in SOEs in South Africa (Chapter 3). The literature study revealed various concepts of SCM practices (Chapter 1). Based on literature review, eight dimensions of supply chain practices in SOEs were identified (Chapter 3), namely, CRM, strategic sourcing, cross-functional teams, strategic supplier relationships, workforce structure, SCI, ESD and IT. The implementation of the identified practices in SOEs were tested

using a questionnaire. Forty-seven (47) statements regarding SCM practices were also raised to determine the relevance and implementation of the identified practices. The highest implemented SCM practices in SOEs were found to be cross-functional teams, followed by strategic sourcing, strategic SRM, CRM, SCM workforce structure and SCI, with scores ranging between (3.03-4.12).

The following section provides a brief discussion of the findings:

- ***The cross-functional team*** was found to be one of the highest implemented SCM practice in SOEs. The high score of cross-functional team validates the implementation of bid committees and an indication that other user departments/functions are participating in SCM activities. The results revealed that a large majority of the SOEs have three bid committee systems in place, clearly defined roles for bid committee members, the bid committee members sign a code of conduct, SCM is implemented in collaboration with end-user departments, SCM processes enhance joint decision-making, CFTs take collective ownership for their SCM decisions and there is innovative thinking amongst team members. The results are aligned with the findings of Abdalla, Obeidat and Aqqad (2014:21) who established that cross-functional teams were important for SCM performance. The results are also supported by Feizabadi *et al.* (2014:475) who established that interrelationships between business units are important and need to be identified, and synergies need to be maximised.
- ***Strategic sourcing*** ranked the second highest implemented SCM practice in SOEs. The results were a positive indication that SCM in SOEs has moved away from the traditional sourcing to an approach which is strategic, value-adding and efficient (Feizabadi *et al.*, 2014). The results indicated that the majority of the SOEs advertise tenders on the National Treasury eTender portal, followed by those who indicated that SOEs utilise CSD for all quotations. The successful implementation of strategic sourcing in SOEs is supported by the National Treasury guidelines for the implementation of strategic sourcing (2015). It is believed that efficient implementation of strategic sourcing in SOEs will yield cost savings, enhance efficiency and consequently supply chain performance.

- ***Strategic SRM***, ranked the third highest implemented SCM practice in SOEs. The results represent a long-term relationship between SOEs and their suppliers. The strategic relationships between SOEs and their suppliers is important to ensure the successful delivery of service delivery programmes. In delivering the projects, the suppliers' objectives and activities must be aligned with those of the organisations. These results, therefore, are in line with the findings of Zitha *et al.* (2016: 31) who established that strategic supplier relationships are essential for all service delivery projects delivered by SOEs. Given the size, duration and value of the service delivery programmes, it is imperative for SOEs to treat their suppliers as partners with the aim of leveraging on the supplier's expertise and knowledge. The strategic supplier relationships ensure collaborative sharing of responsibilities and risks between the suppliers and SOEs. According to (Bratić, 2011; Karimi & Rafiee, 2013; Mbuthia & Rotich, 2014), an effective supplier partnership can be a critical component of a leading-edge supply chain.
- The results indicated a successful implementation of ***Customer Relationship Management*** in SOEs. These results opine the findings of Mbuthia and Rotich (2014), and Hussain *et al.* (2015) who established customer relationship as the crucial element in SCM practices implementation in any organisation (SCM has Customers internally for other departments) and externally. The majority of the respondents indicated that their organisations have SLAs with both their internal customers and external customers and extended the same practice to suppliers. These results are in line with the findings of O'Donnell (2014:16) who established that service levels for SCM can be achieved where SLAs stipulate clear performance measurements and indicators. SLA can also be applied internally to manage the internal relationships with user departments. The positive responses on the implementation of CRM as a practice confirmed that SCM enters SLAs with the external customers and other end-user departments and that the crucial performance indicators of SCM CRM are clearly articulated in the SLAs and are measured quarterly.
- The results revealed the implementation of ***SCM workforce and structure*** in SOEs, confirming the notion that the successful implementation of SCM is highly

dependent on the structure and skill sets within SCM. The results further indicated that SCM in SOEs is represented at board level. These results were found to be aligned with the recommendations by Africa Vukani (2012), Accenture (2010), and PRC (2015) who recommended that for SCM to add value in an organisation it must be able to participate at a senior management level and be represented at board level. The results further imply that SCM structure in SOEs supports the strategy that it needs to deliver. The reporting lines of the structure and the individuals on the structure are suitable for delivering the strategy. SCM therefore employs the right individuals with the correct skills required to deliver the job. Section 6.2.2 of the study revealed that most of the respondents have a junior degree or diploma as a minimum qualification for the positions that they are occupying. The results also indicated that SCM managers in SOEs invest in training and development of their teams, as well as career development. Swart *et al.* (2012:12) warn that even though an organisation may have brilliant supply chain strategies, substandard performance from the SCM personnel can fail the strategy. Fawcett *et al* (2016:433) and National Treasury (2015) asserted that without the right people, supply chain strategies will not be envisioned, nor will they be executed.

- The results indicated the positive implementation of ***Supply Chain Integration*** in SOEs, which is an indication that SCM in SOEs is integrated in the entire organisation and with external stakeholders. These results are in line with the findings of Sundram *et al.* (2011:835) who established that for SCM to be effective in an organisation it must have a close integration with internal functional departments and must also be linked to external service providers. An integrated SCM provides visibility of information throughout the chain. It is also an indication of cooperation, collaboration, information sharing, trust, partnership and a complete shift from functional silos (Ibrahim & Hamid,2014:190).
- The implementation of ***Enterprise Supplier Development*** in SOEs ranked low. These results opine the results of the PRC (2015:39) who established that there was no alignment between the SCM policies and regulations and SCM in SOEs, resulting in missed transformation targets. These misaligned strategies compromise the contribution of SOEs SCM to the socioeconomic imperatives.

- The implementation of ***Information Technology*** in SOEs also ranked low. These results imply that there is poor utilisation of the SCM information technology systems in SOEs. The results are aligned with the findings of Accenture (2010) who established that the ERP systems in SOEs were not fully utilised. Most respondents indicated that their SCM IT systems were not linked to the National Treasury systems, further resulting in loss of value.

7.4.3 Secondary research question 3

To what extent do SOEs in South Africa comply with SCM policies and regulations?

In the literature review (Chapter 3), it was established that there are more than 80 legislations governing SCM in SOEs in South Africa. The SCM policies and regulations were mainly developed to enable the transformation process and to obtain value for money from the procurement activities (Karangi & Mwangangi, 2017:17).

SOEs as the largest public spenders can contribute significantly to the socioeconomic imperatives through the implementation of the SCM policies and regulations and ensuring that they are imbedded in their SCM processes. For this study, the implementation of five legislations were analysed, namely, the Constitution, preferential procurement framework Act, Public finance management, B-BBEE and CIDB. According to the literature (Section 3.4.1), the public SCM in South Africa is regulated by the Constitution. The Constitution enforces the organ of states in the national, provincial or local sphere of Government, or any other institution identified in national legislation, that when it contracts for goods or services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost-effective.

To provide effect to section 217 of the Constitution, the PPPFA was promulgated. The PPPFA provides a framework for the implementation of public sector SCM in South Africa. PPPFA introduced the 90/10 and 80/20-point scoring system for awarding tenders. The PPPFA was followed by regulations, which were revised in 2011. The PFMA and treasury regulations was also analysed. The literature revealed that the aim

of PFMA was to secure transparency and sound management of revenue, expenditure, assets and liabilities, by institutions.

Concerning SCM, the PFMA places obligations on accounting officers to put in place an effective SCM system. Section 16A of the PFMA regulations provides guidelines on public SCM. BEE Act: (No 53 of 2003) aims at promoting the achievement of the Constitutional rights to equality, and to increase the broad-based participation of black individuals in the economy. Further, to promote a higher growth rate, increase employment and more equitable income distribution. The study revealed positive indications of the implementation of CIDB regulations in SOEs. The results support the SOEs strategy to implement the National Development Plan strategy of ensuring the development and upgrade of infrastructure in South Africa.

The study aimed to examine the implementation of the SCM policies and regulations in SOEs to significantly contribute towards the Government's socioeconomic objectives. The highest implemented policies and regulations concerning the mean score was the Public Financial Management Act, followed by the Constitution, preferential procurement policy framework act, construction industry development board, whilst broad-based black economic empowerment (B-BBEE) displayed the lowest mean score.

7.4.4 Secondary research question 4

What are the key performance indicators for SCM in SOEs in South Africa?

Due to the high budget allocation and the key role that SCM plays in delivering the service delivery programmes, SCM performance in SOEs is closely monitored. According to Kumar *et al.* (2015:365), SCM performance revolves around getting the best value for money, however, receiving good value from SCM in SOEs is not only about the price, but also involves the costs involved during the SCM process. Burger and Hawkesworth (2011:2) further described value for money as "what government judges to be an optimal combination of quantity, quality, features and costs".

The study went beyond this definition to consider price performance, cost-effectiveness, time, risk management, benchmarking and compliance (Monzka *et al.,* 2012:632). To

yield maximum benefits for SOEs, SCM performance measurement and management system should directly support corporate goals and objectives. Supply chain performance is optimised only when an inter-functional approach is adopted. The empirical results highlighted a high level of compliance to SCM policies and regulations. The results concur with the findings of the study conducted by Zitha *et al.* (2016:33) who established that compliance with policies and regulations remain crucial, not only in reducing audit findings, but in achieving service delivery goals.

The second highest scoring KPI for SCM was quality of the procured goods and services. The results are aligned with the findings of (Onyimbo & Moronge, 2018:1766) who established that quality of goods and services impact the performance of SCM and the organisation. The highest response to this performance measure is an indication that quality still ranks high within the SCM system in SOEs. It is also an indication of a potential reduction in project failures.

The third ranked performance measure was risk management. These results are an indication that SOEs recognise the impact of risk in SCM, and as a result, manage and monitor the risks. Smart Procurement (2011) warns that the poor implementation of risk management promotes corruption and unlawful activities.

A considerable number of respondents indicated that their entities produce monthly reports indicating performance versus the set targets. The respondents indicated that in their strategic sourcing processes, they take cognisance of the total cost of ownership. This implies that SOEs focus their attention on efforts to reduce costs. The findings are in conformity with Murray (2007) who identified cost measurement as a 'obvious' measure of performance. Murray (2007)'s view can be attributed to role that SCM play in contributing to the bottom line of the organisation.

The results indicated that most SOEs always strive to reduce the procurement cycle time. The results are aligned with the findings of Oduma and Getuno (2017) who established the criticality of time in rendering service delivery programmes. According to Pregnato (2009:75), the reduction of procurement cycle time is crucial for awarding a contract and further describes it as an 'indirect goal' in SCM. The quicker the completion of the SCM process, the sooner the entities can implement the projects

(Kumar *et al,* 2015:366). A limited number of respondents indicated that they benchmark their supply chain performance against other entities. The average scores for SCM performance were quite high across the board which implies that most of the performance measures are successfully implemented in SOEs.

7.4.5 Secondary research question 5

What are the challenges impacting the implementation of SCM in SOEs in South Africa?

In the literature review (Chapter 3) it was found that SOEs experience numerous problems and challenges regarding the implementation of SCM. Such challenges included, fragmentation of laws, non-compliance with SCM regulations, policy and processes, poor implementation of contract management, misalignment of strategic sourcing and SCM policies and regulations, inadequate planning and the linking of demand to the budget, fraud, corruption and high rise of irregular and fruitless expenditure. inadequate monitoring and evaluation of SCM performance, ineffectiveness of the BEE policy, and lack of sufficiently skilled workforce in SCM.

The existence of the challenges was tested in SOEs. The results indicated significant improvement in the areas, effective procurement planning, compliance to policies and regulations, strategic sourcing, communication of business strategy, alignment of supply chain strategy with business strategy, irregular expenditure and fruitless expenditure. In conclusion, based on the results, the implementation of SCM in SOEs was found to have improved significantly. Further efforts need to be intensified with the implementation of a B-BBEE strategy, contract management and consequence management, indicating a challenge in SOEs.

7.4.6 Secondary research question 6

- ***What is the impact of the relationship between supply chain strategy, policies and regulations, and SCM practices on SCM performance in SOEs in South Africa?***

This research question seeks to determine the impact of supply chain strategy, SCM policies and regulations, SCM practices on SCM performance in SOEs. To answer this sub-research question hypothesis (H1) was formulated as follows:

Ho1: There is no positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices with SCM performance in SOEs.

H1: There is a positive and significant relationship between supply chain strategy, SCM policies and regulations, SCM practices with SCM performance in SOEs.

Further analysis of the constructs required to be done at an individual level. This necessitated a breakdown of H1 into H1a, H1b and H1c, with the aim of analysing the individual relationship between the independent variables (supply chain strategy, SCM policies and regulations, SCM practices) against the dependent variable (SCM performance).

The study first considered the relationship between supply chain strategy in SOEs with SCM performance, followed by the relationship between SCM policies and regulations with SCM performance, and lastly, the relationship between SCM practices and SCM performance in SOEs. The relationships were analysed using Pearson's correlation analysis. The following sections provides the results of the analysis. The results were as follows:

(i) H1a There is a positive and significant relationship between supply chain strategy and SCM performance in SOEs.

Supply chain strategy was found to be statistically significantly related to SCM performance ($r=0.56$, large effect; $p<0.05$). This effectively means that the supply chain strategy in SOEs are effective in ensuring that the organisation delivers on corporate strategies of the organisation.

(ii) H1b: There is a positive and significant relationship between Government SCM policies and regulations with supply chain performance in SOEs.

There is a statistically significant relationship between SCM policies and regulations with supply chain performance at ($r=0.79$: large effect: $p<0.05$).The results imply that the higher the implementation and compliance to the SCM policies and regulations in SOEs, the higher the SCM performance in that SOE.

These results conform with the findings of (Mrope *et al*., 2017:46) who established that there is a positive relationship between compliance with rules and regulations and procurement performance. The results also mirror the findings of Marendi (2015) and Ratemo and Karanja (2015) who established that compliance to policies and regulations has a positive and significant effect on organisational performance. In their study, Turley and Perera (2014:3) concluded that compliance to policies and regulations contribute to the eradication of corruption, unfair and uncompetitive practices, and compliance to the SCM policies and regulations promotes fairness, transparency and competitiveness in the SCM processes (Mrope *et al.*, 2017:41). SOEs who ensured that the SCM policies and regulations are embedded on their SCM processes and procedures increased their rate of SCM performance (Ratemo & Karanja, 2015).

These results are in line with the findings of Erik and Vennstrom, (2008), stating that SCM policies and regulations are intended towards optimising supply chain performance by delivering a product or service to the ultimate customer at minimal cost and at the required time. Hrebiniak (2006) found that SCM policies and regulations yield benefits, such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage to Governmental organisations. Chemoiywo (2014) and Mutai (2014:34) found that the extent of compliance with public procurement policies and procedures are too high in Government organisations, and therefore has in effect had a significance influence on the supply chain performance.

Mbae (2014) found that by consulting successful Government department or experts in the procurement process, would improve compliance with regulations/policies, and that educating the workforce adequately in procurement policies and procedures would reduce breaches. These results confirm the views of Koech and Namusonge (2015:124) who indicated that organisations that ensure compliance to the SCM policies and regulations can lead to the improvement of its SCM performance.

In addition, the results concur with the theoretical positions assumed by several scholars (Lazarides, 2011:245; Lisa, 2010:702; Heneghan & O'Donnell, 2007:55; Karjalainen, Katariina & Erik, 2009:245; Tukamuhabwa, 2012) on the effect of compliance to the SCM policies and procedures on SCM performance, and ultimately organisational

performance. High compliance to SCM policies and regulations is associated with higher SCM performance. The findings supported Ha1.

(iii) H1c: There is positive and significant relationship between SCM practices on supply chain performance.

The study conducted a Pearson correlation analysis and PLS analysis for the variables, SCM practices and SCM performance. The results revealed a significantly positive relationship between the SCM practices and the SCM performance. The correlation between SCM practices and SCM performance indicates a positive relationship concluding that higher the SCM practices the higher the performance. These results are supported by the findings of Tan (2012), Mutuerandu and Iravo (2014:63), Li *et al.* (2006:24), and Karimi and Rafiee (2013). Each practice was tested individually against SCM performance.

The research results in sequence were as follows: a significant positive correlation was observed between the strategic sourcing and supply chain performance, followed by, cross-functional teams and supply chain performance, strategic SRM (Nyamasege & Bairaori, 2015:28) and supply chain performance, supply chain workforce and supply chain performance, SCI and supply chain performance, ESD and supply chain performance, IT and supply chain performance. The lowest responding practices were found to be ESD and IT.

The proper implementation of SCM practices are crucial for SCM performance as it affects all performance indicators (Shaffer & Dalton, 2012:100). These findings are in line with the results of Ling and Ling (2012) who established that SCM practices were found to positively influence SCM performance and the performance of the organisations. Kazi (2012:33) also found that effective SCM practices impact positively on operational performance of SCM and consequently competitive priorities of SOEs.

- ***What is the relationship between SCM policies and regulations with supply chain strategy in SOEs in South Africa?***

This research question tested the relationship between independent variables (SCM policies and regulations and supply chain strategy in SOEs). To answer the question hypothesis 2 was formulated as follows:

Ho2: There is no significant and positive relationship between SCM policies and regulations with supply chain strategy in SOEs in South Africa.

H2: There is significant and positive relationship between SCM policies and regulations with supply chain strategy in SOEs in South Africa.

The alternative hypothesis was proven correct as indicated as follows:

The study used the Pearson correlations analysis to determine the relationship between SCM practices with the SCM policies and regulations. The results indicate that SCM policies and regulations correlated significantly with supply chain strategy in SOEs. This means that the supply chain strategy must be aligned with the Government policies and regulations. These results echo the findings of Glas *et al.* (2017:573) who established that the strategic goals of SCM in government are enforced through policies and regulations. The results further revealed an impact at a legislation level at the following levels, the Constitution, followed by the BBBEEA, CIDBA, PPPFA and PFMA.

- ***What is the relationship between SCM policies and regulations with SCM practices in SOEs in South Africa?***

Ho3: There is a significant and positive relationship between SCM policies with SCM Practices in SOEs in South Africa.

H3: There is a significant and positive relationship between of SCM policies and regulations with SCM Practices in SOEs in South Africa.

The alternative hypothesis was proven correct as indicated as follows:

The study used Pearson's correlation analysis to determine the relationship between SCM policies and regulations and SCM practices. The results revealed a significant positive correlation between SCM policies and regulations ie, the Constitution, Public

Financial Management Act preferential procurement policy, CIDB Act and BBBEEA with SCM practices. These results support the findings of Kagendo (2010:42) who established that SCM policies and regulations influences SCM practices in parastatals. SCM practices in SOEs are regulated by SCM policies and underpinned by the provisions of the PFMA. SCM practices, unaligned with SCM policies and regulations will result to irregular and fruitless expenditure by the entity.

- ***To what extent do supply chain strategy and SCM practices predict SCM performance?***

To answer this research question, hypothesis 4 was formulated as follows:

H04: Supply chain strategy and SCM practices do not positively and significantly predict SCM performance in SOEs.

H4: Supply chain strategy and supply chain management practices positively and significantly predict supply chain management performance in state-owned entities.

The study conducted a three-step hierarchical regression analysis to determine whether supply chain strategy and SCM practices in SOEs predicted SCM performance. The first independent variable added was supply chain strategy, followed by an addition of ESD, CRM, strategic sourcing and strategic SRM increased the contribution of SCM practices at Step three adding ESD, CRM, strategic sourcing, strategic SRM, cross-functional teams, SCM workforce structure, IT, SCI further increased the contribution of supply chain strategy and SCM practices towards SCM performance. When all nine independent variables were included, strategic sourcing and cross-functional teams were found to be the most significant predictors of SCM performance in SOEs. The results also showed that supply chain strategy, ESD, strategic SRM, and IT significantly and positively predicted supply chain performance. Supply chain strategy, ESD, strategic SRM, and IT had a positively and significantly predicted supply chain performance SOEs deliver their service delivery infrastructure projects through the SCM process, in doing so SOEs are therefore obliged to comply to the SCM policies and regulations. This means that an aligned SCM strategies integrates SCM policies and regulations to its processes.

According to National Treasury (2015), the implementation of SCM regulations and policies will contribute significantly towards the improvement of financial management and SCM performance in the public sector. It is believed that when SCM policies and procedures (Constitution, PFMA, PPPFA, CIDB and B-BBEE) are considered in the alignment of SOE corporate and SCM strategies then SOEs would laid the basis for the implementation of Government imperatives through SCM. The objectives and operational plans that flow from such an aligned strategy will therefore contribute to performance of SCM.

- ***To what extent do supply chain strategy and SCM policies and regulations predict SCM performance?***

To answer this research question, hypothesis 5 was formulated as follows:

H05: Supply chain strategy and SCM policies and regulations positively and significantly predict SCM performance in SOEs.

H5: Supply chain strategy and supply chain management policies and regulations positively and significantly predict supply chain performance in state-owned entities

The study conducted a multiple regression analysis to determine whether supply chain strategy and SCM policies and regulations predicted SCM performance. The regression analysis was conducted in two stages. In the first stage the performance of supply chain strategy alone was observed. In stage two the five policies and regulations were added to determine the whether the combination of SCM policies and regulations with supply chain strategy significantly predicted the performance of SCM in SOEs. The results reveal that supply chain strategy, broad-based BEE, and the Constitution significantly and positively predict supply chain performance. This implies that high levels of supply chain strategy, broad-based BEE and the Constitution are associated with a high level of supply chain performance. Supply chain strategy and the implementation of broad-based BEE and the Constitution, has a positive impact in SCM performance in SOEs. The higher implementation of supply chain strategy, BBBEEA and the Constitution will positively increase the performance of SCM in SOEs.

7.5 SUMMARY AND RECOMMENDATIONS

7.5.1 Summary of the research study

This section provides a summary of the study. The primary objective of the study is to examine the alignment of SCM practices with policies and regulations to enhance the performance in SOEs. The study also sought to develop an SCM implementation framework to enhance SCM performance in SOEs in South Africa. The study began by providing background information, the problem statement, research objectives and questions and presented the justification for the study in Chapter 1.

Chapter 1: Provided the background to and scope of the study. The problem statement and the primary objective of the study were also stated. In addition, theoretical and empirical objectives, and the research question, were addressed. Lastly, the chapter provided an outline of the entire study.

Chapter 2: Discussed the landscape of SCM in general business management. An extensive overview of the concept SCM, crucial elements of SCM, SCM processes and various definitions of SCM were explored. The definitions of SCM were reviewed and analysed. The definitions, although different, revealed commonalities in viewing SCM either as a management philosophy, as a set of activities to implement management, or as a set of management processes. The historical development of SCM was explored, and it was established that SCM plays a crucial role in organisations. The strategic objectives of SCM in any business environment were identified and discussed. The contribution of SCM to the competitive advantage was explained through using theories of SCM. The enablers of the supply chain's contribution to competitive advantage were also explored. It was also established that for SCM to be effective there is a need for capable human resources and training, proper organisational design, the implementation of enabling IT systems, and the development of the appropriate SCM measures and measurement systems.

Chapter 3: Commenced with a general overview of SOEs and the mandate, followed by a discussion of SCM practices in SOEs in South Africa, the public sector SCM, and the SCM policies and regulations governing SCM practices. The chapter also

investigated the legislations governing SCM in SOEs, and their impact, as well as the development of purchasing to strategic sourcing, and the evolution of SCM in the public sector. It was established that the public sector SCM in South Africa is highly regulated. The literature review revealed that there are more than 80 different legal instruments that govern the public sector SCM and the public sector SCM in South Africa is imbedded in the country's Constitution. Public SCM policies and regulations were considered as the most important pillars of a sound SCM system and it was established that strict adherence to SCM policies and regulations is not negotiable.

In performing their activities, public sector SCM practitioners are expected to be efficient and effective. SCM processes in South Africa are highly regularised and are subject to regular audit reviews. Government entities either establish an internal audit department or they outsource the service to external parties. To ensure compliance to these legislations and to continuously improve the system, Government departments and entities are audited by the Auditor General of South Africa. In literature it was found that organisations can experience numerous problems and challenges regarding the implementation of SCM. Such challenges included the fragmentation of laws, non-compliance with SCM regulations, policy and processes, the poor implementation of contract management, misalignment of strategic sourcing and SCM policies and regulations, inadequate planning and the linking of demand to the budget, fraud, corruption and the high rise of irregular and fruitless expenditure. Inadequate monitoring and evaluation of SCM performance, ineffectiveness of the BEE policy, and lack of a sufficiently skilled workforce in SCM were also identified as challenges. SCM performance in SOEs was also explored.

Chapter 4: This chapter indicates a developed conceptual framework for the implementation of SCM in SOEs' corporate and business strategies, supply chain management strategy, supply chain management practices, with SCM policies and regulations to enhance supply chain performance. Theoretical perspectives of the contribution of SCM to a competitive advantage of an organisation were explored, with specific focus on PAT, resource-based theory, MBT and PBV theory. The framework considered the alignment between the SOE corporate strategy with supply chain

strategy. Literature revealed that the strategic management and planning processes in SOEs were mainly guided by South Africa National Treasury's regulations, policies, and the framework for strategic plans and annual performance plans. SOEs organisational strategies are supposed to cover a period of at least five years, ideally from the first planning cycle following an election, and are linked to the identified outcomes of the presidency. Corporate strategies and objectives were used as the basis for the development of SCM strategies and practices.

Chapter 5: Discussed the research methodology used in this study, and explained the research design and strategy. It provided detailed coverage of the literature review from the stated sources, research paradigm, sampling techniques, and selection of the population and sample were provided. In addition, the data collection and data analysis methods used in the study were discussed in detail. The study followed a quantitative research method based on an online survey. The questionnaire was administered to senior SCM managers in SOEs.

Chapter 6: The chapter presented the critical analyses, detailing the transcribed research data. Themes emanating from the data were coded into main themes and subthemes, and classified for evaluation and interpretation, supporting the study results. The responses for the demographic profiles were analysed using frequency distribution and using graphical methods, such as pie charts and bar charts. After the construction of a frequency distribution, numerical measures were used to determine the central location and variability of interval data. The crucial variables, namely, SOE supply chain strategy, SCM practices, SCM policies and regulations and SCM performance were analysed using the mean, SD, skewness and kurtosis.

To determine the linear relationships between the variables, a Pearson correlation coefficient analysis was applied. Hierarchical regression was also used to determine the relationship between the independent and dependent variables. To maximise the prediction of a hierarchical regression used to analyse the relationship between the dependent and independent variables, the PLS Structural Equation Modelling was discussed. For measuring reliability, the Cronbach's Alpha, the CR and AVE were used. The results were interpreted and integrated with the literature review. SPSS version

21.0 was used to statistically analyse and provide the descriptive analysis results (in the form of graphs and tables) and Smart PLS 2.0 M3 was used for structural Equation Modelling.

Chapter 7: The conclusions and recommendations were evaluated. This chapter provided a summary of the study and made recommendations supported by literature, primary and secondary data collected throughout the study. The chapter revisited the research objectives to determine whether they were achieved. The recommendations from the study and the main objective of the study, namely, to develop a framework for SOEs' SCM, were also presented.

7.5.2 Conclusions relating to the research objectives

The main objective of the study, the secondary objectives and their contributions to the main objective of the study are briefly discussed below.

7.5.2.1 Secondary research objective 1

To assess the success factors of implementing SCM strategy in SOEs in South Africa.

The findings of the study indicate that the majority of the SOEs created a conducive environment and platforms for the implementation of SCM strategies in SOEs. It can therefore be concluded that the majority of SOEs have (i) aligned their SCM policy with SCM policies and regulations (ii) they develop and manage annual procurement, the procurement plan is budgeted for, and the SCM only utilises the procurement plan for procurement of goods and services (iii) the SCM processes are well documented (iv) SOE business strategy support Government policies and laws (v) the SOE business strategy is translated into an annual performance plans, (vi) the supply chain strategy is supported by SOE SCM policy, (vii) Supply chain strategy is developed in support of the SOE strategy and (viii) SOEs develop functional strategies to deliver on Government imperatives.

Based on these results, Research objective 1 was confirmed as follows: it can be concluded that there is successful implementation of SCM strategies in SOEs in South Africa.

7.5.2.2 Secondary research objective 2

To assess the implementation of SCM practices in SOEs in South Africa

The results of the study revealed a strong implementation of SCM practices in SOEs, namely, customer relationship management, strategic sourcing, cross-functional team, strategic supplier relationships, workforce structure and SCI. The findings further revealed a poor the implementation of Enterprise Supplier Development and Information Technology. It can therefore be concluded that in SOEs the implementation of SCM advanced significantly in the past years. The poor implementation of IT implies that the majority of SOEs are not fully utilising the systems and that the SCM systems in SOEs are not fully automated, thereby exposing the SOEs to risk of data manipulation, poor reporting, poor back-up systems, and potential loss of evidence. The poor implementation of ESD in SOEs is a concern, especially in the light of the magnitude of SOEs' procurement budgets.

Based on these results, Research objective 2 was confirmed as follows: it can be concluded that SCM practices were successfully implemented in SOEs in South Africa, except for ESD and IT.

7.5.2.3 Secondary research objective 3

To assess the extent of the compliance of SOEs to SCM policies and regulations.

The aim is to develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices so as to enhance SCM performance. The findings indicated as the highest the implementation of PFMA, followed by the Constitution, preferential procurement policy, CIDB, whilst B-BBEE displayed the lowest mean score.

In conclusion, the implementation of the B-BBEE Act in SOEs is still not at a desired level, and is therefore sabotaging the SOEs' potential contribution to the B-BBEE targets, such as, skills development, ESD and preferential procurement. There is therefore a need for the alignment of legislative and regulatory with SCM to leverage on the SOEs buying power and secure their contributions.

Based on these results, Research objective 3 was confirmed as follows: it can be concluded that the implementation of SCM policies and regulations remain a priority in SOEs. The Constitution, PFMA, PPPFA, CIDB are successfully implemented in SOEs. There are still some challenges concerning the implementation of BBBEEA.

7.5.2.4 Secondary research objective 4

To assess key SCM performance indicators in SOEs.

The aim is to develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices to enhance SCM performance.

The results indicated high scores in key supply chain performance indicators across the board. The highest mean scores for supply chain performance was with SCM compliance to policies, followed by ensuring quality in the procurement process, we have an SCM risk register, SCM produce monthly reports indicating performance, procurement cycle scored, those that indicated that they take cognisance of total costs of ownership for their procurement process and the lowest indicated that they benchmark their performance with other entities.

The results indicate that SCM compliance to policies remain the crucial priority amongst SCM practitioners in SOEs, to an extent that it ranked the highest concerning the mean score. The SOEs continue to miss the benefits that could be derived from the benchmarking exercise.

Based on these results, Research objective 4 was confirmed as follows: it can be concluded that the crucial performance indicators are implemented in SOEs.

7.5.2.5 Secondary research objective 5

To assess the challenges impacting the implementation of SCM in SOEs.

The findings revealed that the challenges facing SOE SCMs were found to be: fragmentation of laws, non-compliance with SCM regulations, policy and processes, poor implementation of contract management, misalignment of strategic sourcing and SCM policies and regulations, inadequate planning and the linking of demand to the budget, fraud, corruption and high rise of irregular and fruitless expenditure. inadequate

monitoring and evaluation of SCM performance, ineffectiveness of the BEE policy, and lack of sufficiently skilled workforce in SCM. Based on the results, the implementation of SCM in SOEs improved significantly, thereby reducing the challenges.

Based on these results, research objective five (5) was confirmed as follows: The results revealed that ineffective procurement planning, ineffective contract management, poor compliance with SCM regulations and policies, misalignment of strategic sourcing and SCM policies, ineffective communication of business strategy, supply chain strategy not integrated with the business strategy, higher irregular expenditure, high rate of fruitless expenditure and SCM do not have top management support and were no longer recognised as key challenges in SOEs.

Based on these results, Research objective 5 was confirmed as follows: it can be concluded that there is a significant improvement as far as the challenges impacting SCM in SOEs are concerned. The remaining challenges are the implementation of B-BBEE strategy and the implementation of consequence management.

7.5.2.6 Secondary research objective 6

To determine the impact of the relationship between supply chain strategy, SCM policies and regulations, and SCM practices on SCM performance in SOEs in South Africa.

The findings revealed a positive and significant relationship between supply chain strategy, SCM policies and regulations and SCM practices on SCM performance in SOEs. For SCM to be deemed as performed there must be congruency between the SOE's supply chain strategy, SCM policies and regulations and the SCM practices. Supply chain strategy therefore plays an important role in driving the performance of SCM in an organisation and consequently the performance of the SOEs through the successful implementation of service delivery projects. Proper implementation of CRM, strategic sourcing, cross-functional teams, strategic supplier relationships, workforce structure, SCI, ESD and IT in SOEs will enhance the performance of SCM.

- ***Relationship between SCM policies and regulations, and the supply chain strategy in SOEs in South Africa.***

Theoretically, the relationship between SCM policies and regulations with supply chain strategy in SOEs in South Africa were discussed in Chapters 3 and 4. The correlations analysis and SMART PLS analysis in Chapter 6 indicates a strongly positive and highly significant relationship between SCM policies and regulations with supply chain strategy in SOEs in South Africa. This study confirms that supply chain strategy and the implementation of broad-based BEE and the Constitution have a positive impact in SCM performance in SOEs. The higher implementation of supply chain strategy, BBBEEA and the Constitution will positively increase the performance of SCM in SOEs.

- ***Relationship between SCM policies and regulations, and SCM practices in SOEs in South Africa.***

  Theoretically, the relationship between SCM policies and SCM practices were discussed in Chapter 3 and Chapter 4. The correlational and the SmartPLS analysis that were done in Chapter 6 indicate a weak positive and significant relationship between the SCM policies and regulations and SCM practices in SOEs.

- ***Relationship between supply chain strategy and SCM practices predicts SCM performance in South Africa.***

  The research findings showed that both supply chain strategy implementation and SCM practices predicted SCM performance. The hierarchical regression revealed that when all nine independent variables (SCM practices and supply chain strategy) were included in the regression model, SOE supply chain strategy, ESD, strategic SRM and IT were not significant predictors of supply chain performance. The most important predictor of supply chain performance was strategic sourcing and cross-functional teams. The results showed that SOEs supply chain strategy, ESD, strategic SRM, and IT significantly and positively predicted supply chain performance.

- ***Relationship between supply chain strategy and SCM policies and regulations predicts SCM performance.***

  The hierarchical regression revealed that, when all six independent variables were included in the regression model, preferential procurement policy was not a significant predictors of supply chain performance. The most important predictor of supply chain performance was broad-based BEE and the Constitution. The results reveal that supply chain strategy and broad-based BEE and the Constitution significantly and positively predicted supply chain performance. This implies that high levels of supply chain strategy, broad-based BEE and the Constitution are associated with a high level of supply chain performance.

Based on the above, the study concludes Research objective 6 as follows: that there is a positive and significant relationship between supply chain strategy, SCM policies and regulations and SCM practices on SCM performance in SOEs.

7.5.2.7 Secondary research objective 7

To develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices so as to enhance SCM performance.

Research objective 7 of the study sought to develop a framework for the alignment of supply chain strategy, SCM policies and regulations with SCM practices to enhance SCM performance. The framework is meant to assist SOE SCM practitioners in the successful implementation of the SCM. The study explored the alignment of SOEs corporate and supply chain strategies with SCM practices and policies and regulations governing SCM to enhance SCM performance. First SCM should align vertically with SOE corporate strategy to effectively contribute to SOEs performance and contribution to Government imperatives. It was established that SCM should be informed and take influence in the strategic planning process of SOEs to align the function's practices throughout various management levels. The involvement of SCM with SOE strategy allows the organisation to capture cross-enterprise opportunities that not only generate

cost and capital efficiencies, but also assist to drive top-line opportunities. Corporate strategies and objectives are the basis for the development of SCM strategies and practices.

Following the secondary research objectives, the main research objective of the study is now confirmed as follows:

A Smart PLS model was employed to assess the alignment between the three variables. The results of the study revealed generally that there is alignment between SCM practices and SCM policies and regulations. However, based on the four constructs that were used (SCM practices, policies and regulations, SCM strategy and SCM performance) the results also reveal that there was misalignment between SCM strategy and SCM performance. The study suggests a conceptual framework for the SOEs to enable them to enhance their performance. The study provides an understanding of how SCM could be applied efficiently in the SOE sector and it provides insight into the body of knowledge.

7.5.3 Recommendations

7.5.3.1 The implementation of supply chain strategy in state-owned entities

Supply chain strategy in SOEs must be aligned with the corporate strategies. SCM departments in SOEs must develop an annual supply chain strategy which articulates how the SCM department will deliver the organisational strategies and objectives. The supply chain strategy must be translated into the annual procurement plan and be included in the annual performance plan. The annual procurement plan must be properly funded. The supply chain strategy must be reviewed quarterly. The progress of the implementation of the annual procurement plan must also be reported to National Treasury quarterly. The strategy of SCM should be to achieve continuous improvement in value for money, based on cost and quality, and to enhance the competitiveness of suppliers through the development of world-class professional SCM practices.

7.5.3.2 The implementation of supply chain management practices in state-owned entities

The recommendations for the implementation of SCM practices in SOEs are summarised in Table 7.2 (below) and a detailed description of each practice is included.

Table 7.2: Recommendations for the implementation of SCM practices in SOEs

SCM practice	Recommendations
Customer Relations Management (CRM)	– The role of SCM in CRM must be embedded on the KPIs of SCM practitioners – SCM leadership and team must ensure engagements and clear communication with its internal stakeholders – The implementation of CRM by the SCM team must be reviewed quarterly
Sourcing Management	– SCM management must implement effective commodity and category strategies – To reduce time to source, SCM management must establish supplier panels for repetitive commodities and services – SCM management to ensure participation in Government transversal contract – National Treasury, SITA and Department of Transport – Effectively implement procurement planning processes – Implement risk assessments on all suppliers prior to appointment
Supplier Relationship Management (SRM)	– SCM management through strategic sourcing must ensure careful and strategic selection of partners for the project's implementation – Additional to contracts, SLAs must be enforced and be signed by the buying organisation and the service provider – SLAs to clearly articulate the KPIs of each contract- contract review reports. Supplier performance dash board – Immediate action must be taken for poor performance by the suppliers followed by a root cause analysis exercise – SCM to monitor post-award contract activities and performance of the contracts and to review the supplier performance long-term contract on a quarterly basis – SCM to offer training to suppliers regarding its processes and procedures – Supplier development plans – Supplier assessment frameworks

SCM practice	Recommendations
Cross-functional Teams	– Participation of functional personnel in bid committees must be entrenched in their performance agreements – Attendance of bid committee members must be vigorously monitored, failure to attend must be escalated to the relevant authorities – Bid committee members must be fully capacitated through continuous education and training. – Bid committee to sign code of conduct for SCM role participants
Information Technology	– SCM function (sourcing module, contract module and others) must be fully automated through full utilisation of the ERP systems – SOE SCM ERP systems to be fully integrated with the National Treasury Central Supplier database system
Workforce and Structure	– SCM to report directly the accounting officer/accounting authority – SCM to form part of the executive committee to enable representation level – SCM to acquire suitable talent and skills – SCM personnel to be registered with accredited relevant professional bodies – SCM managers to ensure continuous, professional training and development of their teams – SCM Managers to encourage mentorships and couching support – Clear job descriptions-competency matrices-training plans-succession plans
Supply Chain Integration	– SCM to be involved in strategic decision-making of the organisation – Ensure regular engagements with crucial stakeholders – SCM to ensure supply chain optimisation
Enterprise Supplier Development	– SOE to develop an ESD strategy, fully integrated within PPPFA and regulations – ESD strategy to be fully funded and resourced

Source: Own compilation (2018)

The following section provides further details to the recommendations as listed in Table 7.2:

- Supply chain needs to effectively implement CRM. Close customer relationships allow an organisation to differentiate its products from competitors, and to sustain customer loyalty.
- Due to the high budget allocation to SOEs, SOEs should intensify the implementation of strategic sourcing at their entities.
- ESD is an important platform for SOEs to contribute to the socioeconomic objectives of the country. SOEs must develop an ESD strategy, followed by an implementation plan which should be funded. ESD should not be regarded as an additional activity, but a core activity in pursuing Government's imperatives. SOEs must allocate dedicated resources for the implementation of ESD. The SOE's ESD approach must address both financial and non-financial ESD initiatives.
- Strategic supplier relationship and contract management. Members of the supply chain can improve their relationships through creating and maintaining of partnerships amongst themselves, and effective communication, and trust are essential for success of SCM. According to Mchopa (2015:140), effective contract implementation begins with a proper contract document containing the minimum required terms and conditions.
- Cross-functional teams. Successful implementation of SCM requires the cooperation of both internal and external stakeholders. For the external coordination to be successful, the organisation must first ensure that there is full alignment internally. The cross-functional activities for the team to be entrenched in the participants' performance contracts. This will ensure that all managers understand that SCM requires their assistance and cooperation to deliver on the project.
- Workforce and structure. To successfully implement a SCM system, qualified and skilled individuals should be employed. SOEs must also invest in the training of SCM officials to ensure that they are continually upskilled. The SCM personnel must be trained on how to conduct various SCM functions (Mwangangi & Owuoth, 2015:182). Managers to invest time in developing a skills matrix and individual development plans for the staff. Training of SCM personnel is regarded as an investment that increases employee productivity (Shaffer & Dalton, 2012:112). SOEs to forge

relationships with professional bodies and their staff, and to be affiliated with professional bodies.

- Information technology and SCI. The study revealed that IT is crucial for supply chain performance. SOEs to invest in training their staff on the utilisation of SCM systems. SCM to force their organisations to invest in the integration of their systems with the National Treasury database to avoid duplication and manual activities. SOEs must accelerate the process of integrating the SCM ERP with the National Treasury database. SCM practitioners to insist in thorough training of officials utilising the ERP systems. Full implementation of e-procurement in SOEs will eliminate human error, increased efficiency, increased cost savings in SCM, reduced cycle time and improving transparency (Karangi & Mwangangi, 2017:17).
- Contracts with suppliers should define the service levels and terms under which services are to be provided. Service Level Agreements (SLAs) should be implemented to ensure proper performance management and to mitigate any financial, operational, safety, environmental or reputational risks which may arise during the term of the contract. A process for monitoring the delivery of the suppliers must be set up by management to ensure the continuing adherence to the supplier contract and SLAs. Suppliers must be monitored against the agreed performance metrics defined in SLAs and contracts; and it must be confirmed that suppliers are meeting business requirements (Roodhooft & Abbeele, 2006:5).
- Performance metrics must be cleared define, monitored and be reviewed periodically to ensure that service providers continue to support business requirements. Improvements in price, quality or service must be sought, and where possible, be built into the contract terms.

7.5.3.3 Compliance to supply chain management policies and regulations

The results indicated poor implementation of BBBEEA in SOEs. This section therefore outlines the recommendations for BBBEEA implementation in SOEs as follows:

- SOEs must ensure that B-BBEE policy requirements are integrated with the SCM strategy and practices.

- The B-BBEE transformation goals must be embedded on the tender process, either as a prequalification process, or as part of final evaluation.
- Bidders to be encouraged to form Joint Ventures (JVs) with Black-owned entities, alternatively to subcontract a minimum percentage of the contract to Black-owned companies.
- SOEs must, in the case of selected tenders where it is feasible to sub-contract, apply compulsory sub-contracting to advance designated groups in contracts above R30 million. That SOEs must advertise such tender with a specific tendering condition that the successful tenderer must sub-contract a minimum of 30% of the value of the contract to-

  (a) An EME or QSE;

  (i) An EME or QSE which is at least 51% Black Owned

  (ii) An EME or QSE which is at least 51% owned by black youth

  (iii) An EME or QSE which is at least 51% Black Women Owned

  (iv) An EME or QSE which is at least 51% owned by black people with disabilities

  (v) An EME or QSE which is 51% owned by black people living in rural or underdeveloped areas and / or townships

  (vi) A Cooperative which is at least 51% owned by black people.

  (vii) An EME or QSE which is at least 51% owned by black people who are military veterans
- Stipulating that an Enterprise awarded a contract in relation to a designated sector, may not subcontract in such a manner that the local production and content of the value of the contract is reduced to below the stipulated minimum threshold.

7.5.3.4 Recommendations for supply chain management performance in state-owned entities

SOEs must intensify their efforts in the management of SCM performance. The recommendations are as follows: SCM KPIs must be clearly define, monitored and

shared. Implement internal and external performance benchmarking. On risk management, SOEs must identify and assess risk on a case-by-case basis. The aim of risk management should be to allocate risks to those best able to manage them. SCM in SOEs must utilise contract documents as tools for managing risks. SCM must exercise risk management in a proactive manner and should make budgetary allowances to cover risks. SCM to ensure that internal lead time is tracked with a view to reduce it.

7.6 RESEARCH CONTRIBUTION

7.6.1 Contribution at theoretical level

The literature review revealed in-depth information regarding the implementation of supply chain strategy, SCM practices and SCM performance in private sector organisations. Whilst research constructs, such as supply chain strategy, SCM practices and SCM performance, were substantially researched in private sector, there was a lack of research on supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs in South Africa. This study is one of the few that sought to assess the relationships between supply chain strategy, SCM policies and regulations, SCM practices and supply chain performance in SOEs in South Africa. The study therefore contributes to theory development for future studies. This study created theoretical groundwork for future empirical studies in the country.

This study also contributes to new literature and empirical findings of the supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs, therefore it is likely to be a useful source of reference material for future academic research. The findings of this study provide an understanding of how supply chain strategy, SCM policies and regulations, SCM practices are related to SCM performance in an SOE environment. The literature review highlighted the importance of considering the SOE's corporate strategy when designing a supply chain strategy. As one of the functional strategies of the organisation, supply chain strategy must be delivered within the ambits of the SCM policies and regulations. The study established that SOEs in

South Africa implement supply chain strategy, SCM policies and regulations, SCM practices to enhance SCM performance.

The findings of this study provide a new understanding of how supply chain strategy, SCM policies and regulations, SCM practices are related to SCM performance in SOEs. The literature review highlighted the importance of the alignment of the three constructs in SCM performance. The approach followed by this study was original, as it integrated all these constructs to develop an SCM implementation framework for the SCM practitioners in SOEs. SCM practitioners should therefore be in an improved position to assist organisations in understanding the relationship between SCM practices and SCM policies and regulations. It is recommended that these findings, especially the recommendations and the SCM implementation framework, be implemented in SOEs in South Africa.

The study contributes to the body of knowledge regarding the role of supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs. The study proposes a theoretical SCM implementation framework for SOEs that identifies CRM, strategic sourcing, cross-functional team, strategic supplier relationships, workforce structure, SCI, ESD and IT. This study provides a useful framework for the SCM managers in SOEs to assess their performance.

7.6.2 Managerial implications

The study offers various managerial implications. First, it provides SCM managers in SOEs with recommendations and a practical SCM implementation tool. Secondly, the study indicates that the implementation of SCM practices has an impact on SCM performance. This study assists management by identifying additional dimensions of SCM practices in SOEs and incorporates the practices into the implementation model. The study encourages SCM managers in SOEs to implement the recommended SCM models to efficiently and effectively drive their SCM performance. SCM managers should ensure that their SCM practices are aligned with the SCM policies and regulations. Failure to align the two will result poor performance and qonsequently missed transformation targets.

The findings of this study contribute to the development of an empirically-tested SCM implementation model that may be used to enhance the performance of SCM in SOEs in South Africa. The proposed model is a new contribution to the field of public sector SCM and adds valuable knowledge and understanding to the contemporary research on the public sector SCM variables, and SCM performance-related factors that are affected. The model was derived from previous studies and backed by empirical validation. The empirically-tested model outlines the importance of supply chain strategy, SCM policies and regulations, SCM practices and SCM performance in SOEs. In addition, it also emphasises the criticality of ensuring that supply chain strategy is aligned with the corporate strategy in order to enhance performance.

The relationship between the concepts within the study were examined. The findings in this study add new knowledge that may inform SCM implementation programmes. The study therefore suggests the following model (as shown in Figure 7.1). The framework suggests the following implementation steps:

7.6.2.1 Step 1: Developing the SOE's corporate strategy

Strategy development is a major part of the strategic management process. The strategic management process comprises five stages, namely: 1) developing a strategic vision, 2) setting objectives, 3) crafting a strategy, 4) the implementation of and execution of the chosen strategy, and 5) the monitoring, evaluation and initiation of corrective adjustments. The strategic management and planning processes in SOEs is guided by South Africa's National Treasury's regulations, policies and the framework for strategic plans and annual performance plans.

As prescribed by National Treasury, the SOEs organisational strategies should cover a period of at least five years, ideally from the first planning cycle following an election, linked to the identified outcomes of the Presidency. The plans are reviewed on a yearly basis at the beginning of each financial year. The planning framework gives emphasis on 'outcome-oriented planning', which focuses on achieving outcomes and reporting on results of performance. The information is used for internal management and for reporting to external stakeholders such as Parliament and the public. Corporate

strategies and objectives are the basis for the development of SCM strategies and practices.

7.6.2.2 Step 2: Aligning the SOE's corporate strategy with supply chain strategies

It has been argued that it is only after an organisation has developed its objectives that functional strategies, including those of SCM, can be developed. As a result, derived from the corporate strategy of competitiveness, a supply chain strategy defines how the supply chains should be configured and operated to be competitive. If supply is unaware of the strategic intent of their SOE, it is likely to follow a misaligned approach; this will result in the SOEs not achieving its full business benefit. SCM strategies should be translated into achievable objectives, consistent with the SOE strategy. SCM objectives must be balanced according to the corporate objectives at a provided time.

7.6.2.3 Step 3: Integrating supply chain management strategies with supply chain management policies and regulations

SOEs are obliged to comply with all government policies and regulations governing SCM. Any supply chain strategy implemented in SOEs should be within the ambits of the law. The integration of supply chain strategy with the SCM policies and regulations ensures that the SOEs contribute to socioeconomic goals.

7.6.2.4 Step 4: The implementation of supply chain management practices

After integrating the supply chain strategy with SCM policies, the SCM strategies ought to drive the implementation of SCM practices, instead of best practice. Effectively, the SCM practices will support the core objectives of the SOE. The successful implementation of supply chain strategies requires the following elements:

(1) identifying required skills and capabilities,

(2) creating structure and positions,

(3) allocating resources,

(4) instituting policies, procedures and control measures,

(5) continuous process management,

(6) information and operating systems, and

(7) strong leadership.

The process requires strong collaboration with HR in areas of change management, instilling a corporate culture that promotes good strategy executions, rewards and recognition, individual performance contracts and management system. The SCM practices must add value to the organisation, thereby enhancing performance.

7.6.2.5 Step 5: The implementation of supply chain management practices to enhance supply chain management performance

It was established that SCM practices enhance the performance of SCM. Performance in SCM was found to be measured by compliance to the policies and regulations, benchmarking, cost savings, quality management, lead times, transformation and performance monitoring and management.

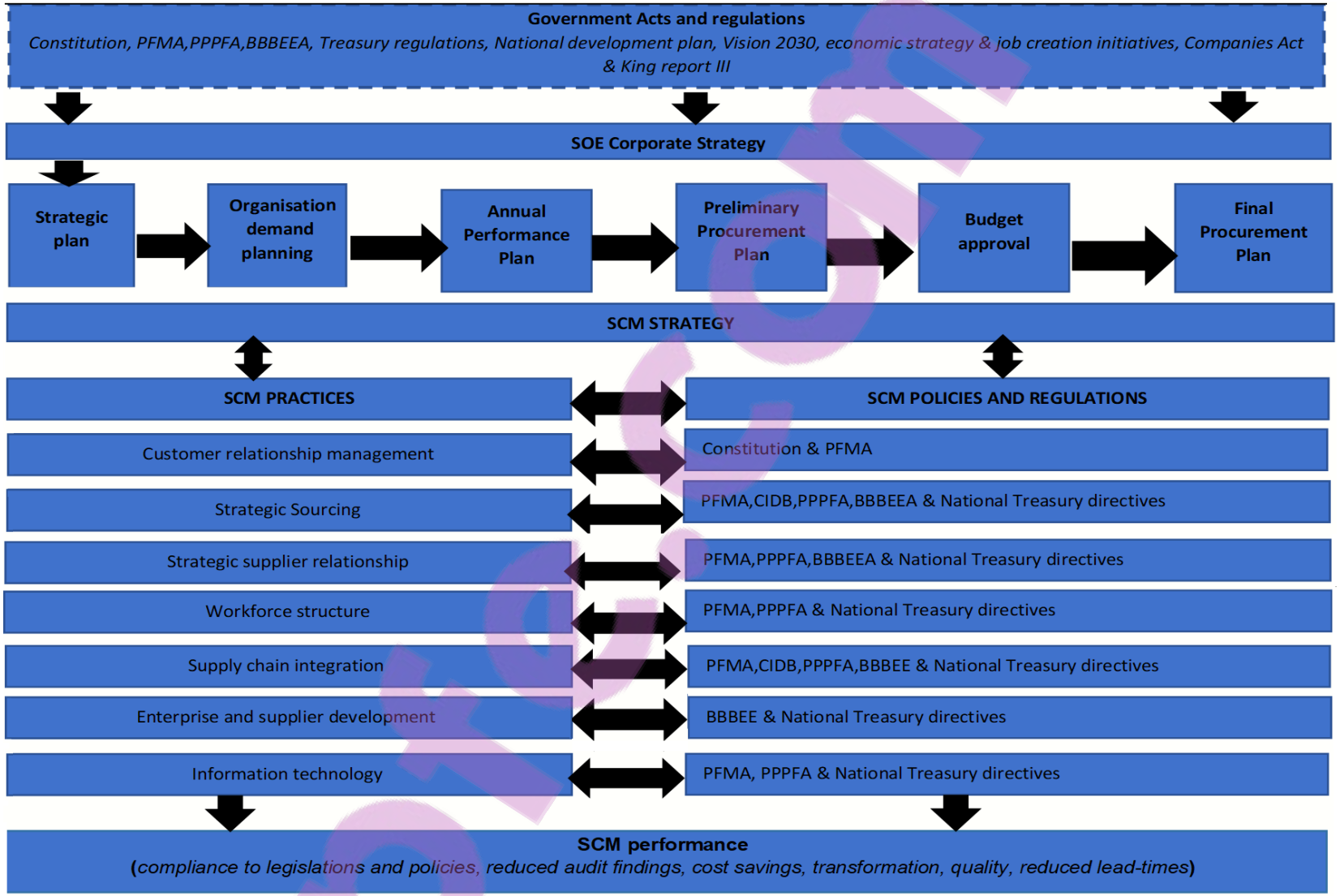

Figure 7.1: Revised SCM implementation framework for SOEs in South Africa

Source: Research data (2018)

7.7 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

The main limitation of the study was limited to SOEs registered with the SOEPF, more samples from a large variety of SOEs would have been desirable. The respondents comprised of senior SCM practitioners at SOEs, who are members of the SOEPF. A random sampling method was drawn from a smaller sample size of 300 respondents from the larger population of 1050 SCM managers. This was not considered large enough, therefore the study cannot be generalised.

It is recommended that further studies make use of different research methodologies, mixed methods research or qualitative research, which could provide a fuller understanding of the relationship between the supply chain strategy, SCM policies and regulations, SCM practices and SCM performance. The findings of this study showed a need for further research in exploring the relationships between SCM practices (enterprise supplier development, contract management, consequence management, and information technology) with SCM performance in SOEs. It is recommended that further research should address the limitations inherent to this study. Further research should also to assess the capacity of suppliers in partnership with SOEs to adopt e-procurement practice and the challenges thereof.

The study further recommends a study in e-procurement and its effect on SCM performance of SOEs as this would improve the literature on the topic and improve the capacity of SOEs. According to Karangi and Mwangangi (2017:17), the implementation of e-procurement in SOEs would enhance transparency, fairness, reduce cycle times and increase an efficient competitive bidding processes.

7.8 CHAPTER SUMMARY

This chapter presented the summary of the findings, conclusions and limitations of this study, and made recommendations for further research. The limitations were discussed with reference to the literature review and the empirical study. A summary of the research was also presented, highlighting the extent to which the results of the study

provide support for the SCM implementation framework for SOEs in South Africa. In this study, research aim seven was consequently achieved, namely, to formulate conclusions based on the research findings and to make recommendations for SCM implementation in SOEs and SCM in general, and for future research based on the findings of this study.

REFERENCES

Aaker, D.A., Kumar, J & Day, G.G. 2011. *Marketing research*. (7th Ed.). New York: John Wiley and Sons.

Abdallah, A.B., Obeidat, B.Y. & Aqqad, N.O. 2014. The impact of supply chain management practices on supply chain performance in Jordan: The moderating effect of competitive intensity. *International business research*, 7(3).

Abebe, G. 2008. Efficiency, accountability and transparency in public procurement: The level of compliance in Africa. Seattle, USA, Proceedings of the 5th *International public procurement conference.*

Abeywardena, I. S., Raviraja, R., & Tham, C. Y. 2012. Conceptual framework for parametrically measuring the desirability of open educational resources using D-index. *International Review of Research in Open and Distance Learning , 13*(2), 104-121.

Accenture. 2010. SOEPF *State-Owned Enterprises Procurement Forum Procurement Benchmark Report.* [Online] Available from http://www.accenture.com/SiteCollection Documents/PDF/*[Accessed 10 June 2016].*

Accenture. 2018. How intelligent automation dramatically reduces costs and transforms the growth agenda. [Online] Available from http://www.accenture.com/SiteCollection Documents/PDF/ [Accessed 10 June 2017].

Adams, J.H., Khan, H.T.H., Raeside, R. & White, D. 2012. *Research Methods for Graduate Business and Social Science Students*. Thousand Oaks, California: Sage Publications Inc.

ADR International. 2017. Supplier Relationship Management. [Online] Available from http://www.adr-international.com/services/advisory/supplier-management. [Accessed 10 June 2017].

Africa Vukani Supply Chains Solutions (PTY) Ltd. 2012. 'Key themes arising from the state of supply chain management within the State-Owned Enterprises', *Report*, [online]. Available http://www.thepresidency.gov.za/electronicreport/downloads/volume_3/development_an

d_transformation/Compliance_of_state_owned_entities_to_the_development_agenda.doc. [Accessed 10 February 2017]

Aluko, F.S. 2006. Social science research: A critique of quantitative and qualitative methods and proposal for an eclectic approach. *IFE Psychologia: An International Journal,* 14(1):198-210.

Alvarado, U.Y. & Kotzab, H. 2001. Supply chain management: The integration of logistics in marketing. *Industrial Marketing Management*, 30: 183-198.

Ambe, I.M. & Badenhorst-Weiss, J.A. 2012. Managing and controlling public sector supply chains. In: Pengzhong, L. ed. *Supply chain management.* Croatia: InTech: 73-92.

Ambe, I.M. 2012. Determining an optimal supply chain strategy. *Journal of Transport and Supply Chain Management,* 2(6): 126–147.

Ameyaw, C., Mensah, S. & Osei-Tutu, E. 2012. Public procurement in Ghana: The implementation challenges to the Public Procurement Law 2003 (Act 663). *International Journal of Construction Supply Chain Management,* 2(2): 55-65.

Anderson, M.G. & Katz, P.B. 1998. Strategic sourcing. *International Journal of Logistics Management* 9(1): 1-13.

Arminas, D. 2002. Align buying and corporate strategies, chairman urges*. Supply Management Journal*, 7 (23):13-40. Available at: http://sigmaweb.org [Accessed on 20 January 2015].

Auditor General South Africa. 2008. *Performance audit of entities that are connected with Government employees and doing business with national departments.* [Online] Available from http://db3sqepoi5h3s.cloudfront.net/files/docs/090610entities_3.pdf. [Accessed 07 September 2015].

Auditor General South Africa. 2012. *Consolidated general report on the national, provincial and public entities audit outcomes 2012–13*. Pretoria: Auditor General South Africa. [Online] Available from: https://www.agsa.co.za/Documents/Auditreports/PFMA20122013.aspx [Accessed on 10 July 2014].

Awino, Z.B & Marendi-Getuno, P.N. 2014. Public procurement Legal Framework Implementation challenges and organisational performance. *DBA Africa management Review*, 4(2):103-117

Azmi, I, Hamid, A.N. Hussain M.D & Ibtishamiah, M. 2017. Logistics and supply chain management: Importance of integration for business process. *Journal of emerging economies and Islamic Research,* 5(4): 73-80.

Baarda, D.B., De Goede, M.P.M. & Van Dijkum, C.J. 2004. *Introduction to statistics with SPSS: a guide to the processing, analysing and reporting of research data*. Netherlands: Wolters-Noordhoff BV.

Babbie, E.R. 2008. *The Practice of Social Research.* (12th Ed.). Belmont, CA: Wadsworth.

Badaso, C.J. 2014. Challenges implementation of procurement policies in state corporation in Kenya. *European journal business and management*, 6(3):56-61

Badenhorst-Weiss, J.A. & Naude, M.J. 2011. Supply chain management problems at South African automotive component manufacturers. *South African Business Review* 15 (1):70-99.

Baier, C., Hartmann, E. & Moser, R. 2008. Strategic alignment and purchasing efficacy: an exploratory analysis of their impact on financial performance. *Journal of Supply Chain Management*, 44 (4): 36-52.

Bailey, P., Farmer, D., Jessop, D. & Jones, D. 2015. *Purchasing principles and management.* (11th ed.). Pearson Education. United Kingdom

Barnes, J. & Liao, Y. 2012. The Effect of Individual, Network, and Collaborative Competencies on the Supply Chain Management System. *International Journal of Production Economics.* 140 (2): 888-899.

Basheka, B.C. 2010. Public procurement skills requirement Framework for local Government systems in Uganda: perceptions from professionals, http://www.ippa.org/IPPC4.

Bartik, L. 2009. Supply chain management practices in institutions. *Procurement Journal.* 21 (1): 49-73.

Baron, R. & Kenny, D.A. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51: 1173-1182.

Beckert, J & Milan Z. 2006. *International encyclopedia of economic sociology*. London: Routledge.

Bendickson, J, Muldoon, J., Liguori, E.W., & Davis, P.E. 2016. Agency theory: background and epistemology.*[Online] Journal of Management History,* 22(4): 437-449. Available from https://doi.org/10.1108/JMH-06-2016-0028.[Accessed on 16 March 2017]

Benton, W.C. 2007. Power influences in the supply chain. *Journal of Business Logistics,* 21(1): 49-73.

Benton, W.C. 2007. *Purchasing and supply management*. (International edition). Boston: McGraw-Hill.

Bertrand, J.W.M. & Fransoo, J.C. 2002. Operations management research methodologies using quantitative modelling. *International Journal of Operations and Production Management*, 22(2): 241-264.

Berndt, A. & Pertzer, D. 2011. *Marketing research*. Pinelands, Cape Town: Heinemann.

Blunch, J.N. 2008. *Introduction to Structural Equation Modelling Using SPSS and AMOS*

Boateng, D. 2009. Government service delivery lies in supply chain management not centralised procurement [Online] Available from ://www.smartprocurement.co.za/archives/ [Accessed 10 February 2017]

Boko, F & YuanJan Q. 2011. *'Failure of State-Owned Enterprises in Benin' School of Management.* Wuhan University of technology.

Bolstorff, P. & Rosenbaum, R. 2003. *Supply chain excellence: a handbook for dramatic improvement using the SCOR model.* New York: Amacom.

Boon-itt, S. & Wong, C.W. 2011. The Moderating effects of technological and demand uncertainties on the relationship between supply chain integration and customer delivery

performance. *International Journal of Physical Distribution and Logistics Management*, 41(3): 253-276.

Bor, J, Chepkwonmy, J & Bonuke, R. 2015. Employee perceived interference and professional ethics on non-compliance with public procurement regulations: Evidence from Kenya. *European Journal of Business*, 7(5):96–108.

Bowersox, J., Closs, J. & Cooper, B. 2002. *Supply Chain Logistics Management*. (2nd Ed.). Asia. McGraw-Hill Education.

Bowersox, J., Closs, J. & Cooper, B. 2007. S*upply Chain Logistics Management*. (3rd Ed.). Asia. McGraw-Hill Education.

Bradley, N. 2013. *Marketing research tools and techniques*. (3rd ed.). UK: Oxford University Press.

Brammer, S. & Walker, H. 2011. Sustainable procurement practice in the public sector: An international comparative study. *International Journal of Operations and Production Management*, 31(4): 452-476.

Bratić, D. 2011. Achieving a Competitive Advantage by SCM. *IBIMA Business Review* [Online] Available at http://www.ibimapublishing.com/journals/IBIMABR/ibimabr.html. Article ID 957583 [Accessed 14 February 2015]

Bromiley, P. & Rau, D. 2014. Towards a practice-based view of strategy. *Strategic Management Journal,* 35 (8): 1249-1256.

Bryman, A., Bell, E., Hirschsohn, P., dos Santos, J., du Toit, A., & Masenge, A. 2014. *Research Methodology. Business and Management contexts.* (3rd ed.). Cape Town: Oxford University Press Southern Africa (PTY) Limited.

Burgess, K., Singh, P. & Koroglu, R. 2006. Supply Chain Management: A Structured Literature Review and Implications for Future Research. *International Journal of Operations and Production Management*, 26(7): 703-729.

Burger, P. & Hawkesworth, I. 2011. How to attain value for money: comparing PPP and Traditional Infrastructure Public Procurement. *OECD Journal and Budgeting,*1 (1): 1-56

Burt, D.N., Dobler, D.W.W. & Starling, S.L. 2011. *World-class supply management: the crucial to supply management*. (7th ed.). Boston: Irwin McGraw-Hill.

Butterman, G., Germain, R., & Lyer, K.N.S. 2008. Contingency theory 'fit as gestalt': an application to supply chain management. *Transportation Research PART* E, 44 (6), 955–969.

Cant, M., Gebber-Nel, C., Nel, D., & Kotze, T. 2003. M*arketing Research*. Claremont: New Africa Books (PTY) LTD.

Callender, G. & Matthews, D. 2009. Economic context of public procurement. In *International Handbook of Public Procurement,* Khi V. Thai (ed.). New York: CRC Press.

Carpenter, M.A & Sanders W.G. 2009 *Strategic Management: A dynamic Perspective*. (2nd Ed. Pearson International edition). New Jersey.

Chandler, A.D. 1962. *Strategy and Structure: Chapters in the history of American industrial enterprise* .Cambridge: M.I.T. Press.

Chandrasekaran. 2012. *Supply Chain Management Process*, F*unction and System Supply Chain Management*. USA: Oxford University Press.

Charan, P., Shunkar, R. & Baisya, R.K. 2008. Analysis of interactions amongst the variables of supply chain performance measurement system implementation, *Business process Management Journal*, 14(4): 512-529.

Chaudhary, R. 2008. Supply chain strategies: logistics management [Online] Available at: http://thirdeyesight.in/articles/ logistics_management_supply_chain_strategies_cover_ story.pdf. [Accessed on 04 May 2018].

Chemoiywo, P.K. 2014. *Public procurement procedures and supply chain performance in state corporations in Kenya*. Masters' thesis University of Nairobi

Chen, I.J. & Paulraj, A. 2004. Towards a theory of supply chain management: The constructs and measurements. *Journal of Operations Management,* 22(1): 119-150.

Chigudu, D. 2014. Public procurement in Zimbabwe: issues and challenges. *Journal of Governance and Regulation*, *3*(4):21–26.

Chidlow, A., Ghauri, P., Yeniyurt, S. & Cavusgil, S.T. 2015. Establishing Rigor in Mail Survey Procedures in International Business Research. *Journal of World Business* , 50(1): 26-36.

Chin, W.W. 2010. How to write up and report PLS analysis. In V.E. Vinzi, W. Chin, J. Henseller, & H. Wang (Eds.) *Handbook of Partial least squares: Concepts, methods and applications in marketing related fields* (pp 655-690) Berlin: Springer.

Chin, T.A., Hamid, A.B.A., Rasli, A. & Baharun, R. 2012. Adoption of supply chain management in SMEs. *Procedia - Social and Behavioural Sciences,* 65(1): 614-619.

Chin, W.W., Marcolin, B.L. & Newsted, P.R. 2003. A PLS spatial least squares latent variable modelling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information systems research*, 13(2): 189-217.

Chirchir, N. 2013. The Implementation of the Public Procurement and Disposal ACT, 2005; A Case of Public Secondary Schools in Nairobi County, Kenya. *International Review of Management and Business Research*, 1(2): 37–42.

Chopra, S & Meindl, P. 2010. *Supply chain management: strategy, planning and operation*. Upper Saddle River, NJ:: Pearson.

Chopra, S. & Meindl, P. 2013. *Supply chain management: Strategy, planning and operation.* Boston: Pearson.

Christopher, M. 2006. *Logistics and Supply Chain Management: creating value-adding networks. (*3rd ed.). Harlow: FT Prentice Hall.

Christopher, M. & Ryals, L. 1999. Supply chain strategy: its impact on shareholder value. *International Journal of Logistics Management,* 10(1): 1-9.

Christopher, M. 2012. Managing supply chain complexity: identifying the requisite skills. *An International Journal,* 13(2): 4-9.

CIPS (Chartered Institute of Purchasing & Supply Australia). 2014. *CIPS corporate ethics*. V.1.1. Melbourne (AU): CIPS Australia.

Cleveland, G., Schroeder, R.G. & Anderson, J.C. 1989. A theory of production competence. *Decision Sciences* 20(4): 655-668.

Clow, K.E. & James, K.E. 2014. *Essentials of marketing research: Putting research into practice.* Thousand Oaks, Calif: SAGE. 658.83/C62.

Coase, R.H. 1937. The problem of social cost. *Journal of Law and Economics*, 3:1-44

Coetzee, M. 2011. Archetypal life themes, career orientations, and employability satisfaction of higher education students: A postmodern career counselling perspective. *South African Journal of Higher Education,* 25(6): in press.

Cohen, L, Manion, L. & Morrison, K. 2013. *Research Methods in Education*. (6th Ed.). London: Routledge Falmer.

Coleman,C. 2014. Speech of Managing Director of Goldman Sachs: why the S in BRICS is a dud. [Online] Available from: https://www.biznews.com/interviews/2014/12/03/md-of-goldman-sachs-international-why-the-s-in-brics-is-a-dud. *5th Annual Super Return Africa Private Equity and Venture Capital Conference in Cape Town.* [Accessed 3 July 2015].

Collins, H. 2010. *Creative research: the theory and practice of research for the creative industries.* Lausanne: AVA Publishing SA.

Cook, L.S, Heiser, R.D & Sengupta, K. 2009. The moderating effect of supply chain role on the relationship between supply chain practices and performance: An empirical analysis *International Journal of Physical Distribution and Logistics Management,* 41(2): 104-134.

Cook, L. & Heiser, D. 2011. The moderating effect of supply chain role on the relationship between supply chain practices and performance: An empirical analysis. *International Journal of Physical Distribution & Logistics Management*, 32(2): 80-98.

Cooper, D.R. & Schindler, P.S. 2011. *Business research methods*. New York: McGraw-Hill/Irwin.

Council of Supply Chain Management Professional (CSCMP). 2013. 'CSCMP Supply Chain Management /management definitions'. [Online]. Available from www.cscmp.org/ [Accessed 3 July 2013].

Cousins, P., Lamming, R., Lawson, B. & Squaire, B. 2008. *Strategic Supply Management Principles, Practices and theories.* England: Prentice Hall.

Cousins, P.D. 2005. The alignment of appropriate firm and supply strategies for competitive advantage. *International Journal of Operations and Production Management.* 25(5): 403-428,

Cousins, P.D, Lawson, B. & Squire, B. 2006. An empirical taxonomy of purchasing functions. *International Journal of Operations and Production Management*. 26(7): 775-794.

Coyle, J.J., Bardi, E.J & Langley, C.J. 2009. *The management of Business Logistics: A Supply Chain perspectives*. Ohio: South-Western.

Crandall, R.E., Crandall, W.R. & Chen, C.C. 2010. *Principles of supply chain management*. New York (NY): CRC Press/Taylor & Francis Group.

Cresswell, J.W. 2014. *Research design: quantitative*, *qualitative and mixed methods approaches.* California: Sage.

Crowther, D. & Lancaster, G. 2009. *Research methods: a concise introduction to research in management and business consultancy.* USA: Routledge.

Croxton, K.L, Lambert, D.M & García-Dastugue, M.J. 2002. The Demand Management Process. *The International Journal of Logistics Management*, 13(2): 51-66

Das, A., Narasimhan, R., Talluri, S. 2006. Supplier integration - finding an optimal configuration. *Journal of Operations Management* 24 (5): 563-582.

Daspit, J., Tillman, C.J., Boyd, N.G. & McKee, V. 2013. Cross-functional team effectiveness. *Team management,* 19(12): 34-56.

Davenport, T.H. & Beers, M.C. 1995. Managing Information About Processes. *Journal of Management Information Systems,* 12(1): 57-80.

Davis, A. & Heineke J. 2005. *Operations Management*. (5th ed.) New York: McGraw-Hill.

Diamantpoulos, A. & Schegelmich, B. 2005*. Taking fear out of data analysis*. London: Thomson Learning.

Dillman, D.A. 2007. *Mail and internet surveys: the tailored design method*. Hoboken, NJ: Wiley.

Donaldson, L. 2001. *The Contingency Theory of organisations*. Thousand Oaks: Sage.

Donlon, J.P. 1996. Maximising Value in the Supply Chain. *Chief Executive,* 17: 54-63.

DPE. 2008. *Building a Developmental State: The crucial Role of State-Owned Enterprises*. Discussion Paper.

Drake, M. 2012. *Global Supply Chain Management. Supply chain and operations management collection*. Business Expert Press.

Drazin, R. & Van De Ven, A.H. 1985. Alternative forms of Fit in contingency theory. *Administrative Science Quarterly*, 30(4): 514-539.

Driedonks, B.A., Gevers, J.M.P. & van Weele, A.J. 2014. Success factors for sourcing teams: How to foster sourcing team effectiveness. *European Management Journal*, 32: 288-304.

Drost, E.A. 2011. Validity and reliability in social science research. *Journal of Education Research and Perspective,* 38(1): 105-123.

Dusick, D.M. 2011. *Introduction to Inferential Statistics*. Retrieved from http://bolded. com/statsbook.htm.

Du Toit, D. & Vlok, P.J. 2015. Supply chain management: a framework of understanding. *South African Journal of Industrial Engineering,* 25(3): 25-38.

Durga, K.V., Venkata, K. & Rao, A.K. 2012. Aligning the competitive strategy with supply chain strategy through QFD. *Journal of Advances in Management Research,* 9(2): 189 – 198.

Dzuke, A. & Naude, M.J.A. 2015. Procurement challenges in the Zimbabwean public sector: A preliminary study. *Journal of transport and supply chain management*, 9(1).

Eisenhardt, K.M. 1989. Agency theory: an assessment and review. *The Academy of Management Review*, 14(1): 57-74.

Erridge, A. & Mcllroy, J. 2002. Public Procurement and Supply Management Strategies. *Public Policy and Administration*, 17(1): 52-71.

Erik, E. & Vennström, A. 2008. Effects of Procurement on Project Performance: A Survey of Swedish Construction Clients, University of Technology, Sweden.

Eriksson, P. & Kovalainen, A. 2008. *Qualitative Methods in Business Research*. London: SAGE Publication LTD.

ESKOM. 2012. *Shift performance, grow sustainably Divisional Report for the year ended 31 March*. [Online]. Available from: http//financialresults.co.za/2012/eskom_ar2012/ integratedreport/downloads /full_downloads/03_eskom_divisional_report2012.pdf. [Accessed 17 September 2013].

Eyaa, S. & Ntayi, J.M. 2010. Procurement practices and supply chain performance of SMEs in Kampala. *Asian journal of business management,* 2(4): 82-88.

Eyaa, S. & Oluka, P.N. 2011. Explaining non-compliance in public procurement in Uganda. *International Journal of Business and Social Science*, 2(11): 35-44.

Fawcett, S.E., Ellram, L.M. & Ogden, J.A. 2016. *Supply chain management: from vision to implementation*. Upper Saddle River, NJ: Prentice Hall.

Fayezi, S., Zutshi, A., & O'Loughlin, A. 2014. Developing an analytical framework to assess the un-certainty and flexibility mismatches across the supply chain. *Business Process Management Journal*, 20(3): 362–391.

Feizabadi, J., Singh, M. & Motlagh, S.A. 2014. Contribution of supply chain to corporate strategy: a study case in agriculture machinery industry. *International Journal of Logistics and Management,* 18(4): 473-499.

Fisher, M.L. 1997. What is the right supply chain for your product? *Harvard Business Review,* March/April:105–-116.

Fleisher, C.S. 1991. Using an agency-based approach to analyze collaborative federated inter-organizational relationships. *The Journal of Applied Behavioral Science*, 27(1): 116-30.

Flynn, B., Huang, X. & Zhao, X. 2015. Supply chain management in emerging in emerging markets: critical research issue.*Journal of Supply Chain Management,* 51(1).

Flynn, B., Huo, B. & Zhao, X. 2010. The impact of supply chain integration on performance: A contingency and configuration approach. *Journal Operations Management,* 28: 58–-71.

Flynn, B., Koufteros, X. & Lu, G. 2016. On the theory in supply chain uncertainty and its implications on supply chain integration*. Journal of Supply Chain Management,* 52 (3),3-27.

Flynn, B., Morita, M. & Machuca, J. 2010. *Managing Global Supply Chain Relationships: Operations, Strategies and Practices.* New York, IGI Publishing.

Foerstl, K., Hartmann, E., Winstra, F. & Moser, R. 2013. Cross-functional integration and functional coordination in purchasing and supply management: Antecedents and effects on purchasing and firm performance*. International Journal of Operations and Production Management*, 33(6): 689-721.

Forfas. 2010. '*The Role of State- Owned Enterprises: Providing Infrastructure and Supporting Economic Recovery'*. FORFÁS.

Fornell, C.G. & Larcker, D.F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1): 39–50.

Forslund, H. & Jonsson, P. 2007. The impact of forecast information quality on supply chain performance. *International Journal of Operations and Production Management*, 27(1): 90-107.

Fourie, D. 2014. The role of Public Sector Enterprises in the South African Economy. *African Journal of Public Affairs,* 7(1):34-38.

Fraering, M. & Minor, M.S. 2006. Sense of community: an exploratory study of US consumers of financial services. *International Journal of Bank Marketing*, 24(5): 284-306. Available from: https://doi.org/10.1108/02652320610681738.

Gamble, J., Thompson, A & Peteraf, M. 2013. *Essentials of Strategic Management: The Quest for Competitive Advantage.* (3rd Ed.). Irwin/McGraw-Hill.

Gang, F. & Hope, N.C. 2014. *The Role of State-Owned Enterprises in the Chinese Economy.* Available from: https://www.chinausfocus.com/2022/wp-content/uploads/Part+02-Chapter+16.pdf.

Gatignon, H. 2014. *Statistical analysis for management data*. (3rd ed.) Berlin: Springer.

Gattorna, J & Clark, R.S. 2003. *Education and skills training in Supply Chain Management.* Aldershot Gower Publishing.

Gelderman, C.J., Semejin, J. & Bouma, F. 2015. The implementation of sustainability in public procurement: the limited role of procurement managers and party-political executives. *Journal of public procurement*, 5(1): 62-92.

Gelderman, K., Ghijsen, P. & Schoonen, J. 2010. Explaining non-compliance with European union procurement directives: a multidisciplinary perspective. *Journal of Common Market Studies*, 48(2): 243-264.

George, K. 2010. Procurement of technical works. *Journal of Procurement*, 22(2): 146-143.

Gharakhani, D., Mavi, R, Z & Hamidi, N. 2012. Impact of supply chain management practices on innovation and organizational performance in Iranian Companies. *African Journal of Business Management,* 6(19): 5939-5949.

Giménez, C. & Lourenço, H.R. 2008. e-SCM: Internet's impact on Supply Chain Processes. *International Journal of Logistics Management,* 19(3): 309-343.

Giunipero, L., Handfield, R.B. & Eltantawy, R. 2006. Supply management's evolution: crucial skill sets for the supply manager of the future. *International Journal of Operations and Production Management,* 26(7): 822-844.

Glas, A.H., Schaupp, M. & Essig, M. 2017. An organisational perspective on the implementation of strategic goals in public procurement. *Journal of public procurement*.17(4): 572-605.

Godsell, J. & Harrison, A. 2002. Customer responsiveness: an exploratory view of a supply chain strategy for the new economy. *European Operations Management Association Conference*, 1: 615–-624.

Gonzalez-Benito, J. 2007. A theory of purchasing's contribution to business performance. *Journal of Operations Management,* 25 (4): 901–917.

Grafström, A. 2010. On a generalization of Poisson sampling. *Journal of Statistical Planning and Inference*,140(4).

Green Jr., K.W., Whitten, D. & Inman, R.A. 2012. Aligning marketing strategies throughout the supply chain to enhance performance. *Industrial Marketing Management,* 41: 1008-1018.

Giunipero, L., Handfield, R.B. & Eltantawy, R., 2006, 'Supply management's evolution: Key skill sets for the supply manager of the future', *International Journal of Operations & Production Management* 26(7), 822–844.

Hahn, K. 2016.Three Lessons from FSSI that Will Help Agencies Implement Category Management. [Online] Available from https://www.publicspendforum.net/blogs/kelly-hahn/2016/12/19/fssi-federal-strategic-sourcing-initiative-category-management-commerce on [Accessed 31 October 2017]

Hair, J.F., Ringle, C.M. & Sarstedt, M. 2011. PLS-SEM: Indeed, a silver bullet. *Journal of marketing theory and practice,* 19(2): 139-152.

Hair, J.F., Hult, T., Ringle, C.M. & Sarstedt, M. 2014. *A Primer on partial least squares structural equation modelling (PLS-SEM).* Thousand Oaks CA: Sage Publications Inc.

Halley, A. & Beaulieu, M. 2010. A Multidimensional Analysis of Supply Chain Integration in Canadian Manufacturing. *Canadian Journal of Administrative Sciences [Revue canadienne des sciences de l'administration],* 27: 174-187.

Handfield, R., Monczka, R., Giunipero, L.C. & Patterson, J.L. 2011. *Sourcing and Supply chain.* (4th ed.) Toronto: Southern Western.

Handler, Heinz (2015) : Strategic public procurement: An overview,WWWforEurope Policy Paper, No. 28, WWWforEurope, Vienna

Harrison, A.S. & Van Hoek, R.I. 2008. *Logistics Management and Strategy: Competing through the supply chain,* (3rd ed.). Harlow, Essex, UK: FT/Prentice Hall.

Harrison, A.S., Godsell, J., Skipworth, H., Wong, C.Y., Julien, D. & Achimugu, N. 2007. *Developing Supply Chain Strategy*. Cranfield University, UK.

Heneghan, J. & O'Donnell, D. 2007. Governance, compliance and legal enforcement: evaluating a recent Irish initiative. *Corporate Governance*, 7(1): 54–65.

Heizer, J & Render B. 2008. *Principles of operations management.* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Hellriegel, D., Jackson, S.E., Slocum, J., Staude, G., Amos, T., Klopper, H.B., Louw, L. & Oosthuizen, T.F.J. 2007. *Management*. (3rd Ed.). Cape Town: Oxford University Press Southern Africa.

Henseller, J., Ringle, C.M. & Sonovics, R.R. 2009. The use of partial least squares path modelling in international marketing. *Advances in international marketing*, 20: 277-319.

Heracleous, L. & Lan, L.L. 2011. Agency theory, institutional sensitivity, and inductive reasoning: towards a legal perspective, *Journal of Management Studies,* 49(1): 223-39.

Hines, P. & Rich, N. 1997. The seven value stream mapping tools. *International Journal of Operations and Production Management,* 171: 46-64.

Hitt, M.A., Hoskinsson, R.E & Ireland, R.D. 2009. *Strategic Management: Concepts: Competitiveness and Globalization.* (11th Ed.) Texas A& M University and Texas Christian University.

Hofmann, E. 2010. Linking corporate strategy supply and supply chain management. *International journal of physical distribution and Logistics Management,* 40(4): 256-276.

Hrebiniak, L.G. 2006. Obstacles to Effective Strategy Implementation*. Organizational Dynamics,* 35: 12-31.

Hsu, C.C., Tan, K.C., Kannan, V. & Leong, G.K. 2009. Supply Chain Management Practices as a Mediator of the Relationship between Operations Capability and Firm Performance. *International Journal of Production Research*, 47(3): 835-855.

Hui, W.S., Othman, R., Omar, N.H., Rahman, R.A. & Haron, N.H. 2011. Procurement issues in Malaysia. *International Journal of Public Sector Management,* 24(6): 567-593. DOI: 10.1108/09513551111163666.

Hugo, W.M.J., Badenhorst-Weiss J.A. & van Biljon, E.H.B. 2011. *Purchasing and supply management.* (6th ed.) Pretoria: Van Schaik.

Hunja, R. 2009. Obstacles to public procurement reform in developing Countries. *Journal of Supply Chain Management,* 35(9): 149-152.

Hussain, M.; Khan, M. & Al-Aomar, R. 2015. A framework for supply chain sustainability in service industry with CFA. *Renew. Sustain. Energy Rev.,* 55: 1301–1312.

Iacobucci, D. & Churchill, A.A. 2010. *Marketing research methodological foundations.* (10th ed.) South West Cengage.

Ibrahim, S.B. & Hamid, A.A. 2014. Supply chain management practices and supply chain performance effectiveness. *International journal science and research*, 3(8).

Ibrahim, S.E & Ogunyemi, O. 2012. The effect of linkages and information sharing in supply chain and export performance: An empirical study of Egyptian textile manufacturers. *Journal of Manufacturing Technology Management,* 23(4): 444-663.

Inda, S., Abu, B., Abdul, H., Huam, H.T., & Fazila, S. 2012. A study of Supply Chain Management Practices: An empirical investigation on consumer goods industry in Malaysia. *International Journal of Business and Social Science,* 2(17): 66-176.

Ivanov, D & Sokolov, B. 2010. *Adaptive Supply Chain Management.* Springer books.

Jaafar, M., & Radzi, N.M. 2013. Level of Satisfaction and Issues with Procurement Systems used in the Malaysian Public Sector. *Australasian Journal of Construction Economics and Building.*

Jabbour, A.B.S., Filho, A.G.A., Viana, A.B.N. & Jabbour, C.J.C. 2011. Measuring supply chain management practices. *Measuring Business Excellence*, 15 (2): 18-31.

Jain, J., Dangayach, G.S., Agarwal, G. & Banerjee, S. 2010. Supply chain management: literature review and some issues. *Journal of Studies on Manufacturing*, 1(1):11-25.

Jayaram, J. & Avittathur, B. 2012. Insights into India, *Supply Chain Management Review*, 16(4): 34-41.

Jensen, M.C. & Meckling, W.H. 1976. Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3(4):305-60.

Jie, F., Parton, K.A. & Cox, R.J. 2013. Linking supply chain practices to competitive advantage. *British food journal,* 115(7): 1003-1024

Johnson, P.F., Leenders, M.R. & McCue, C. 2009. A comparison of purchasing's organizational roles and responsibilities in the public and private sector. *Journal of Public Procurement,* 3: 57-74.

Johnson, P.F., Leenders, M.R. & Flynn, C. 2011. *Purchasing and supply management.* (14th Ed.) McGraw-Hill/Irwin.

Juma, A.Z. 2011. Supply chain management practices of agricultural sector parastatals in Kenya. Unpublished Masters' thesis, University of Nairobi.

Kagendo, N.M. 2010. Effects of public procurement and disposal Act on procurement in parastatals in Kenya. Unpublished Masters' thesis, University of Nairobi.

Kakwezi P & Nyeko S. 2010. Procurement Processes and Performance: Efficiency and Effectiveness of the procurement function.[Online] Available from website: http://www.ippu.or.ug/index.php?option=com_docman&task [Accessed April 3 2011]

Kaptein, M. 2008. Developing and testing a measure for the ethical culture of organisations: The Corporate Ethical Virtues Model, *Journal of Organisational Behaviour*, *29*(7), 923-947.

Karangi, G.K. & Mwangangi, P. 2017. Role of procurement management on performance of state institutions in Kenya: A case of Kenya prisons services. *International Journal of Business & Law Research,* 5(4): 1-20.

Karjalainen, K., Katariina, K., & Erik, R. 2009. Non-Compliant Work Behaviour in Purchasing: An Exploration of Reasons Behind Maverick Buying. *Journal of Business Ethics*, 85(1): 245–261.

Karimi, E. & Rafiee, M. 2013. Analysing the impact of supply chain management practices on organisational performance through competitive priorities (Case Study: Iran Pumps Company*). International Journal of Academic research in Accounting, Finance and Management Sciences.* 4(1): 1-15.

Kay, J. 1993. The Structure of Strategy. *Business Strategy Review*, 4:17-37. Available at http://dx.doi.org/10.1111/j.1467-8616.1993.tb00049.x

Kazi, S.K. 2012. Supply chain management practices and performance at Kenya Medical supplies agency. A management research project submitted in partial fulfilment of the requirement for the degree of Master of Business Administration (MBA), School of Business, University of Nairobi.

Keisler, J.M. & Buehring, W.A. 2009. 'How many vendors does it take to screw down a price?' in K.V. Thai (ed.) *International handbook of Public Procurement*. CRC Press.

Kent, R. 2007. *Marketing research: approaches, methods and applications in Europe*. London: Thomson.

Keller, R. 2012. *Doing discourse research: an introduction for social scientists.* London: Sage.

Ketchen, D.J., & Hult, G.T.M. 2007. Toward greater integration of insights from organization theory and supply chain management. *Journal of Operations Management*, 25(2): 455-8.

Kenny, D.A., Kashy, D. & Bolger, N. 1998. 'Data analysis in social psychology'. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed.) pp. 233-265. New York: McGraw-Hill.

Khadem, R. 2008. Alignment and follow-up: steps to strategy execution. *Journal of Business Strategy,* 29(6): 29–35.

Khadija, R. & Kibet, Y. 2015. Factors affecting implementation of public procurement procedures and practices in Elgeyo-Marakwet county. *International Academic Journal of Procurement and Supply Chain Management,* 1 (5): 121-135.

Khosa, S., Ntuli, A. & Padarath, A. 2004. *The second equity gauge: monitoring fairness in access to basic services essential for health.* Durban: Health Systems Trust.

Kiage, J.O. 2013. Factors affecting procurement performance: A case of ministry of energy. *International Journal of Business and Commerce,* 3(1): 54-70. [Accessed on 9 June 2014].

Kinyua, J.K. 2010. Challenges of business process outsourcing at KPLC. Unpublished MBA project, School of Business, University of Nairobi.

Kirui, M.K. & Nambuswa, E. 2017. Effect of Public Procurement on Performance of Constituency Development Fund in Kenya: A Case of Mt. Elgon Constituency. *International Journal of Management and Commerce Innovations,* 4 (2):389-394.

Kline, R.B. 2005. *Principles and practice of structural equation modeling.* (2nd ed.) New York: The Guilford Press.

Koech, S.K. & Namusonge, S.G. 2015. Factors affecting procurement performance of the National Treasury in Kenya*. International Journal of Social Sciences Management and Entrepreneurship*, 2(2): 115-131.

Koh, S., Demirbag, M., Bayraktar, E., Tatoglu, E. & Zaim, S. 2007. The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems,* 107(1): 103-124.

Kopczak, L.R. & Johnson, M.E. 2003. The Supply-chain Management Effect., *MIT Sloan Management Review*, 44(3): 27.

Kotabe, M., Martin, X. & Domoto, H. 2003. Gaining from vertical partnerships: Knowledge transfer, relationship duration, and supplier performance improvement in the U.S. and Japanese automotive industries. *Strategic Management Journal,* 24(4): 293–316.

Krause, D.R., Handfield, R.B. & Tyler, B.B. 2007. The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management*, 1: 528-545.

Krishnapriya, V. & Baral, R. 2013. Emerging role of people and organizational factors in supply chain management. In D.Chatterjee, M.Dhal & S.P.Pati (Eds.), *High-Tech People, High-Touch HR: Are We Missing The Humane Touch?* pp. 391-405. New Delhi: Bloomsbury Publications India Pvt. Ltd.

Kork, A., Ari, M. & Vakkuri, J. 2015. Complexities of Productivity Policies in the Finnish Public Sector: Knowing How to Do More with Less? *Financial Accountability and Management,* 31(4): 02.

Korosec, R. 2003. Assessing the feasibility of supply chain management within purchasing and procurement. *Public Performance and Management Review*, 27(2): 92-109.

KPMG. 2012. The *Power of Procurement. A global survey of Procurement functions*. Available from : www.kpmg.com. [Accessed 13 April 2013].

Kulundu, L. 2014. Challenges of Procurement Strategy Implementation among Road Agencies in Kenya. *International Journal of Business, Humanities and Technology*, 1(2): 12–21.

Kumar, A. & Kushwaha, G.S. 2018. Supply chain management practices and operational performance of fair price shops in India: An empirical study. *Scientific Journal of Logistics*, 14(1): 85-99.

Kumar, A., Nair, A. & Piecha, J. 2015. Measuring efficiency in international public procurement. *Journal of public procurement*, 15(3): 365-389.

Kurien, G.P. & Qureshi, M.N. 2011. Study of Performance Measurement Practices in Supply Chain Management. *International Journal of Business Management and Social Sciences*, 2(4): 19-34.

Kwon, I.G. & Suh, T. 2005a. Factors affecting the level of trust and commitment in supply chain relationships. *Journal of Supply Chain Management: A Global Review of Purchasing and Supply,* 40(2): 4-14.

Kwon, I.G. & Suh, T. 2005b. Trust, commitment and relationships in supply chain management: a path analysis. *Supply Chain Management: An International Journal*, 10(1): 26-33.

Iacobucci, D. & Churchill, A. G. 2010. Marketing research: methodological foundations. 10th ed. Mason, OH : South-Western Cencage Learning.

Lan, Z.G. Riley, L. & Cayer, J.N. 2005. How can local Government Become and Employer of Choice for Technical professionals? *Review of Public Administration*, 25(3): 225-242.

Lan,L., & Haracleous. 2010. Rethinking Agency Theory: The Academy of Management Review, 35 (2)

Lambert, D.M. 2004. The eight essential supply chain management processes. *Supply Chain Management Review*, 8(6): 8-26.

Lambert, D.M. 2014. *Supply Chain Management: Processes, Partnerships, Performance*, (4th Ed.). USA: McGraw-Hill.

Lambert, D.M & Cooper, C.M. 2000. Issues in Supply Chain Management. *Industrial Marketing Management,* 29: 65–-83.

Layug, A.S. 2009.*Triangulation Framework for Local Service Delivery*. Philippine Institute for Development Studies.

Lazarides, T. 2011. Corporate Governance Legal and Regulatory Framework's Effectiveness in Greece a Response. *Journal of Financial Regulation and Compliance*, 19(3):244–253.

Lear, L.W. 2012. The relationship between strategic leadership and strategic alignment in high-performing companies in South Africa. Doctor of Leadership. Thesis University of South Africa, Pretoria.

Lee, H.L. 2006. *The Triple-A supply chain. Harvard Business Review on Supply Chain Management.* Boston: Harvard Business School Press.

Leenders, M.R & Fearon, H.E.2008. Developing purchasing's foundation. *Journal of Supply Chain Management.* 44(2)17–-27.

Leon,T. 2015. The ANC's AA measures incoherent and self-defeating [Online]. Available from http://www.politicsweb.co.za/opinion/the-ancs-aa-measures... [Accessed 3 July 2013].

Leyh, C. & Thomschke, J. 2015. Critical Success Factors for Implementing Supply Chain Management Systems – The Perspective of Selected German Enterprises," in Proceedings of the *Federated Conference on Computer Science and Information Systems, 2015,* 5, : 1403–1413.

Ling, L.Y & Ling, C. T .2012. The effect of service supply chain management practice on the public healthcare organizational performance. *International Journal of Business and Social Science.* 3(16)

Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S. & Subba Rao, S. 2006. The impact of supply chain. O*mega,* 34(2): 107-124.

Li, L. 2007. *Supply Chain Management: Concepts, Techniques and Practices: Enhancing Value Through Collaboration*. Hackensack, NJ: World Scientific Pub. Co. Inc.

Liebenberg. H. 2012. *Contemplating Strategic Sourcing - Government's 18 to 24-month crossing*. [Online]. Available from: http://www.smartprocurement.co.za/archives/contemplating_strategic_sourcing_-_Governments_18_to_24-month_crossing.php# more. [Accessed 8 October 2013].

Lisa, I. 2010. Compliance Culture. A Conceptual Framework. *Journal of Management and Organization*, *19*(7): 702–714.

Liu, Z., Prajogo, D. & Oke, A. 2016. Supply chain technologies: linking adoption, utilisation and performance. *Supply Chain Technologies Utilisation Journal,* 52(4):299-349.

Lo, S.M. & Power, D. 2010. An empirical investigation of the relationship between product nature and supply chain strategy. *Supply Chain Management: An International Journal*, 15(2): 139-153. Available at https://doi.org/10.1108/13598541011028741.

Loebbecke, C. & Huyskens, C. 2009. Development of a model-based netsourcing decision support system using a five-stage methodology. *European Journal of Operational Research,* 159(3): 653-661.

Logan, M.S. 2000. Using Agency Theory to Design Successful Outsourcing Relationships. *The International Journal of Logistics Management*, 11(2): 21- 32.

Lou, K. 2012. Top ten global skills shortages, media release [Online] Available from http://www.pharmiweb.com/features/feature.asp?ROW_ID=1398 [Accessed 24 March 2016].

Lu, D. 2011. *Fundamentals of Supply Chain*. Frederikesberg, Denmark*:* Ventus Publishing Aps*.*

Luftman, J, Papp, R., & Brier, T. 1999. Enablers and Inhibitors of Business-IT Alignment, *Communications of the Association for Information Systems*: 1(11).

Lysons, K. & Farrington, B. 2013. *Purchasing and supply chain management.* (7th ed.). Essex, England: Pearson Education Limited.

Magoro, M.J. 2010. The implementation of the procurement policy with reference to the Reconstruction and Development Housing programme in Limpopo province. Masters Dissertation, Pretoria: University of Pretoria.

MacDaniels,C & Gates, R. 2011. Marketing Research essentials. John Wiley & Sons; 7th Edition edition.

Mahmood, S.A.I. 2010. Public procurement and corruption in Bangladesh: confronting the challenges and opportunities. *Journal of the public Administration and Policy Research* 2(6): 103–112.

Maheshwari, B., Kumar, V. & Kumar, U. 2006. Optimizing success in supply chain partnerships. *Journal of Enterprise Information Management* 19(3): 277-291.

Mamiro, R.G. 2010. *Value for money: The limping pillar in public procurement-experience from Tanzania.* Available online at http://www.ippa.org/ippc4_proceedings1.html [accessed on 26/09/13].

Mauki, R. 2014. The Regions Perspective of the Factors Influencing the Implementation of Public Procurement and Disposal ACT in the Kenyan Judiciary. *Journal of Management Research,* 2(3): 19–24.

Maleka, T.N. 2016. An exploration of Supply Chain Management practices in the West Rand District Municipality. Unpublished Master's Thesis. Pretoria, UNISA.

Maraka, K. Kibet, Y. & Iravo, M. 2015. Effects of supplier relationship management on the performance of organizations in selected sugar companies in Western Kenya. IOSR *Journal of Economics and Finance*, 6(3): 28-35.

Marendi, P. 2015. *Public Procurement Legal Framework Implementation and Performance of State Corporations in Kenya*. Jomo Kenyatta University of Agriculture and Technology, Nairobi.

Maree, K. 2007. *First Steps in Research*. Pretoria: Van Schaik.

Matthee, C.A. 2006. The potential of internal audit to enhance supply chain management outcomes, Master's Thesis, University of Stellenbosch, Stellenbosch.

Matthews, D. 2005. Strategic procurement in the public sector: a mask for financial and administrative policy. *Journal of Public Procurement.* 5(3) :388-399.

May, T. 2011. *Social Research: Issues, Methods and Process*. (4th Ed.). Maidenhead, Berks: Open University Press/Mc Graw-Hill.

Mbae, L. 2014. Public Procurement Law and Procurement Performance of County Government in Kenya; Case of Machakos County Government. *International Journal of Research in Management, Economics and Commerce,* 2(2): 14–19.

Mbanje, S. & Lunga, J. 2015. *Fundamental Principles of Supply Chain Management*. Pretoria: Van Schaik Publishers.

Mbo, M. & Adjasi, C. 2014. 'Drivers of Organisational Performance: A State-Owned Enterprise Perspective'. Presentation at the *Biennial conference of the Economic Society of South Africa*, University of the Free State, Bloemfontein, South Africa. 25-27 September 2014.

McDaniel, C. & Gates, R. 2010. *Marketing research essentials*. (7th ed.) USA: John Wiley & Sons.

McGinnis, M.A. & Vallopra, R.M. 1999. Process Improvement: A Source of Purchasing and Supplier Involvement in Competitive Advantage. *Journal of Supply Chain Management,* 35(3): 42-50.

Mchopa, A. 2015. Integrating contract management practices into the achievement of value for money in Tanzania public procurement: Evidence from selected procuring entities in Moshi municipality. *Journal of public procurement,* 15(2): 129-149.

McCutcheon, D. & Stuart, F.I. 2000. Issues in the choice of supplier alliance partner. *Journal of Operations Management* ,18: 279–301.

MacManus, S.A. 2002. Understanding The Incremental Nature of e-procurement implementation at the state and local levels. *Public procurement,* 2: 5-58.

McKeller, J.M. 2014. *Supply chain management demystified.* New York: McGraw-Hill Education.

Mbuthia, M.G & Rotich, G. 2014. Effects of Supply Chain Management Practices on Competitive Advantage in Retail Chain Stores in Kenya, A Case Study of Nakumatt Holding Limited**.** *European Journal of Business Management, 2* (1): 336-349.

Mentzer, J.T., DeWitt, W., Keebler, J.S., Min, S., Nix, N.W., Smith, C.D. & Zacharia, Z.G. 2004. *What Supply Chain Management is*. Thousand Oaks, CA: Sage.1:1-25.

Migiro, I. & Ambe, M.A. 2008. Evaluation of the implementation of public sector supply chain management and challenges: A case study of the Central District Municipality, North West Province, South Africa. *African Journal of Business Management*, 2(12): 230-242.

Mitra, A. & Bhardwaj, S. 2010. Alignment of Supply Chain Strategy with Business Strategy. *The IUP Journal of Supply Chain Management,* 7(3): 49-65.

Mikalef, P., Patelia, A., Batenburg, R. & Wetering, R. 2014. Investigating the Impact of Procurement Alignment on Supply Chain Management Performance. CENTERIS 2013 - *International Conference on Health and Social Care Information Systems and Technologies*.

Moeti, K. 2014. *Public finance fundamentals.* (2nd ed.). Cape Town: Juta.

Mkhize, Z.L. (Ed.) 2004. *Supply Chain Management Conference: Transforming Government Procurement System.* Durban: 22 –- 23 November 2004.

Muge, P. 2009. Procurement practices in institutions in Kenya. *Supply Chain Management Journal*, Vol 22.

Mutai, D.K. 2015. Impact of procurement policies and procedures on supply chain performance of commercial banks in Kenya. Master of Business Aadministration, University of Nairobi.

Mutuerandu, M.N. & Iravo, M. 2014. Impact of Supply Chain Management Practices on Organizational Performance: A Case Study of Haco Industries Limited (Kenya), *IOSR Journal of Business and Management.*16 (4): 62-64.

Mutua, O. 2010. Public Procurement Practices: Policy Implications and Service Delivery in Selected Ministries Headquarters in Nairobi County, Kenya. *Interdisciplinary Journal of Contemporary Research in Business,* 2(1): 17–22.

Mobu, F. (Ed.) 2011. *CIPS Pan African Conference: Transforming Procurement: It's time for Africa. State-Owned Enterprise Procurement Forum: Impact of collaboration between the State-Owned Enterprises.* 24 -26 May. Johannesburg. South Africa.

Mofokeng, M. & Luke, R. 2014. An investigation into the effectiveness of public entities' procurement practices. *Journal of Transport and Supply Chain Management* 8(1), Art. #136, 7 pages. Available at http://dx.doi. org/10.4102/jtscm.v8i1.136.

Mofokeng, M. 2012. An investigation into the effectiveness of public entities' procurement practices. Master's thesis. University of Johannesburg

Morgan, R.M. & Hunt, S.D. 1994. The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58:20-38

Monczka, R., Trent, R. & Handfield, R. 2005. *Purchasing and Supply Chain Management.* Thomson: South-Western Cengage Learning.

Monczka, R.M., Handfield, R.B., Giunipero, L.C., Patterson, J.L. and Waters, D. 2009. *Purchasing and supply chain management.* Hampshire: South-Western Cengage Learning National.

Monczka, R.M., Handfield, R.B., Giunipero, L.C., Patterson, J.L. & Waters, D. 2010. *Purchasing and supply chain management.* (8th ed.). Hampshire: South-Western Cengage Learning.

Monczka, R.M., Handfield, R.B., Giunipero, L.C., Patterson, J.L. & Waters, D. 2012. *Purchasing and supply chain management.* (9th ed.). Hampshire: South-Western Cengage Learning.

Mouton, J. 2001. *How to succeed in my masters and doctoral studies: A South African guide and resource book*. Pretoria. Van Schaik.

Mrope, N.P., Namusonge, G.S. & Iravo, M.A. 2017. Does compliance with rules ensure improve performance? An assessment of the effect of compliance with procurement legal and regulatory framework on performance of public procurement in Tanzania. *European Journal of Logistics, Purchasing and Supply Chain Management,* 5(1): 40-50.

Murray, G.J. 2007. Improving the validity of public procurement research. *International Journal of Public Sector,* 22.

Naidoo, G. 2012. A critical need for ethical leadership to curb corruption and promote good governance in public sector of South Africa. *African Journal of Public Affairs*, 5(2):25-35.

Naidoo, C. 2010. *Customer-focused SCM would boost municipal performance*. [Online]. Available from: www.smartprocurement.co.za. [Accessed 24 August 2013]**.**

Narasimhan, R. & Das, A. 2001. The impact of purchasing integration and practices on manufacturing performance. *Journal of Operations Management*, 19(5): 593-609.

Näslund, D. & Williamson, S. 2010. What is Management in Supply Chain Management? - A Critical Review of Definitions, Frameworks and Terminology. *Journal of Management Policy and Practice,* 11(4).

National Treasury. 2004. *Supply Chain Management: A guide for accounting officers/authorities*.[Online] Available from http://ww.treasury.gov.za/divisions/ocpo/sc/ Guidelines/ SCM%20Jan900-Guidelines.pdf. [Accessed 30 November 2015].

National Treasury. 2005. Republic of South Africa. *Elements of supply chain management.* [Online] Available at http://www.treasury.gov.za. [Accessed 14 February 2016].

National Treasury. Republic of South Africa. 2010. *Framework for strategic plans and annual performance plans*. Pretoria. [Online] Available at http://www.treasury.gov.za. [Accessed 14 February 2016].

National Treasury. 2011. *Implementation guide: preferential procurement regulations pertaining to the Preferential Procurement Policy Framework Act.* Pretoria: National Treasury. [Online] Available at http://www.treasury.gov.za. [Accessed 14 February 2016].

National Treasury. 2012. *Implementation guidelines PPPFA regulations.* [Online] Available from http://ww.treasury.gov.za/divisions/ocpo/sc/Circulars/Guidelines%20PPPFA%20REGS%20%202013pdf. [Accessed 30 November 2015].

National Treasury. 2013. Budget speech. [Online] Available from http://www.treasury.gov.za [Accessed: 14 February 2016].

National Treasury. 2015a. *Strategic Procurement Framework* [Online. Available from www.treasury.gov.za [Accessed16 February 2016].

National Treasury. 2015b. *Public sector supply chain management review*. [Online] Available at http://www.treasury.gov.za [Accessed 19 February 2015].

National Treasury. 2015c. *Model SCM Policy for Infrastructure Procurement and Delivery Management.* [Online] Available at http://www.treasury.gov.za [Accessed: 19 February 2015].

National Treasury. 2018a. *State of procurement spent in national and provincial departments*. [Online] Available at http://www.treasury.gov.za [Accessed: 19 March 2018].

National Treasury. 2018b *State of transparency in public procurement*. [Online] Available at http://www.treasury.gov.za [Accessed: 19 March 2018].

Niewenhuizen, C. & Rossouw, D. 2008. *Business Management :A contemporary approach*, South Africa: Juta & Co Ltd.

Ngai, E.W., Chau, D.C. & Chan, T. 2011. Information technology, operational, and management competencies for supply chain agility: Findings from case studies. *Journal of Strategic Information Systems,* 20(3): 232-249.

Nkonge, K.M & Ngugi, K. 2014. Constraints of Effective Implementation of Public Procurement Reforms in Kenya: A Case of Nairobi City County. *European Journal of Business Management, 2*(1): 161-173.

Noble, D. 1997. Purchasing and supplier management as a future competitive edge, *Logistics Focus*, 5(5): 23–27.

Nyamasege, O.J. & Biraori, O.E. 2015. Effect of supplier relationship management on the effectiveness of supply chain management in the Kenya public sector. *International Journal of Managing Value and Supply Chains,* 6(1): 25-32.

O'Donnell, O. 2014. Service level agreements. Local Government Research Series, No. 8. *[An Foras Riaracháin], Institute of Public Administration*.

Oduma, O.E. & Gettuno, P. 2017. Effects of Procurement Regulations on Performance of Public Secondary Schools in Nairobi City, Country, Kenya. *International Journal of Innovative Social Sciences and Humanities Research,* 5(3): 50-58.

OECD. 2011. The size and composition of the SOE sector in OECD countries, *OECD Corporate Governance Working Papers.* No.5. [Online] Available at www.oecd.org/daf/corporateaffairs/wp. [Accessed 16 February 2017]

Oginda, E. 2013. Challenges of implementing procurement strategy at the Kenya power and lighting company limited. Unpublished Master's research project, University of Nairobi.

Okong'o, J.N. & Mutari, W. 2017. Factors affecting procurement performances in institutions in Kenya: A survey of public institutions in Kisii Country. *IOSR Journal Of Business And Management,* 19(4): 121-133.

Onyango, A. 2011. Supply Chain Management Practices and Performance in Cement Industry in Kenya. Unpublished MBA Project. School of Business, University of Nairobi, Nairobi.

Onyimbo, F. & Moronge, M. 2018. Effects of single sourcing on procurement performance in public entities in Kenya: a case of Kenya Railways. *Strategic Journal of Business & Change Management,* 5(2): 1754 – 1776.

Onyimkwa, J. 2013. Factors influencing compliance to procurement regulations in public secondary schools in Kenya: A case of Nyamache district, Kisii Country. *Interdisciplinary Journal of Contemporary Research In Business*, 5(1).

Owuoth, G.D. & Mwangangi, P. 2015. Effect of public procurement regulations on procurement performance in public sector in Kenya: A case of rural electrification authority. *International Journal of Social Sciences Management and Entrepreneurship*, 2(1): 171-184.

Özlen, M.K & Hadžiahmetović, N. 2013. The role of human resource management in employee motivation. *European Researcher. Series A. 970-979.*

Pagell, M. 2004. Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics. *Journal of Operations Management,* 22: 459-487.

Panayiotou, N., Tatsiopoulos I., & Gayialis, S. 2004. An E-procurement System for Government Purchasing. *International Journal of Production Economics*, 90: 79 -102.

Patterson, A. 2017. Tips for influencing your EXCO ESD strategies. [Online] Available at www.smartprocurement.co.za. [Accessed 18 February 2018].

Pauw, J. & Wolvaardt, J. 2009. Multi-criteria decision analysis in public procurement - A plan from the South. *Politeia,* 28(1): 66-88.

Pellathy, D.A. 2016. "Cross-Functional Integration in the Supply Chain: Construct Development and the Impact of Workplace Behaviors. " PhD diss., University of Tennessee.https://trace.tennessee.edu/utk_graddiss/3871

Payan, J.M., & McFarland, R.G. 2005. Decomposing Influence Strategies: Argument Structure and Dependence as Determinants of the Effectiveness of Influence Strategies in Gaining Channel Member Compliance. *Journal of Marketing*, 69: 66-79.

Pearce II, J.A. and Robinson, R.B. .2005.Strategic Management. A.J.T.B.S. Publishers, Delhi.

Pegnato, J.A. 2003. Assessing Federal Procurement Reform: Has the Procurement Pendulum Stopped Swinging? *Journal of Public Procurement*, 3 (2): 145-175.

Petty, N.J., Thomson, O.P. & Stew G. 2012. Ready for a paradigm shift? Part 1: Introducing the philosophy of qualitative research. *Manual therapy,* 17(4): 267- 274. Available at DOI:10.1016/j.math.2012.03.006.

Pienaar, J.W. & Vogt, J.J. 2012. *Business Logistics Management: A supply Chain Perspective*. (4th Ed.). Cape Town, South Africa: Oxford University Press.

Pillay, U. 2012. Service delivery protests. *Business Day Live*.[Online] Available from http://www.bdlive.co.za/articles/2011/04/01/udesh-pillay-delivery-protests. [Accessed 3 November 2015]

PIRA. 2014. THE CONTRACT STATE: Outsourcing and Decentralisation in Contemporary South Africa. [Online] Available from www.pari.org.za/wp-content/../PARI-The-Contract-State-01082014.pdf. [Accessed 16 December 2014].

Pohl, M. & Forstl, K. 2011. Achieving purchasing competence through purchasing performance measurement system design—A multiple-case study analysis. *Journal of Purchasing and Supply Management,* 17: 231–245

Pooe, R.I.D. 2016, The latest “big thing” for South African companies: Enterprise and supplier development - proposing an implementation framework. *Journal of Transport and Supply Chain Management* 10(1):234. Available at http://dx.doi.org/10.4102/ jtscm.v10i1.234.

Porter, M.E. 1985. *Competitive advantage.* New York: Free Press.

Polonsky, M.J., & Waller, D.S. 2011. *Designing and managing a research project : a business student's guide*. (2nd ed.) Thousand Oaks, Calif.: Sage Publications.

Prater, E & Whitehead, K. 2013. *Introduction to Supply Chain Management: A Global Supply Chain Support Perspective.* Ohio: Business Experts Press.

PRC. 2012. *Restructuring of State- Owned Enterprise in South Africa*. [Online] Available from http://www.thepresidency.gov.za/electronicreport/downloads/volume_3/discussion_papers-edited_by_expert_writer/Draft_Restructuring%20of%20SOE%20in%20South%20Africa.pdf. [Accessed 13 October 2013].

Presidential Review Committee. 2013a. *Compliance of State-Owned Entities to the Government's development and transformation agenda.* [Online] Available http://www.thepresidency.gov.za/electronicreport/downloads/volume_3/development_and_transformation/Compliance_of_state_owned_entities_to_the_development_agenda.doc. [Accessed 13 October 2013].

Presidential Review Committee. 2013b. *PRC on state-owned entities. Volume 1 Procurement System.* [Online] Available http://www.thepresidency.gov.za/electronicreport/downloads/volume_3/development_and_transformation/Compliance_of_state_owned_entities_to_the_development_agenda.doc. [Accessed 13 October 2013].

Presidential Review Committee. 2013c. *PRC on state-owned entities. Volume 2 Procurement System.* [Online] Available http://www.thepresidency.gov.za/electronicreport/downloads/volume_3/development_and_transformation/Compliance_of_state_owned_entities_to_the_development_agenda.doc. [Accessed 13 October 2013].

Public Affairs Research Institute. 2014. *The contract state: Outsourcing and decentralisation in Contemporary South Africa*. Ford Foundation. [Online] Available from https://47zhcvti0ul2ftip9rxo9fj9-wpengine.netdna-ssl.com/wp-content/uploads/2017/05/PARI-The-Contract-State-01082014.pdf. [Accessed 16 July 2016]

Punch, K.F. 2005. *Introduction to Social Research - Quantitative and Qualitative Approaches.* London: Sage.

PWC. 2015. *State-Owned Enterprises: Catalysts for public value creation?* Available from www.psrc.pwc.com.

Qrunfleh, S. & Tarafdar, M. 2013. Supply chain information systems strategy: Impacts on supply chain performance and firm performance. *International Journal of Production Economics*

Quinlan, C. 2011. *Business Research Methods.* United Kingdom: South-Western Cengage Learning.

Raduan, C.R., Jegak, U., Haslinda, A. & , Alimin, I.I. 2009. Management, Strategic Management Theories and the Linkage with Organizational Competitive Advantage from the Resource-based perspective. *European Journal of Social Sciences,* 11(3): 402- 418.

Ragatz, G.L, Handfield, R.B. & Scannell, T.V. 1997. Success Factors for Integrating supplier into New Product Development. *The Journal of Product Innovation Management*.14 (3): 190-203.

Rao, G.V & Krishna, D.J. 2015. Alignment of HR Practices with Organizational Strategies. *Indian Journal of Industrial Relations*, 50(4): 666-679.

Ratemo, B.M. & Karanja, N. 2017. Effect of regulatory compliance on the relationship between public procurement of innovation and supply chain performance. *International Journal of Scientific Research and Management*, 5(9): 7040-7046.

Raturi, A.S. & Evans, J.R. 2005. *Principles of operations management*. Mason, Ohio: South - Western.

Remenyi, D.W., Money, A., & Swartz, E. 1998. *Doing Research in Business Management*. London: Sage.

Republic of South Africa. 1996. *Constitution of the Republic of South Africa*, Pretoria: Government Printer.

Republic of South Africa. 1997. *Green paper on public procurement reform in South Africa. An initiative of the Ministry of Finance and the Ministry of Public Works*. [Online]. Available from: http://www.polity.org.za/polity/govdocs/green_papers/procgp.htl. [Accessed 15 March 2013].

Republic of South Africa. 1999. *Public Finance Management Act 1 of 1999*. Pretoria: Government Printer.

Republic of South Africa. 2000a. *Construction Industry Development Board Act 38 of 2000.* Pretoria: Government Printer.

Republic of South Africa. 2000b. *Promotion of Access to Information Act 2 of 2000.* Pretoria: Government Printer.

Republic of South Africa. 2000c. *Preferential Procurement Policy Framework Act 5 of 2000.* Pretoria: Government Printer.

Republic of South Africa. 2003a. *Supply Chain Management Office Practice Note Number SCM 4 of 2003*. *Code of conduct for supply chain management practitioners.* Pretoria: National Treasury.

Republic of South Africa. 2003a. *Supply Chain Management Office Practice Note Number SCM 8 of 2007/2008*. *Threshold values for the procurement of goods, works and services by means of petty cash, verbal/written price quotation or competitive bids*. Pretoria: National Treasury.

Republic of South Africa. 2003b. *National Treasury, Policy Strategy to guide uniformity in Procurement reforms processes in Government.*

Republic of South Africa. 2003c. *Regulations for Public Financial Management Act, 1999: Framework for Supply Chain Management.* Government Gazette, 25767, Dec 5 Regulatory Gazette No. 1734.Pretoria- National Treasury.

Republic of South Africa. 2004. National Treasury. *Supply Chain Management: A guide for accounting officers and municipal entities.*

Republic of South Africa. 2013. National Treasury. *Budget Speech 2013/2014*. [Online] Available from: http://www.treasury.gov.za/documents/national%20budget/.2013/speech/speech.pdf. [Accessed 1 September 2013].

Ringle, C.M., Sarstedt, M., & Mooi, E.A. 2010. Response-based segmentation using finite mixture partial least squares: Theoretical foundations and an application to American Customer Satisfaction Index data. *Annals of Information Systems*, 8: 19–49.

Roach, C.M.L. 2016. An Application of Principal Agent Theory to Contractual Hiring Arrangements within Public Sector Organizations. *Theoretical Economics Letters*, 6: 28-33. Available from http://dx.doi.org/10.4236/tel.2016.61004.

Rotich, L.M. 2011. Influence of Planning on Procurement Performance in the Kenya Public Financial Sector. *International Journal of Human Resource and Research Publication*, 1(2).

Rha, J. 2010. The Impact of Green Supply Chain Practices on Supply Chain Performance (Dissertations and Theses from the College of Business Administration). University of Nebraska, Lincoln.

Rhodes, E., Warren, J.P. & Carter, R. (Eds.) 2006. *Supply chains and total product systems: a reader.* Padstow, Cornwall, UK: Blackwells.

Robb, D.J., Xie, B. & Arthanari, T. 2008. Supply chain and operations practice and performance in Chinese furniture manufacturing. *International Journal of Production Economics*, 112: 683-699.

Roodhooft, F. & Abbeele, A.V.D. 2006. Procurement of consulting services Evidence and comparison with private companies. *International Journal of Sector Management,* 19(5): 490-512.

Robbins, S.P & DeCenzo, D.A. 2005. *Fundamentals of management. Essential concepts and applications.* (5th Ed.). Upper Saddle River, New Jersey: Pearson Education.

Rogers, D.S., Lambert, D.M., Croxton, K.L. & García-Dastugue, S.J. 2008. 'Returns management process'. In: Lambert, D.M. (Ed.) *Supply chain management: processes, partnerships, performance. (*3rd ed.). Columbus: Supply Chain Management Institute.

Roman, A.V. 2015. Public procurement specialists: They are not who we thought they were. *Journal of public procurement,* 15(1): 38-65.

Russell, R.S. & Taylor, B.W. 2014. *Operations and Supply Chain Management.* (8th Ed.) International Student Version.

Salkind, N.J. 2012. *Exploring research*. (8th ed.) New York: Pearson.

Sanchez, A.M. & Perez, M.P. 2005. Supply chain flexibility and firm performance: A conceptual model and empirical study in the automotive industry. *International Journal of Operations and Production Management,* 25(7): 681-700.

Sanders, N.D. 2012. *Supply Chain management: A global perspective*. New York. John Wiley and Sons.

SASSA. *Annual report 2013.* [Online] Retrieved from http://www.flysaa.com/no/en/Documents/Financials/Final_Annual_Report_ 25_Feb_2014.pdf. [Accessed 18 June 2017]

Saunders, M., Lewis, P. & Thornhill, A. 2012. *Research methods for business students*. (6th ed.) England: Pearson Education Limited.

Schapper, P.R, Malta, J.V. & Gilbert, D.L. 2009. An analytical framework for the management and reform of public procurement, *Journal of Public Procurement,* 6(1/2): 1-26.

Schnetzler, M., Sennheiser, A., & Weidemann, M. 2004. 'Supply chain strategies for business success'. Proceedings of the *International IMS Forum 2004 Global challenges in manufacturing*, Cernobbio (Italy), 17-19 May 2004, pp. 691-698.

Sezen, B. 2008. Relative effects of design, integration and information sharing on supply chain performance. *Supply Chain Management: An International Journal,* 13(3): 233-240, Available at https://doi.org/10.1108/13598540810871271.

Shaffer, K.J. & Dalton, P.M. 2012. Can adopting specific supply chain management practices improve supply chain efficiency?. *International Journal of Business, Marketing and Decision Science,* 5(2).

Shafritz, J.M, Russell, E.W. & Borick, C.W. 2015. *Introducing public administration*. (8th ed.). Hoboken: Taylor and Francis.

Shook, C.L., Adams, G.L., Ketchen, D.J. & Craighead, C.W. 2009. Towards a theoretical toolbox for strategic sourcing. *Supply Chain management*, 14(1): 3-10.

Sin, L.Y.M. & Tse, A.C.B. 2005. CRM: conceptualization and scale development. *European Journal of Marketing*, 39(11/12): 1264-1290.

Singh, R.K., Kumar, R., & Shankar, R. 2012. Supply chain management in SMEs: a case study. *International Journal of Manufacturing Research,* 7(2): 165-180.

Singh, R.K., Garg, S.K., & Deshmukh, S.G. 2010. Strategy development by Indian SSIs. *Industrial Management & Data Systems,* 110(7): 1073-1093.

Simchi-Levi, D., Kaminsky, P. & Simchi-Levi, E. 2008. *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies,* (2nd Ed.) New York: McGraw-Hill/Irwin.

Soni, G. & Kodali, R. 2011. The strategic fit between "competitive strategy" and "supply chain strategy" in Indian manufacturing industry: an empirical approach. *Measuring Business Excellence*, 15(2): 70-89. Available at https://doi.org/10.1108/13683041111131637.

SkyTrax. 2011. World's best airlines. [Online] Available at: http://www.worldairlineawards.com/. [Accessed 9 April 2013].

South Africa News. 2012. Zuma-highlights-weakness-supply-chain-management. [Online] Available at: http://www.sanews.gov.za/south-africa/ [Accessed 18 June 2016]

Sobh, R. & Perry, C.Y. 2006. Research design and data analysis in realism research. *European Journal of Marketing*, 40:11-12.

Spekman, R.E., Kamauff, J.W., Jr., & Myhr, N. 1998. An empirical investigation into supply chain management: A perspective on partnerships. *International Journal of Physical Distribution and Logistics Management*, 28: 630-650.

Stank, T.P., Keller, S.B. & Closs, D.J. 2001. Performance Benefits of Supply Chain Logistical Integration. *Transportation Journal,* 41(2/3 (WINTER 2001/SPRING 2002): 32-46.

Stock, J.R & Boyer, S.L. 2009. Developing a consensus definition of supply chain management: a qualitative study. I*nternational Journal of Physical Distribution and Logistics Management*, 39(8): 690-711.

Stock, R.J. & Lambert, M.D. 2005. *Strategic Logistics Management*. (4th Ed.). Singapore: McGraw-Hill.

Stock, J. 1997. Applying theories from other disciplines in Logistics. *International Journal of Physical Distribution and Logistics Management*, 27(9): 515-39

Strang, K.D. (Ed.) 2015. *The Palgrave Handbook of Research Design in Business and Management.* US: Palgrave Macmillan.

Stuart, F.I. 1997. Supply-chain strategy: organizational influence through supplier alliances. *British Academy of Management*. 8(3): 223–236.

Subramani, M.R., & Venkatraman, N. 2003. Safeguarding Investments in Asymmetric Interorganizational Relationships: Theory and Evidence. *The Academy of Management Journal,* 46(1): 46 – 62.

Sufian, M.Q. 2010. *Alignment of information system with supply chains. The impact on Procurement performance and organisation performance*. Published PhD thesis. University of Toledo.

Sukati, I., Hamid, A.B., Baharun, R. & Yussoff, R.M. 2012. The study of supply chain management strategy and practices on supply chain performance. *Procedia-Social and behavioural sciences,* 40: 225-233.

Sundaram, R.M. & Metha, S.G. 2002. A comparative study of three different SCM approaches. *International Journal of Physical Distribution and Logistics*, 32(7): 532–-555.

Sundram, V.P.K., Ibrahim, A.R. & Govindaraju, V.G.R. 2011. Supply chain management practices in the electronics industry in Malaysia. *Benchmarking: an International Journal,* 18(6): 834-855.

Sutinen, J.G. & Kuperan, K. 1999. A Socio-Economic Theory of Regulatory Compliance, *International Journal of Social Economics*, 16 (1/2/3): 174-93.

Svensson, G. 2009. The transparency of SCM ethics. *An International Journal of Supply Chain Management*, 4(4): 259–-269.

Swart, W., Hall, C. & Chen, H. 2012. Supply Chain Forum. *An International Journal,* 13 (2).

Sweeney, E. 2007. *Introduction in Perspectives on Supply Chain Management and Logistics - Creating Competitive Organisations in the 21st Century*, Dublin: Blackhall Publishing.

Swink, M., Melnyk, S.A., Cooper, M.B. & Hartley, J.L. 2011. *Managing operations across the supply chain.* New York, NY: McGraw-Hill.

Szu-Yuan, S., Hsu, M & Hwang, W. 2009. The impact of alignment between supply chain and information system. *Supply Chain Management: An International Journal,* 14(3): 309-333.

Tabachnick, B.G. & Fidell, L.S. 2007. *Using multivariate statistics,* (5th ed.) Boston, MA: Allyn and Bacon.

Taghipour, M., Bagheri, M., Khodarezaei, M. & Farid, F. 2015. Supply chain performance evaluation in the IT industry. *International Journal of Recent Research and Applied Studies,* 23(2): 144-156.

Tan, K.C., Lyman, S.B. & Wisner, J.D. 2002. Supply chain management: A strategic perspective. *International Journal of Operations and Production Management*, 226: 614–631.

Talluri, W. 2008. Benchmarking the performance of English Universities, *Benchmarking International Journal,* 14(1): 102-22.

Teller, C., Kotzab, H., Grant, D. & Holweg, C. 2016. The Importance of Key Supplier Relationship Management in Supply Chains. *International Journal of Retail and Distribution Management,* 44 (2): 1-16. Available at DOI: 10.1108/IJRDM-05-2015-0072.

Tenenhause, M., Amato, S., & Esposito Vinzi, V. 2004. A global goodness-of-fit index for PLS structural equation modelling. *In proceedings of the XLII SIS Scientific Meeting.* pp. 739-742.

Thai, K.V. 2001. Public procurement re-examined. *Journal of Public Procurement*, 1(1): 9-50.

Thomas, G. 2013. *How to do your research project.* London: Sage Publications.

Tredoux, C., & Durrheim, K. 2013. *Numbers, Hypotheses, and Conclusions*. (2nd ed.). Cape Town: UCT Press.

Trent, R.J. & Monczka, R.M. 2003. Understanding integrated global sourcing. *International Journal of Physical Distribution and Logistics Management,* 33(7): 607–-629.

Tsei-Tseimou, S. 2016. Government must act on tender irregularities Available at http://www.confidente.com.na/2016/07/govt-must-act-on-tender-irregularities/ [Accessed on 18 January 2016].

Tshamaano, V.L. 2012. Impact of the supply chain management on service delivery. The case study of provincial department of economic, development, environment and tourism in the Limpopo province. Masters dissertation. Faculty of Management and Law, University of Limpopo.

Tukamuhabwa, B.R. 2012. Antecedents and consequences of public procurement non-compliance behaviour. *Journal of economics and behavioural studies,* 4(1): 34-46.

Tukuta, M. & Saruchera, F. 2015, Challenges facing procurement professionals in developing economies: Unlocking value through professional international purchasing. *Journal of Transport and Supply Chain Management* 9(1). Available at http://dx.doi.org/10.4102/jtscm.v9i1.

Turley, L. & Perera, O. 2014. Implementing implementation of sustainable public procurement in South Africa: Where to start. *International institute for sustainable development.*

UPS Supply Chain Solution. 2005. Strategic Sourcing- building a foundation for success –understanding the difference between sourcing and strategic sourcing and its impact.[online] Available from https://www.ups-scs.com/ solutions/white_papers/wp_sourcing.pdf on [Accessed on 15 March 2016].

Uromi, S.M. 2014. Challenges Facing Public Procurement Information In Some African countries, namely: South Africa, Uganda, Zimbabwe and Tanzania, *International Journal for Innovation Education and Research,* 2: 243-257.

Vanderstoep, S.W & Johnston, D.D. 2009. *Research methods for everyday life: blending qualitative and quantitative approaches.* San Francisco: Jossey-Bass.

Van Weele, A.J. 2016. *Purchasing and Supply Chain Management,* (3rd ed.) Stamford, CT: Thomson Learning.

Van Zyl, D.C. 2006. Strategic supply chain management by Matatiele Municipality. Masters dissertation. University of Stellenbosch. Available at http://scholar.sun.ac.za. [Accessed: 3 March 2015].

Van Zyl.2014. *Research Methodology for the economic and management sciences.* Cape Town: Pearson.

Venkatraman, N. 1989. The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *Academy of Management Review,*14 (1): 423-44.

Venter, M. 2016. *Enterprise and Supplier Development (ESD).* [Online] Available from https://www.esi-africa.com/wp-content/uploads/2016/05/Mario-Venter-.pdf. [Accessed 3 November 2017]

Venter, R Urban, B & Rwigema, H. 2008. *Entrepreneurship. Theory in practice*. (2nd ed.). Cape Town: Oxford University Press.

Vereecke, A. & Muylee, S. 2006. Performance improvement through supply chain collaboration in Europe, *International Journal of Operations Production Management*, 26(11): 1176-98.

Verwey, L. (Ed.) 2009. *Parliament, the budget and poverty in South Africa: a shift in power.* Pretoria: Idasa.

Vickery, S.K. 1991. A theory of production competence revisited. *Decision Sciences,* 22(3): 635-643.

Vinzi, V.E., Trinchera, L. & Amato, S. 2010. PLS Path Modeling: From Foundations to Recent Developments and Open Issues for Model Assessment and Improvement. In: Vinzi, E., Chin, W.W., Henseller, J. & Wang, H., (Eds.), *Handbook of Partial Least Squares.* Berlin Heidelberg: Springer. 1: 47-82.

Walter, J. Kellermanns, W.F., Floyd, S.W., Veiga, F.J. & Marthene, C. 2013. Strategic alignment: A missing link in the relationship between strategic consensuses and organisational performance. *Strategic Organization.* 11(3):304-328.

Wang, W., Rivera, D.E., & Kempf, K.G. 2007. Model predictive control strategies for supply chain management in semiconductor manufacturing. *International Journal of Production Economics*, 107(1): 56-77. Available at DOI: 10.1016/j.ijpe.2006.05.013.

Watermeyer, R.B. 2011. Regulating public procurement in Southern Africa through international and national standards. *Public Procurement regulation in Africa Conference.* 25 October 2011, Stellenbosch, South Africa.

Wanyama, J. 2010. *The effectiveness of the Procurement Regulations in Kenya.* Retrieved from http:/www.oecd.org.

Weathington, B., Cunningham, C. & Pittenger, D. 2012. *Understanding business research.* Hoboken, N.J.: John Wiley & Sons.

Wendy Ovens & Associates. 2013.*The Role and Significance of State-Owned Enterprises, Public Entities and other Public Bodies in the Promotion of Urban Growth and Development in South Africa*. IUDF Panel of Experts.

Western Cape Treasury. Circular 5 of 2007 on transversal contracts. [Online] available from https://www.westerncape.gov.za/other/2011/12/5.pdf. Accessed on 30 October 2016.

Whipple, J.M. & Roh, J. 2010. Agency theory and quality fade in buyer-supplier relationships. *The International Journal of Logistics Management,* 21(3): 338-352.

Willy, K. & Njeru, A. 2014. Effects of procurement planning on procurement performance: A case study of agricultural development corporation, Nairobi. *International Journal of Business and Commerce,* 3: 58-68.

Wilson, V. 2013. Research Methods: Mixed Methods Research. *Evidence Based Library and Information Practice*, 8(2): 275-277. Available from: https://doi.org/10.18438/B8801M.

Williamson, Oliver E. 1975. *Markets and Hierarchies: Analysis and Anti-Trust Implications:A Study in the Economics of Internal Organization* (New York: Free Press).

Williamson, O. E. 2010. "Transaction Cost Economics: The Natural Progression." Journal of Retailing **86**(3): 215-226.

Wisner, J.D., Tan, K-C. & Leong, G.K. 2016. *Principles of Supply Chain Management: A Balanced Approach.* Mason, Ohio: South-Western Cengage Learning.

Wong, C., Skipworth, H., Godsell, J. & Achimugu, N. 2012. Towards a theory of supply chain alignment enablers: a systematic literature review. *Supply and Chain Management: An International Journal,* 17(4): 403-418.

World Bank. 2004. *Malawi Country Procurement Assessment Report*, Vol 2, World Bank, Washington, DC.

Zhao, X.D., Huo, B.F., Flynn, B.B. & Yeung, J.H.Y. 2008. The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of Operations Management*, 26 (3): 368-388.

Zikmund, W.G., Babin, B.J., Carr, J.C. & Griffin, M. 2012. *Business research methods.* Ohio: South -Western Cengage Learning.

Zimmermann, F & Foerstl, K. 2014 A Meta-Analysis of the 'Purchasing and Supply Management Practice-Performance Link. *Journal of Supply Chain Management*, 50(3). Available at doi: 10.1111/jscm.12051.

Zitha, H.E., Limpopo Provincial Treasury, Sebola M.P & Mamabolo, M.A. 2016. Compliance to procurement processes, deviant behaviour and effects on service delivery in the public sector. *Journal of Public Administration and Development Alternatives,* 1(1): 75.

Zokaei, K. & Hines, P. 2007. Achieving consumer focus in supply chains. *International Journal of Physical Distribution and Logistics Management,* 37(3): 23-247.

Zokaei, K. & Simons, D.W. 2006. Performance improvements through the implementation of lean practices: A study of the UK red meat industry. *International Food and Agri-business Management Review*, 9(2): 30-53.

Zylbersztajn, D. & Filho, C.A.P.M., 2003. Competitiveness of meat Agri-food chain in Brazil. *Supply Chain Management,* 8 (2): 155-165.

APPENDIX A : PERMISSION TO CONDUCT RESEARCH

SOEPF
Spearheading good governance

10 July 2017

Prof IM Ambe
University of South Africa
Department of Economics and Management Sciences
Department of Supply Chain, Transport, Tourism & Logistics

AUTHORISATION LETTER FOR SUPPLY CHAIN RELATED RESEARCH

On behalf of the State Owned Enterprises Procurement Forum (SOEPF), this letter serves to confirm that Ms Rebecca Setino, a student at the University of South Africa, has been granted permission to access Supply Chain data / information through interaction with relevant SOEPF membership whilst conducting her research on the topic, "Development of a framework for alignment of Supply Chain Management (SCM) practices with Legislations and the business strategies of State Owned Entities".

We are aware that Ms Setino intends to conduct her research by administering a written survey to SOEPF members over the next two months. We are happy to participate in this study and contribute to this important research.

Sincerely,

Dennis Mandla Mlambo
SOEPF Chairperson

APPENDIX B: QUESTIONNAIRE

APPENDIX B:

PhD RESPONDENT INFORMATION SHEET

Date information sheet provided: 1 August 2017

PhD Research Title:

Alignment of Supply Chain Management practices with policies and regulations in State Owned Entities in South Africa.

An invitation

My name is ***Rebecca Setino*** I am a PhD (Business Management) candidate at University of South Africa. I am conducting a research to determine the alignment of SCM practices with government policies and regulation in State owned entities. You are cordially invited to partake in a survey relating to the research. This will take about 45–60 minutes of your time.

It is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Your participation is *voluntary* and you will be able to *withdraw* at any time prior to the completion of data collection without any adverse consequences.

What is the purpose of this research?

The study aims to explore SCM practices in SOE environment and to determine whether there is proper alignment between government policies and regulations, SOE SCM practices and SOEs strategic objectives.

What will happen in this research?

Data will be collected using an anonymous questionnaire which will be kept strictly confidential. The researcher will analyse the data collected in the survey and will use the analysed results in her PhD thesis.

What are the benefits?

Firstly, the researcher will benefit from being able to complete and submit his PhD thesis on the stated topic to the examiners of UNISA. Thus, the results of the study will be used in a thesis as partial fulfilment of the requirements for the PhD degree. Secondly, the findings of the research will also assist the SCM managers in SOEs in aligning their practices with legislations to contribute to the socioeconomic objectives of the country.

How will my privacy be protected?

No personal data will be collected as part of the survey. The questionnaire is anonymous, interview recordings will be highly secured with no unauthorized access and all published results will be in summary format.

What opportunity do I have to consider this invitation?

It is up to you to decide whether to take part. If you decide to take part you will complete the questionnaire. Moreover, if you decide to take part you are still free to withdraw before you submit the completed questionnaire without any penalty or loss, and without an obligation to give reasons. If you would like to know more about the research, please be free to contact the researcher.

How do I agree to participate in this research?

If you agree to participate in this research, please tick ***YES*** or otherwise ***NO*** box below and if yes is ticked, then please complete the questionnaire you will receive an email from the researcher with either questionnaire questions or interview guide.

Will I receive feedback on the results of this research?

Yes, you may contact the researcher at the email address provided below to request feedback after the research is completed. *Please note* that by contacting the researcher

with this request, you will reveal yourself to the researcher as one of the survey participants. The results provided to you will be in a summary version, which will also be available publicly. Your details will be treated *confidentially* by the researcher.

What do I do if I have concerns about this research?

Any concerns or questions regarding the nature and contents of this research or the conduct of the researcher should be notified to the **Research Supervisor**, Prof IM Ambe at ambeim@unisa.ac.za

I agree to partake in this research: **Yes** **NO**

SUPPLY CHAIN MANAGEMENT QUESTIONAIRE

SECTION A	**DEMOGRAPHICS**

Kindly answer all the questions by ticking or writing as per your opinion and based on the facts

1.1. Position title within Supply Chain Management:

Level	Tick one
SCM Manager	
Senior Manager: SCM	
Executive Manager	
Head of SCM	
Chief Procurement Officer/Senior Supply Chain Officer	
Other	

1.2. Highest qualification obtained:

Qualification	Tick one
Matric	
Diploma/Degree	
Honours Degree	
Masters Degree	
Doctoral degree	

1.3. Years of experience in Supply Chain Management:

Years	Tick one
1-2	
3- 5	
Over 5	

1.4 Under which category is your State-Owned Entity

Category	Tick one
Schedule 2	
Schedule 3B	
Schedule 3D	

1.5 What is your organisation's core business function?

Core business function	Tick one
Electrical services	
Manufacturing	
Transportation	
Logistics	
Other: specify	

SECTION B:	SOE CORPORATE AND SUPPLY CHAIN STRATEGY

B1: This section of the questionnaire looks at corporate and supply chain strategies in SOEs.

Where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
1.1	The SOE strategy supports government policies and laws.	1	2	3	4	5
1.2	SOEs develop functional strategies to deliver on government imperatives.	1	2	3	4	5
1.3	SOE strategy is translated into an Annual Performance Plan	1	2	3	4	5
1.4	SOE generates an annual procurement plan	1	2	3	4	5
1.5	The annual procurement plan is budgeted for	1	2	3	4	5
1.6	SCM utilises the procurement plan for procurement of goods and services	1	2	3	4	5

1.7	SCM strategy is developed in support of the SOE strategy	1	2	3	4	5
1.8	The SCM strategy is supported by SOE SCM policy	1	2	3	4	5
1.7	SCM policy is aligned with government policies and regulations	1	2	3	4	5
1.8	The SCM processes are well documented	1	2	3	4	5

SECTION C:	Supply Chain Management Practices in State owned entities

This section of the questionnaire seeks to determine SCM practices in SOEs

C1. CUSTOMER RELATIONSHIP MANAGEMENT Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C1.1	SCM manages internal relationships with user departments	1	2	3	4	5
C1.2	SCM enters into Service Level Agreements with user departments	1	2	3	4	5
C1.3	SCM enters into Service Level Agreements with the external customer	1	2	3	4	5
C1.4	Customer service is incorporated into SCM KPIs	1	2	3	4	5
C1.5	SCM customer service performance is reviewed quarterly	1	2	3	4	5

C2. STRATEGIC SOURCING Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C2.1	Strategic sourcing is aligned with organisation's annual procurement plan.	1	2	3	4	5
C2.2	Procurement plan is analysed for the purposes of developing sourcing strategies.	1	2	3	4	5
C2.3	We take into account total cost of ownership	1	2	3	4	5
C2.4	We conduct industry analysis	1	2	3	4	5
C2.5	We make use of NT transversal contracts	1	2	3	4	5
C2.6	We make use of SITA transversal contracts	1	2	3	4	5
C2.7	We utilize centralized supplier database for all quotations	1	2	3	4	5
C2.8	We advertise tenders on the National Treasury eTender portal	1	2	3	4	5
C2.9	We recognize local content when procuring goods and services	1	2	3	4	5

C3. ENTERPRISE SUPPLIER DEVELOPMENT Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C3.1	We have an ESD strategy in place.	1	2	3	4	5
C3.2	Our ESD Strategy has been translated to clear key performance indicators.	1	2	3	4	5
C3.3	We have an ESD implementation plan	1	2	3	4	5
C3.4	We report progress monthly to our executive management team	1	2	3	4	5
C3.5	Atleast 2% of our Net Profit After Tax is set aside for ESD initiatives	1	2	3	4	5
C3.6	Our ESD strategy is fully integrated with strategic sourcing processes	1	2	3	4	5
C3.7	There is dedicated personnel for ESD implementation	1	2	3	4	5

C4. STRATEGIC SUPPLIER RELATIONSHIP MANAGEMENT Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C4.1	Our contracts management process is fully documented	1	2	3	4	5
C4.2	Our approach to supplier management is fully documented	1	2	3	4	5
C4.3	We utilise National Treasury standardised contract documents	1	2	3	4	5
C4.4	We conduct supplier performance reviews quarterly	1	2	3	4	5
C4.5	Our suppliers are held accountable for poor performance	1	2	3	4	5
C4.6	We settle supplier invoices within 30 days of receipt	1	2	3	4	5

C5. CROSS FUNCTIONAL TEAMS Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C5.1	We have three bid committee systems in place	1	2	3	4	5
C5.2	We have clearly defined roles for bid committee members	1	2	3	4	5
C5.3	Our bid committee members sign code of conduct	1	2	3	4	5
C5.4	Our SCM is implemented in collaboration with end-user departments	1	2	3	4	5
C5.5	Our SCM processes enhances joint decision making	1	2	3	4	5
C.5.6	We take collective ownership for our SCM decisions	1	2	3	4	5
C5.7	We encourage innovative thinking amongst team members	1	2	3	4	5

C6. SUPPLY CHAIN MANAGEMENT WORKFORCE STRUCTURE Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C6.1	SCM is represented at board level	1	2	3	4	5
C6.2	SCM personnel are highly skills required for the positions they are occupying	1	2	3	4	5
C6.3	SCM personnel have relevant qualifications	1	2	3	4	5
C6.4	We invest in training and development for SCM personnel	1	2	3	4	5
C6.5	SCM personnel are affiliated to a professional body	1	2	3	4	5
C6.5	SCM personnel have career development plans	1	2	3	4	5

C7. INFORMATION TECHNOLOGY Indicate your level of agreement on the following statements, where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C7.1	Our SCM process is fully automated	1	2	3	4	5
C7.2	Our contracts management system is fully automated	1	2	3	4	5
C7.3	Our ERP system is fully utilized.	1	2	3	4	5
C7.4	Our ERP system to ensure flawless information sharing.	1	2	3	4	5
C7.5	Our ERP system is integrated with CSD	1	2	3	4	5

C8. SUPPLY CHAIN INTERGRATION Indicate your level of agreement on the following statements where, 1=Strongly disagree, 2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree						
C8.1	Our SCM system is an integrated process	1	2	3	4	5
C8.2	Our SCM system enhances efficiencies in internal processes.	1	2	3	4	5

C8.3	Our suppliers are fully integrated to the SCM system	1	2	3	4	5

SECTION D	GOVERNMENT SUPPLY CHAIN POLICIES AND REGULATIONS					
The following section of the questionnaire seeks to determine the application of government SCM policies and regulations in SOEs. Indicate your level of agreement on the following where **1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree**						
THE CONSTITUTION						
D1.1	Our SCM process is unbiased	1	2	3	4	5
D1.2	Our bidding process is competitive	1	2	3	4	5
D1.3	Our bidding process is transparent	1	2	3	4	5
D1.4	Our bidding process is fair	1	2	3	4	5
D1.5	Our bidding process is equitable	1	2	3	4	5
PUBLIC FINANCE MANAGEMENT ACT (PFMA) & REGULATIONS						
D1.6	Our SCM unit is within the office of the chief financial officer	1	2	3	4	5
D1.7	We utilise SBD forms	1	2	3	4	5
D1.8	Bid evaluation criteria is clearly stipulated in our bid documents	1	2	3	4	5
PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT (PPPFA) & REGULATIONS						
D1.9	80/20 point system is used for transactions between R30- R50 million	1	2	3	4	5
D1.10	90/10 point system is used for transactions above R50 million	1	2	3	4	5
D1.11	Subcontracting is considered a prerequisite for transactions above R30 million	1	2	3	4	5

D1.12	We check our suppliers for compliance when subcontracting of work after tender award	1	2	3	4	5
CONSTRUCTION INDUSTRY DEVELOPMENT BOARD ACT (CIDB), 2000(Act 38 of 2000)						
D1.13	We utilise the CIDB database for all construction related projects	1	2	3	4	5
D1.14	Our construction contracts are only awarded to CIDB registered contractors	1	2	3	4	5
D1.15	Our construction works tenders are advertised on the CIDB itender	1	2	3	4	5
D1.16	The outcome of the tenders are published on CIDB website.	1	2	3	4	5
D1.17	SCM policies take into account the CIDB Act	1	2	3	4	5
BROAD-BASED BLACK ECONOMIC EMPOWERMENT ACT,2003 (Act No 53 of 2003)						
D1.18	Our annual procurement spend for BBBEE is above 80%	1	2	3	4	5
D1.19	50% of our BBBEE Procurement Spend from black owned suppliers	1	2	3	4	5
D1.20	15% of our BBBEE Procurement Spend is from black women owned entities	1	2	3	4	5

SECTION E: SUPPLY CHAIN PERFOMANCE MEASUREMENT

The following section of the questionnaire seeks to determine supply chain performance in SOEs. Indicate your level of agreement where **1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree**

E1.1	We monitor SCM compliance to policies	1	2	3	4	5
E1.2	We have SCM risk register	1	2	3	4	5
E1.3	We ensure quality in the procurement process	1	2	3	4	5

E1.4	We ensure reduction of procurement cycle	1	2	3	4	5
E1.5	We take cognisance of total costs of ownership for our procurement process	1	2	3	4	5
E1.6	SCM produce monthly reports indicating performance	1	2	3	4	5
E1.7	We benchmark our performance with other entities	1	2	3	4	5

SECTION F	SUPPLY CHAIN CHALLENGES

The following statements may be potential challenges in your supply chain. Please indicate your level of agreement where 1=Strongly disagree ,2=Agree ,3=Don't Know , 4= Agree and 5= Strongly agree

F1.1	We do not always comply with SCM policies	1	2	3	4	5
F1.2	Contract management is adequately implement	1	2	3	4	5
F1.2	Our strategic sourcing and SCM policies are not aligned	1	2	3	4	5
F1.3	Our business strategy is not effectively communicated	1	2	3	4	5
F1.4	Our supply chain strategy is not integrated with the business strategy	1	2	3	4	5
F1.5	We have an effective procurement planning process	1	2	3	4	5
F1.6	We have is a high rate of irregular expenditure	1	2	3	4	5
F1.7	We have high rate of fruitless expenditure	1	2	3	4	5
F1.8	Our Broad- based black economic empowerment strategy is ineffective	1	2	3	4	5
F1.9	We don't have a consequences management system in place	1	2	3	4	5
F1.10	SCM doesn't have of top management support	1	2	3	4	5

APPENDIX C: ETHICAL CLEARANCE

UNISA university of south africa

28 July 2017

Ref #: 2017_CEMS_ESTTL_007

DEPARTMENT OF ENTREPRENEURSHIP, SUPPLY CHAIN, TRANSPORT, TOURISM AND LOGISTICS MANAGEMENT RESEARCH ETHICS REVIEW COMMITTEE

This is to certify that the application for ethics clearance submitted by
Ms Rebecca Setino (student number 3449 3956, rebecca.setino@webmail.co.za)
"Developing a framework for the alignment of SCM practices with government legislations in state-owned entities in South Africa"
received Ethics Approval

The application for ethics clearance for the above mentioned research was reviewed (as an expedited review) by the Department of Entrepreneurship, Supply Chain, Transport, Tourism and Logistics Management Research Ethics Review Committee in July 2017 in compliance with the Unisa Policy on Research Ethics. Ethical Clearance for the project is granted. You may proceed with the research project.

The research ethics principles outlined by the Unisa Policy on Research Ethics must be adhered to throughout the project. Please be advised that the committee needs to be informed should any part of the research methodology as outlined in the Ethics application (Ref #2017_CEMS_ESTTL_007) change in any way or in case of adverse events. This certificate is valid for one year from date of issue. The ESTTL Research Ethics Review Committee wishes you all the best with this research undertaking.

Kind regards,

Poole

Mrs C Poole
Chairperson

Executive Dean: CEMS

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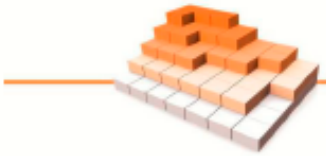
APPENDIX D: DECLARATION OF PROFESSIONAL EDIT



Retha Burger
B.A.(H.E.D.)
tel : 012 807 3864
cell : 083 653 5255
fax : 012 807 3864
e-mail : retha@skillnet.co.za
Independent Skills Development Facilitator

Dear Ms Setino

This letter is to record that I have completed a language edit of your thesis entitled "ALIGNMENT OF SUPPLY CHAIN MANAGEMENT PRACTICES WITH POLICIES AND REGULATIONS IN STATE OWNED ENTITIES IN SOUTH AFRICA".

The edit that I carried out included the following:

-Spelling
-Grammar
-Vocabulary
-Punctuation
-Pronoun matches
-Word usage
-Sentence structure
-Correct acronyms (matching your supplied list)
-Formatting
-Captions and labels for figures and tables
-Spot checking of ten in-text references

The edit that I carried out excluded the following:

-Content
-Correctness or truth of information (unless obvious)
-Correctness/spelling of specific technical terms and words (unless obvious)
-Correctness/spelling of unfamiliar names and proper nouns (unless obvious)
-Correctness of specific formulae or symbols, or illustrations.

Yours sincerely

Retha Burger

15 October 2018