VULNERABILITY OF SUPPLY CHAINS TO RISKS: AN AGENDA TO CAPACITATE THE STATE IN SOUTH AFRICA

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Signature by Supervisor Date

ABSTRACT

There are growing concerns due to the complexities of supply chains. Supply chains are increasingly exposed to risks, whereas they ought to serve as vehicles for organizations' success by placing organizations under a competitive advantage in the marketplace. It is against this background that this study aims to explore the risks within the supply chain system and procurement, to assess its implications on public sector service offerings, and to devise remedial actions to curb and/or overcome the risks. A qualitative and quantitative research approach was employed to address the problems that led to the research and to seek for answers to the research questions. In total, the population comprised 59 persons across the 9 Provinces of South Africa. Thirty were junior staff, 11 were supervisors and 18 held middle management positions in various provinces of the Department of Justice and Constitutional Development. A simple random sampling technique was applied and subsequently 23 persons were sampled to be part of interview process. Qualitative data was analysed through the application of thematic tools, whereas quantitative data were analysed using Statistical Package for the Social Science (SPSS) 32 and measures of central tendency. Thematic analysis revealed the following: (a) fraud and corruption; (b) policy and process dilemmas; (c) supplier's database and supplier selection disorder; (d) human capita disorder; and (e) budget lack and/or mismanagement, were the five top prevalent risks in the procurement activity of supply chains. However: (a) human resource capita; (b) budget lack and/or mismanagement; (c) collusion; (d) fraud and corruption; and (e) management overrule (in order of high to low), were rated as the top five risks in bringing negative effects on service offerings whenever they happen. In addition, the study sought to provide evidence for the validity of the hypothesis and find solutions to reduce vulnerabilities of supply chains to risks. These questions were thereafter responded to by the development of a framework to assist public sector supply chains to reduce their vulnerability to risks. This framework recommends a three-stage approach to reducing supply chains' vulnerability to risks. For level one, being the most critical, immediate actions are to be taken, such as workforce optimization, system and process redesign. For level two, resilience mechanisms include central supplier database purification, consequence application and better planning, and financial incentives. Level three resilience mechanisms recommended by the study include professionalization of the supply chain, segregation of duties, and regulation of prices.

Key words: Supply chains, procurement, risks, vulnerability, public sector.

DECLARATION

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DEDICATION

I dedicate this work solely to my parents, namely, my mother Gijimile Phumele Nkwanyana, and my late father Gcinokwakhe Freddy Nkwanyana, whose resilience in life and their ability to fight despite all odds has taught me a lot, especially never to be defeated by any circumstances I find myself in.

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TABLE OF CONTENTS

ABBREVIATIONS

AFS	Annual Financial Statements
AO	Accounting Officer
BAC	Bid adjudication committee
BBBEE	Broad Based Black Economic Empowerment
BEC	Bid evaluation committee
BSC	Bid specification committee
CFO	Chief Financial Officer
CIDB	Construction Industry Development Board
CIPS	Chartered Institute of Procurement and Supply
CSD	Central Supplier Database
DCS	Department of Correctional Services
DOJ and CD	Department of Justice and Constitutional Development
DPSA	Department of Public Service and Administration
EDI	Electronic Data Interchange
EFT	Electronic Fund Transfer
EME	Exempted Micro Enterprises
FETCoCE	fairness, equity, transparency, competitiveness and cost effectiveness
FMEA	Failure mode and effect analysis
GITOC	Government Information Technology Officers Council
H2H	Human to human
HTP	Hazard totem pole
IASB	International Accounting Standard Board
ICAC	Independent Commission Against Corruption
ICT	Information Communication Technology
IFRS	International Financial Reporting Standards
IS	Information systems
ISS	information system security
ISM	information systems management
IT	Information Technology
ITB	Invitation to Bid
JSE	Johannesburg Stock Exchange
LIS	Logistics information systems
LTA	Long-Term Agreement
NAT	Normal Accident Theory
NIGP	National Institute of Governmental Purchasing
NPG	New Public Governance
NPM	New Public Management
NPS	New Public Service
NT	National Treasury
PAIA	Promotion of Access to Information Act
PFMA	Public Finance Management Act
PPE	Personal protective equipment
PPPFA	Preferential Procurement Policy Framework Act
QSE	Qualifying Sector Enterprises
RBV	Resource-based view
RDP	Reconstruction and Development Programme
RFQ	Request for quotations
RPN	Risk Priority Number

RSA	Republic of South Africa
RT	Transversal term contracts
REAL	revenues, expenditure, assets and liabilities
SA	South Africa
SANAS	South African National Accreditation System
SAPS	South African Police Services
SARS	South African Revenue Service
SASSA	South African Social Security Agency
SC	Supply chain
SCA	Sustainable Competitive Advantage
SCM	Supply Chain Management
SCN	Supply Chain Network
SCPROC	Standing Committee on ICT procurement
SCR	Supply Chain Risks
SCRM	Supply Chain Risk Management
SCV	Supply Chain Vulnerability
SCVI	Supply chain vulnerability index
SDGs	Sustainable Development Goals
SRM	Supplier relationship management
SETA	Sectoral Education and Training Authorities
SITA	State Information Technology Act
SSA	Special Service Agreement
TCA	Triangularization Clustering Algorithm
TQM	Total quality management
UNDP	United Nations Development Programme
U.S	United States
VAN	Value Added Network

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION AND OVERVIEW OF THE STUDY

"The best way for managers and public policy makers to identify weaknesses and in turn devise mitigation strategies within their SCM system is to measure and quantify supply chain vulnerability" (Wagner and Neshat, 2012: 2878).

1.1 INTRODUCTION

Modern supply chains are exposed to a number of risks as a result of their complexity. The number of tiers through which the finances, information and inventories move subjects supply chains to risks. In turn, risks pose the probability of disruptions to the attainment of set goals. They bring about instability and insecurity. In 2008, supply chains were said to be among the top four emerging issues affecting the global landscape (World Economic Forum, 2008: 3). Since then, a considerable amount of literature has been published on Supply Chain Risk Management (SCRM). Supply Chain Risk Management was considered to be a key proactive management approach in organizations (Mndzebele, 2013: i). According to Yan (2017: 2), SCRM involves risk identification, risk assessment, risk mitigation, and risk control. Conversely, Craighead et al. (2007: 144) argue that at times, risk management interventions can be reactive. This is when risks cannot be predicted, and only post-recovery measures are implemented. In this light, researchers have taken on the challenge to support managers and public policy makers in providing awareness about sources of supply chain risks (SCR) (Wagner and Neshat, 2010: 129; Mndzebele, 2013: i). As part of risk identification, these authors identify environment (economic, business and ecological), demand, supply, processes and controls as sources of risks.

According to Bailey (2015: 36), SCRM has been developed not solely to deal with forecasting disruptive events and their coping mechanisms, but it is also concerned with detecting the vulnerability of supply chains to risks and their inherent resilience to mitigate against any adverse outcomes. "In line with the frequently cited business wisdom, you can't manage what you don't measure" (Wagner and Neshat, 2010: 122). A continuous review of risk exposure, including its impact, thus becomes paramount to supply chain managers and public policy makers. This will create awareness of how exposed an organization is to risks and will enable them to further devise appropriate strategies to overcome their impact. A key aspect of risk management in general is that it is an ongoing task. Therefore, risk assessment also becomes a

continuous task. According to the Chartered Institute of Procurement and Supply (CIPS) (2013), the identification and management of risk is the responsibility of partners at all levels in the Supply Chain Network (SCN). In light of the above, the study "Vulnerability of supply chains to risks: an agenda to capacitate the state in South Africa" is presented as a methodological proactive financial management tool aimed at developing a framework to reduce the susceptibility of public sector supply chains to risks through improvement strategies.

1.2 RESEARCH PROBLEM

In terms of history, the widespread prominence of supply chains within South African industry in general can be traced back to the mid-1980s. However, it is in the year 2003, when the supply chain concept was established within the South African public sector when it was adopted by the state of the Republic of South Africa (RSA). Since this period, much debate has arisen about its adverse outcomes within this sector. Fraud and corruption have been evident issues amongst others that demand urgent attention (Ambe, 2009; Mazibu, 2012; Dlova and Nzewu, 2014; Bizana, Naude and Ambe, 2015). As a result of these issues, much effort has been devoted to SCRM in the attempt to identify and mitigate SC related risks. Although SCRM is pivotal in supporting robust SC security through risk identification and enforcement of mitigation strategies, recent literature puts more emphasis on the importance of measuring supply chain vulnerability (SCV) to disruptions (Wagner and Neshat, 2012; Bailey, 2015).

According to Wagner and Neshat (2012: 2878), quantifying and measuring SCV assists managers and public policy makers to identify weaknesses within their system and in turn to inform them of the necessary mitigation strategies. However, despite this knowledge, up to now, far too little attention has been paid to assessing the vulnerability of SCs to risks. The majority of SCRM literature is founded on managing uncertainties (Bailey, 2015: 54). Yan (2017: 5) asserts that many organizations are aware of risks but lack the expertise to assess risks and this results in the failure of managers to handle risks effectively. Although this problem has been identified, and it is known that supply chains are support systems that make it possible for organizations to realize their service delivery goals, there is a paucity of scholarly articles that casts light on the vulnerability of SCs, especially in the public sector. To that end, our knowledge is limited to mainly risk management. Very little is known about the nuances of SC exposure to risks, let alone the availability of set strategies to reduce vulnerability of SCs to such risks. This study intends to propose a framework or methodology to capacitate the state to reduce its vulnerability to risks.

1.3 RESEARCH AIM

The main aim of the study is to capacitate the state by identifying procurement risks, its implications and thereafter identify measures to reduce vulnerability to such risks.

1.4 THE OBJECTIVES OF THE STUDY

- To identify risks related to procurement of goods and services in supply chains.
- To analyse the implications that procurement risks have on service delivery.
- To explore remedial or resilience measures to cope and/or overcome procurement risks.
- To propose the framework to capacitate the state to reduce its vulnerability to risks.

1.5 RESEARCH QUESTIONS

- What are procurement-related risks in supply chains?
- What implications do procurement risks have on service delivery?
- What measures could be put in place to cope with or overcome procurement risks?
- What conceptual framework can be implemented by the state to reduce its vulnerability to risk?

1.6 SIGNIFICANCE OF THE STUDY

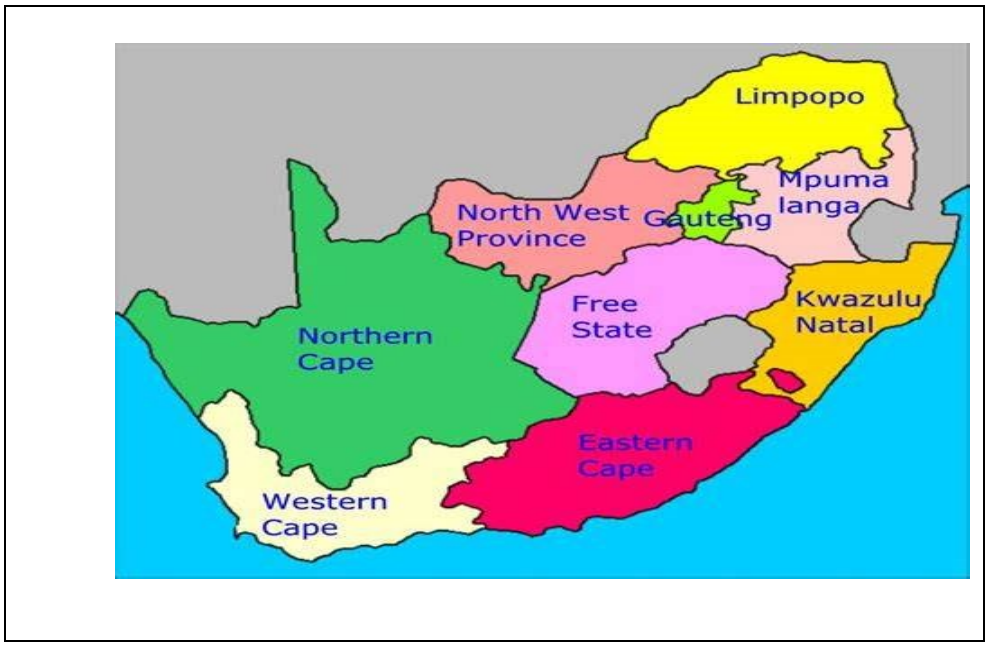
Supply chains are classified as a vehicle for organizations' success as they determine organizations' competitiveness in the marketplace through efficiency and effectiveness. However, there are rising concerns and growing assertions that the complexity of today's supply chains leaves them exposed and makes them increasingly vulnerable to triggering events. This exposure hampers the attainment of SC goals and that of the entire organization. Without a doubt, the need to invest in continuous vulnerability assessment is more demanding than ever before, since the capability to keep abreast with internal weaknesses and to devise measures to overcome them is reliant on the attainment of new and current knowledge. Further, SCV assessment is regarded as a more proactive approach as it focuses on threats and their magnitude (Briano, Caballibi and Revetria, 2009: 192). Therefore, an analysis of this kind, wherein qualitative and quantitative enquiry in a form of interviews is used obtain insights into the nature of current risks, their implications as well as mechanisms that could remedy or overcome such risks, is a necessary exercise. This could assist public sector organizations, including the department under review, to understand their position on vulnerability to risks,

as well as resilience measures, so that they may establish new or better systems to best cope with and/or overcome such risks.

1.7 SCOPE AND DEMARCATION

As Simon and Goes (2013: 1) explained, the scope of a study sets out key parameters that underpin the overall study and what the study covers. It is closely related to the framing of the problem. The research scope clearly illuminates what is contained in the study. This study was based on the public sector SCs, utilising the Department of Justice and Constitutional Development (DOJ and CD) across the nine provinces as a reference. Figure 1.1 below shows the location of the nine provinces in South Africa (SA) for the organization studied.

Figure 1.1: Map of South Africa showing the 9 provinces



Source: www.bing.com (Accessed 21 August 2020)

1.8 BRIEF LITERATURE REVIEW

Supply chain risk (SCR) is defined by Rios, Duque and Gomez (2019: 3) as possible losses in a SC in relation to its targeted values of efficiency and effectiveness, caused by undefined developments in the SC characteristics. Tang and Musa (2011: 29) believe that SCRs are events with small probability but may occur abruptly. Moreover, these events bring about substantial adverse consequences to the system. Some literature suggests that risk is somewhat associated with the terms disruptions, disturbances, interruptions, uncertainty, unreliability, and inability

to forecast the future events and their outcomes (Yan, 2017: 7; Tang and Musa, 2011: 28). On the other hand, the susceptibility of supply chains to such disruptions is referred to as SCV (Waters, 2007: 53). Therefore, SCV may be simply defined as a weakness of the SC to succumb to disruptive events that impede the successful achievement of it goals. Rather than being resilient to disruptions, the SC gets defeated and fails to attain it goals because of disruptions. A broader perspective given by Zsidisin and Ritchie (2009: 53) identifies SCV as "the properties of the SC system; its premises, facilities, and equipment, including its human resources, human organization and all its software, hardware, and net-ware, that may weaken or limit its ability to endure threats and survive accidental events that originate both within and outside the system boundaries".

In Bailey (2015: 36), vulnerability is defined as a possibility for losses or harms, a circumstance that disturbs the accomplishment of the organizational objective. According to Zsidisin and Ritchie (2009: 53), a SC is vulnerable if it lacks resilience or robustness towards various pressures originating both from within and outside the system's boundaries. Vulnerability of SCs to risks has necessitated a continuous focus on SCRM. From the perspective of being a proactive risk management approach (Mndzebele, 2013: i), SCRM has been developed not solely to deal with forecasting the disruptive events and provide mechanisms to cope with these, but it is also concerned with detecting the vulnerability of supply chains to risks and their inherent resilience to mitigate against any adverse outcomes (Bailey, 2015: 36). Analysing SCV is regarded as a more proactive approach to SCRM. It is a means of risk reduction. And so, one is able to manage a system's vulnerability and enhance its resilience to risks by seeking to establish an acceptable degree of vulnerability and risk within the supply chain system.

According to Briano, Caballibi and Revetria (2009: 192), what makes analysis of SCV more important is the fact that it focuses on threats and their magnitude. Further, it is concerned with the time period it takes for an organization to regain its strength and seeks to establish suitable resources to support or stabilise the situation. Supply chain vulnerability (SCV) has been reported to stem from the organizational setup, i.e., structure, processes, procedures and management of SCs. Therefore, for each organization to survive risks, it becomes crucial that they undertake frequent introspection so as to assess their exposure and its impact in relation to the achievement of set objectives. For instance, Tang and Musa (2011: 11) identify sourcing as one of the risky processes. It may expose an SC to vulnerability. These authors list supplier selection or outsourcing, single sourcing, and flexible supplier sourcing as some of the complex

tasks that complicate the entire supply process. They report that as the scope of suppliers to choose from widens, the more challenging it becomes to select the right supplier. In addition, expressing a variety of perspectives, Waters (2007: 71) includes loss of control, too much reliance and less understood types of operations as some of the risks that are likely to increase as a result of outsourcing. The author acknowledges that outsourcing allows for each aspect of the work to be attended to by specialists, thus allowing organizations to focus on their key competencies, thereby guaranteeing service level standards. Tang and Musa (2011: 11) assert that where an alternate supply is available, it is often costlier and therefore it is a detriment to an organization's financial standing. Moreover, dependency on a sole supply exposes one to major crisis (Heckmann, Comes and Nickel, 2015: 120). They cite the example of Ericsson, which, as a result of a major incident, was triggered to leave the mobile market whilst Nokia managed to obtain alternate backup and regain its business strength. This, according to these authors, indicates that it is rather organization's preparedness that informs the impact of threats. This view is supported by Briano, Caballibi and Revetria (2009: 192), who write that the organization's ability to survive damaging events is dependent on its resilience.

1.9 HYPOTHESIS

Risks exposure has a negative effect on service delivery.

1.10 RESEARCH APPROACH

This study adopted both qualitative and quantitative research approaches, wherein both numeric and textual data were collected and analysed in this study (Creswell et al., 2019: 331). This approach allows for 'mixing' of both quantitative and qualitative information in the same study. For this study, data was gathered through interviews comprising of both open-ended and closed-ended questions with junior staff members below the supervisory level, supervisors, and middle managers who are responsible for the procurement of goods and services in the nine different provinces within the DOJ and CD. These persons were interviewed individually using the video conferencing software, TEAMS. It was found to be suitable as it would bring participants closer to the researcher within a short space of time and at a far cheaper cost than travelling to their locations as they were located very far away at nine different provinces. Interviews were also recorded using the same technology. Facial identification brought the assurance that those answering were the ones intended as sampled, since the researcher was familiar with them being part of the organization.

Chapter 1: Introduction and overview of the study

The introduction provides a brief overview of the study, and a description of the research problem, goals and objectives, thereby justifying the need for and significance the study. It proceeds with an account of the research design, a brief literature review that gives insight into the current state of the phenomenon to be studied, and definitions of key terms. Thereafter, it provides an overview of what can be expected in the study and the hypothesis. The chapter serves as a roadmap for finding mechanisms to reduce the state's vulnerability to risk.

Chapter 2: Legislative frameworks governing supply chains in South Africa

The purpose of this chapter is to reflect on and expound on key policies governing SCM in the public sector in SA. These are examined so as to gain deeper understanding on how the SCM business ought to be carried out. This chapter will assist in later ascertaining the correctness and or flaws, if any, in supply chain process administration.

Chapter 3: Understanding supply chain risk related theories, the concepts supply chain risks, vulnerability and resilience thereof

In light of the fact that theories hold power to aid in knowledge development, it is common practice that empirical research such as this adopts one or more theories to underpin the study. Such theories form the backbone of the research. As such, different theories related to SC risks are discussed in this chapter. These assist the researcher to make meaning of the findings of the study, thereafter, resulting in sound conclusions. Furthermore, the concepts of SCR, SCV and Supply Chain Resilience will be explored. This assists in understanding the status pertaining to supply chains risks, and in further understanding the terms vulnerability and resilience as factors that encourage or discourage SC exposure to risks.

Chapter 4: The procurement process in South Africa, Department of Justice and Constitutional Development and elsewhere

This chapter explores and examines the SCM process applicable to public sector organizations in SA followed by a specific process related to procurement, and in-house policies and practices used by the DOJ and CD. It also provides an overview of procurement procedures adopted by Mauritius, Namibia and Somalia. It presents a holistic view of SC practices and norms that these organizations ought to follow regarding procurement, particularly examining the potential risks that procurement brings, the susceptibility of the SC to such risks, and their impact. As part of the broader perspective of risk vulnerability assessment in the public sector,

this chapter examines and relates these processes to the broader policy instructions discussed in chapter two, evaluating potential risks associated with such processes and the vulnerability and resilience of the organization to risk as a result the adopted processes, policies and practices.

Chapter 5: Research design and methodology

This chapter outlines the overall research approach, including the research planning, data collection and data analysis. It begins with the research paradigm, then the research population and sampling procedures adopted to arrive at a sample to serve as a representation of the entire population. It describes how participants were recruited and how the primary data were collected. Further, it clearly sets out reasons for the use of qualitative and quantitative methods, and interviews, and discusses the results of the interviews. The validity, reliability, conformability, transferability, dependability, credibility, anonymity, confidentiality and ethical considerations of the study are addressed.

Chapter 6: Data presentation, interpretation and analysis

In this chapter, data obtained by the study are presented, interpreted and analysed to provide meaning. Being both a qualitative and quantitative enquiry, this research utilized interviews with open-ended and closed-ended questions to seek answers to the research questions. From the interviews, risk's themes emerged and/or are discussed in terms of both the literature and from the primary data, and all are ranked to ascertain their implications on service offerings. Thereafter themes associated with measures to overcome risks also emerged and are discussed. Different figures and percentages are articulated to make sense of the findings. Therefore, the data analysis involves interpretation of the entire results.

Chapter 7: Recommendations and conclusions

This is the final chapter of the dissertation. It draws conclusions based on the findings and provides guidelines for the implementation of the proposed framework on reducing supply chain vulnerability to risks. It also summarises the study aims so as to support the study's implications, contributions, and its relevance to the body of knowledge. It also provides conclusions and recommendations that can be used to inform the concerned bodies about the outcome of the study and the need for future research.

1.11 CONCLUSION

This chapter provided an overview of the study, being the vulnerability of supply chains to risks: an agenda to capacitate the state in SA, by discussing the root of the study and the research problem. It provided background to supply chains with specific reference to procurement and risks. It further discussed that what the study aims to respond to and achieve, being the questions and objectives of the study. It presented the scope and demarcation, being the parameters of the study in terms of area and location of focus. Further to that, it described the research approach, which is qualitative and quantitative in nature, and the overall importance of the study.

CHAPTER TWO

LEGISLATIVE FRAMEWORKS GOVERNING SUPPLY CHAINS IN SOUTH AFRICA

"SCV refers to the properties of the SC system; its premises, facilities, and equipment, including its human resources, human organization and all its software, hardware, and net-ware, that may weaken or limit its ability to endure threats and survive accidental events that originate both within and outside the system boundaries" (Zsidisin and Ritchie, 2009: 53).

2.1 INTRODUCTION

In line with its primary duty to deliver goods and services to all its citizens, such as water, sanitation and housing, the government of the Republic of South Africa (RSA) is also expected to equally protect and advance the interests of individuals who live in it (South Africa, The Constitution of the Republic of South Africa, 1996: 10). This is enabled through passing laws that promote the government's goals. In fact, every government initiative in SA is guided by at least some law. These laws are binding to everyone who intends to operate in that specific sector. As such, SCM also operates within the ambit of laws (legislative frameworks). For the purpose of this study, legislative frameworks, including practices pertinent to SCM in the national government, are discussed below.

2.2 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA ACT NO. 108 OF 1996

In SA, the constitution is recognized as the highest law of the country. It was formulated to recognize, honour, respect and heal the wounds of those affected by the injustices of the past (South Africa, The Constitution of the RSA, 1996: 1). It set out a foundation for democracy, with a belief that SA belongs to all those who live in it. Thus, it advocates for an open society where government operates through the will of the people. In so doing, it set out to equally protect, unite and improve the quality of life of all citizens. In line with procurement of goods and services, section 217 of this Act stipulates that SCM processes shall abide by principles of fairness, equity, transparency, competitiveness and cost effectiveness**.** The latter does not preclude organizations of the state to implement policies that give preference to, advance or protect persons or group of persons disadvantaged by unfair discrimination of the past in the award of bids. However, such must be prescribed as a framework in national legislation.

2.3 PUBLIC FINANCE MANAGEMENT ACT 1 OF 1999 AS AMENDED

The PFMA was enacted to give effect to chapter thirteen of the Constitution of RSA. It was set out to regulate the management of finances in the constitutional institutions, schedule 2 or 3 public entities as listed in Appendix A1, national and provincial spheres of government. It introduced measures to support and ensure sound management of revenue, expenditure, assets and liabilities and secure transparency and accountability. Further, it set out roles of person(s) delegated to manage finances and other related matters in these institutions. Documented in this Act, amongst others, are roles of the National Treasury, accounting officers and officials. The National Treasury remains the principal custodian of this Act. It promotes and enforces compliance to fairness, equity, transparency, competitiveness and cost effectiveness principles and other prescribed norms and standards. Further, it promotes and enforces transparency and effective management in respect of revenue, expenditure, assets and liabilities.

In so doing, it must prescribe uniform standards and norms and monitor their implementation thereafter. In the bid to achieve this goal, the National Treasury may assist applicable institutions to build capacity aimed at the attainment of sound financial management. It is required by this Act that departments shall have an accounting officer (AO). The head of department or acting delegate assumes this position. Amongst other roles, the AO is tasked with a duty to ensure that there is system of procurement and provisioning that conforms to elements of fairness, equity, transparency, competitiveness and cost effectiveness in his or her department. Furthermore, he or she is to ensure that systems of financial management, risk management and internal control are in place, effective, efficient and transparent. He or she must prevent unauthorised, fruitless, wasteful and irregular expenditure and losses emanating from criminal acts. In the unfortunate circumstances that these occur, these must be reported in writing to the treasury and tender board and steps must be taken against the official(s) involved.

However, this Act makes provision that the AO may delegate in writing his or her powers to officials in his or her department. Likewise, by virtue of their positions, SCM practitioners are delegated with the function to procure and prevent any irregularities associated with the supply chain. They are responsible for ensuring that financial resources are used in a manner that is effective, efficient, economical and transparent. They are to prevent unauthorized, fruitless, wasteful and irregular expenditure, since SCM is a vehicle for functions that eventually result in government expenditure in respect of all goods and services. The functions of SCM

practitioners commence during the budgetary planning phase, wherein they consult with end users, to support the budget unit in the compilation of expenditure projections through procurement plans. This ought to be reported to National Treasury annually at least one month prior to start of the financial period. Supply chain management (SCM) is defined as an integral part of financial management (Migiro and Ambe, 2008: 231) since the powers related to financial administration regarding acquisition of goods and services are delegated to this unit.

2.4 PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT NO. 5 OF 2000 AS AMENDED JANUARY 2017

The Preferential Procurement Policy Framework Act (PPPFA) was enacted to give effect to section 217(e) of the Constitution of the Republic of South Africa (RSA). Through its directions, PPPFA seeks to achieve, amongst other aims, transparency in the award of bids within the state. It advocates for the upfront declaration of the method, terms and conditions under which a bid will be awarded. South Africa, National Treasury (2017: 22) directs the organization of the state to determine and specify in advance:

- The preference point system applicable for the evaluation of the advertised quotations or bids, where uncertainty exists, an indication be made that the lowest acceptable bid will be used as a determinant of the use of either 80/20 or 90/10 principle.
- If such goods and or services are in the designated sector for local production.
- If subcontracting is a minimum requirement for bidders to receive consideration for award.
- Whether objective criteria are applicable.
- Pre-qualification criteria, if any. For instance, an organization may decide to advance certain groups of person(s) such as certain Broad Based Black Economic Empowerment (BBBEE)- level contributors, Qualifying Sector Enterprises (QSE's), Exempted Micro Enterprises (EME's) or bidders who subcontract a minimum of 30% to either QSE's or EME's, and
- A condition to disqualify those that do not meet the minimum requirements as may be stipulated.
- Where bids will be evaluated on functionality and more so a precise criterion be set to measure functionality, points to be scored per criteria and or sub criteria met be indicated as well as minimum score required to qualify for further evaluation be indicated.

Organizations are however advised to refrain from setting too low functionality criteria that jeopardizes the quality of goods and/or services to be received or too high functionality criteria that can unreasonably restrict bidders from making offers. Nonetheless, bidders who score below the functionality criteria, and those non-compliant to the minimum threshold for local production and content as it may have been set on a bidding condition should be disqualified, whilst those who meet the minimum functionality criteria go through to the next round of evaluation based on price and BBBEE level status. Accordingly, a claim for points in relation to the BBBEE contribution should be supported by documentary evidence, i.e., a BBBEE level certificate issued by the South African National Accreditation System (SANAS), any other entity registered in terms of SANAS, or an affidavit done in the presence of commissioner of oaths. Although there is adherence to principles of transparency and accountability for decision making in respect of awards and/or intended awards, which would detect and prevent fraudulent activities, it can be argued that these transparency requirements discussed above can also expose the state to risks.

Given the history and current situation in many countries of little attention being placed on contract management (Oluka and Basheka, 2014: 105), where it is known that a pre-requisite for consideration for award is to subcontract a certain percentage to QSE's and EME's, non-existing subcontracting arrangements may be developed, then present with bid offers, thus leading to works being awarded to incorrect bidders. In the end, those with economic power would have taken advantage of the less privileged; no one will ever find out and the goals of the state of equal participation in the economy and advancing the underprivileged contractors would not be realized.

Notwithstanding, once all prequalifying criteria are met by bidders, they are further evaluated using the formulas below, depending on the applicable threshold value.

For 80/20 principle, applicable for the threshold value of R30 000.00 up to R50 million, evaluation is done as per the below:

$$Ps = 80 \quad \frac{Pt - Pmin}{Pmin}$$

Where:

Ps = points scored for price of tender under consideration

Pt = price of tender under consideration

Pmin = price of lowest acceptable tender

The following table is used to calculate scores out of 20 for BBBEE contribution.

BBBEE status level of contributor	Number of points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

For 90/10 principle, applicable for the threshold value of above R50 million, evaluation is done as per the below:

$$\mathbf{Ps = 90 \quad \frac{Pt - Pmin}{Pmin}}$$

Where:

Ps = points scored for price of tender under consideration

Pt = price of tender under consideration

Pmin = price of lowest acceptable tender

The following table is used to calculate scores out of 10 for BBBEE contribution.

BBBEE status level of contributor	Number of points
1	10
2	9
3	6
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

As mentioned earlier, claims related to the BBBEE contribution should be supported by documentary proof; any bidder who fails to submit valid documentary evidence for points out of 10 or 20 or those who are non-compliant BBBEE contributors forfeit the scores of BBBEE level status. However, the said bidders may not be disqualified, they may only score points out of either 80 or 90 for price and 0 for BBBEE. Moreover, bidders intending to subcontract more than 25% of the total value of the bid to any other person(s) not qualifying for at least the same points a bidder qualifies for, such bidder forfeits the scores of BBBEE, unless the intended subcontractor is an EME with a capacity to execute the contract. Lastly, points scored on price and BBBEE are added together, rounded off to two decimals and the highest bidder on points, all-inclusive, will be awarded the bid subject to sub regulation 9 and regulation 11. Be that as it may, the prices quoted by the bidder intended for award must support government's goal of economical use of financial resources. As such, prices should be market related. If that is not the case, the state organization may negotiate prices from the highest scoring bidder or cancel, turn to the second highest bidder or cancel, up to the third highest bidder; if there is still no envisaged agreement on the market prices, the bid must be cancelled.

Instances where bids are equal in all aspects, namely total number of points, the BBBEE level of contribution and points on functionality, lots must be drawn as a deciding factor. Where an awarded bidder intends to subcontract the awarded work post-award, they can only do so upon receipt of approval from the relevant state organization. Consideration of this can only be on condition that: (1) the subcontracted value may not exceed 25% of the total value of the contract

to a contractor that does not have equal or higher BBBEE status level, unless the subcontracted party is an EME that is able and capable of executing the contract and; (2) the subcontracting arrangements may not result in local production and content being reduced to below the minimum stipulated threshold. During or post award, where it is detected that a bidder has submitted false information in relations to BBBEE status level, local production or content, failure to declare subcontracting arrangements, or any other matter that has an impact on evaluation, such bidders must be notified with an opportunity to make representation within 14 days as to why the bid submitted may not be disqualified, or a contract terminated should they have already been awarded. Where representation is received and considered, and the state organization decides to disqualify the bid or withdraw the contract or impose up to 10% penalties or claim for damages if any, the state organization must then inform the National Treasury in writing whether such bidder should be restricted from conducting business with any organization of the state, and written representation should be submitted by the bidder detailing why they may not be restricted.

By considering both representations, the National Treasury will thereafter decide whether to restrict the bidder from doing business with any organ of the state for the period not exceeding 10 years and publish them on the list of restricted suppliers on the National Treasury website. Nonetheless, the organization of the state reserves the right to cancel the bid before any award, should it be found that: (1) goods and or services advertised are no longer required; (2) funds are depleted; (3) no acceptable bid has been received and/or; (4) there are material irregularities in the tender process. The organization must publish the cancellation in the same manner in which the original bid was advertised; where cancellation is to be done for the second time, cancellation may only be done with prior approval by the relevant treasury.

2.5 NATIONAL TREASURY REGULATIONS, ACT OF 2005

Treasury regulations were enacted in March 2005 as means to guide the implementation of financial management affairs of departments, constitutional institutions and public entities listed in schedules 3A and 3C of the Public Finance Management Act (PFMA) as listed in Appendix A1 attached. The requirements of the PFMA were outlined earlier, including the requirements of and responsibilities vested in an AO related to ensuring that a system of financial management is in place that is effective, efficient, and transparent. In support of this, unless directed otherwise by the relevant treasury, Treasury Regulations require that the Chief Financial Officer (CFO) serving in the Senior Management Team be appointed to assist and

support the AO in discharging the said duties (South Africa, Treasury Regulations, 2005: 82) and division of revenue, including sound budgeting and budgetary control practices, the operation of internal controls and the timely production of financial reports.

This appointment does not limit the rights of the AO in assigning specific responsibilities. For instance, this Act is empowered by the PFMA with its requirement for an AO to ensure that internal procedures and controls are in place for payment approval and processing in respect of expenditure management (South Africa, National Treasury, 2005: 7). The latter proceeds with a note that such internal controls should provide reasonable assurance that expenditure incurred is needed, appropriate, adequately recorded and reported and thereafter paid for timeously. In light of this, South Africa, National Treasury (2005: 22) governs that officials of the state may not commit or spend state monies without prior approval by properly delegated authorities, who should have ensured that compliance to conditions and limitations attached to such a delegation is observed prior to approving. One of the greatest contributors of expenditure in the public sector is through SCM (Nkwanyana, 2018: 37). Supply chain management (SCM) is also referenced in this Act, where the AO or accounting authority is assigned the duty to establish and implement an effective and efficient SCM system in his or her organization for, amongst others, the acquisition of goods and services (South Africa, National Treasury, 2005: 49).

In line with this, the AO is tasked with establishing a separate SCM unit within the office of the CFO, to aid the realization of the implementation of the SCM system. Some of the implementation requirements are that procurement of goods and or services shall be done in line with the National Treasury's threshold values, which are either quotations or bidding processes. Where the bidding process is applicable, bid committees, namely the departmental bid specification committee (DBSC), departmental bid evaluation committee (DBEC) and departmental bid adjudication committee (DBAC), needs to be established. As such, the nature and condition of the required goods and/or services, and evaluation of offers received up to the approval, are administered via the mentioned committees. This does not however discharge the AO from the responsibility of ensuring that bid documentation, including advertisement, conforms to the requirements of all related law. This includes adherence to, as per the instructions of this Act, those of the Construction Industry Development Board (CIDB) in the case of bids which are construction related, evaluation and adjudication criteria as required by PPPFA and BBBEE, allowing at least a minimum of twenty-one days where bids are advertised

on Government's Tender Bulletin with the exception of urgent cases, and Information Technology (IT) related bids to be compiled in accordance with regulations stipulated in State Information Technology Act (SITA).Where public private partnership is entered into, National Treasury instructions on appointment of consultants, and advertisement of awards on the Government Tender Bulletin must be complied with.

The requirements of advertisement can be associated with one of the five pillars of procurement, namely, competitiveness, that is aimed at achieving good governance. Competition is a procedure wherein more than one prospective supplier is afforded a reasonable opportunity to provide offers in relation to goods and services required by any state organization at a given point and time (Mabanga, 2018: 18). This competition, according to Gwala (2018: 57), must be open and effective, meaning procurement procedures must be clear, transparent and without bias. One of the greatest benefits of competition is its likelihood to give birth to conformance to another pillar of procurement, namely, cost effectiveness, also known as value for money. With many offers from prospective suppliers, state organizations are able to compare price and quality and thereafter select the best offer characterised by both best price and quality (Bolton, 2006:44). This is supported by Gwala (2018: 57) who argues that an award of bids is informed not just by lowest price, but by goods and/or services' quality; as such, the awarding authority must reject offers even if they are lowest in price if goods and/or services are of inferior quality.

Ethics is also referenced in this Act. In fact, the promotion of ethics in dealing with bids was amongst the foremost points in the agenda of government with the inception of SCM and associated laws. Officials and role players in SCM are directed to adhere to the highest ethical standards, namely, fairness, reasonableness, integrity, mutual trust and respect. With these standards, it was perceived that SCM would have supremacy to overcome the irregularities of the past models (Nkwanyana and Agbenyegah, 2020: 2). In addition, SCM officials and role players operate within the pledge of National Treasury's code of conduct. The pledge commits them to conform to the said standards as well as to identify and avoid conflict of interest; to be open in making decisions that are of the public interest; to protect the state information, thus confidential information on issues such as bids to be kept confidential at all times; to avoid any other unethical and illegal act; and lastly, to understand that they are accountable to the public for their decisions and actions.

This Treasury Regulations Act provides a directive that places responsibility with all SCM officials as well as the accounting authorities to be alert to any breach of laws. Whilst officials report such conduct, the AO must put in place all necessary measures to prevent improper practices. Where the latter are alleged, the AO must investigate, take steps against such official(s) and report to the South African Police Services (SAPS) accordingly. This is to be done to overcome abuse of the SCM system that may result in improper personal gains.

Suppliers too are to be screened. Any offer from a supplier whose director(s) have abused the SCM system by an act of fraud or corruption in competing for such a contract, or where there was improper conduct, or they failed to perform in a past contract, or are prohibited to do business with the public sector, such offers must be rejected. Again, offers must be rejected where the company itself is prohibited to trade with the public sector or their tax matters are not in order with the South African Revenue Service (SARS).

Even post-award, if it is found that either a supplier misconducted themselves during the bidding process or contract execution, or official(s) or any role player(s) did such act(s) that benefitted an awarded supplier improperly, the contract must be cancelled and the relevant treasury be notified accordingly, which, in turn, will consider and recommend if criminal steps must be taken to remedy the situation. Over and above the stipulated methods of sourcing discussed above, state organizations are permitted to deviate from inviting competitive bids in a situation where it is impractical to do so. Such purchases should however be approved and be recorded by the relevant accounting authority. Other means of purchasing includes participation in a transversal contract that may have been arranged by the relevant treasury or participation in any contract arranged by means of competitive bidding by any organization of the state on condition that one receives written approval from such an organization.

Despite these laws, surprisingly, the efficiency and effectiveness of the SCM system has been reportedly shady. Authors such as De Lange (2011), Pauw (2011) and Smart Procurement (2011) reported, amongst others, a lack of conformance to set regulations, poor governance and a lack of consequence management. This has happened despite this Act that prescribes how the system must conform and be consistent to fairness, equity, transparency, competitiveness and cost effectiveness principles, requirements of PPPFA and BBBEE. So, can this be an example of Mutereko's assertion (2013: 16) that many theoretical sound policies fail as a result of no or partial implementation, a lack of political commitment from the top, a lack of capacity

and poor oversight? This is supported by AGSA (2019) who, in their integrated annual report, stated that the top three projects failed due to, amongst other factors, poor financial management, a lack of corrective actions to address project failures, and SCM irregularities. This follows media reports, as debated in parliament in October 2019, of billions in irregular, fruitless, and wasteful spending that occurred in the 2018/19 financial reporting period (Parliament of RSA, 2019). However, the study findings of Nkwanyana and Agbenyegah (2020: 7) agree with Mutereko (2013) on a lack of capacity, as do Fourie and Poggenpoel (2016: 6), but they do not support other claims associated with failure as indicated by the preceding authors. On a positive note, the study of Nkwanyana and Agbenyegah (2020) surprisingly found that SCM within public sector organizations has reasonably achieved one of its goals, the advancement of principles of good governance, despite the capability of SCM practitioners being in limbo. Nevertheless, amongst other factors, this system must provide for elements of risk management as well as regular assessment of supply chain performance. Risk management therefore becomes a basic management requirement in managing supply chains.

2.6 BROAD BASED BLACK ECONOMIC EMPOWERMENT ACT NO. 53 OF 2000 AS AMENDED IN ACT 46 OF 2013

The Broad Based Black Economic Empowerment Act is an integrated coherent framework that seeks to advance economic transformation in South Africa and bring about a significant increase in the number of black people that own, manage and control the country's economy. This Act came about as there was a compelling need for the first democratic government elected in 1994 to elevate the development of previously disadvantaged persons and companies. This Act came into existence in 2003 and was amended in 2013, with its core focus redefined and upgraded. It came about with a drive to enable viable economic empowerment for all black persons, including, particularly, women, workers, youth, and persons living with disabilities and those living in rural areas.

It announced that it would do so through various cohesive socio-economic strategies such as increasing the number of black persons that own, manage and control enterprises and productive assets. Moreover, it advocated for the facilitation and management of enterprises and productive assets by communities, workers, co-operatives and other collective enterprises. It advocated for human resources and skills development, and equal representation of all groups of persons in all occupational categories and at all levels. It put emphasis on investment in and preferred procurement from enterprises owned and managed by black persons. In supporting

start-ups, small, medium and micro enterprises, cooperatives and black entrepreneurs, including those in the informal business sector, this Act states that these persons(s) should be given access to finances. Moreover, this Act further states that means must be put in place to enhance access to financial and non-financial supports to black-owned and managed enterprises, small, medium and micro enterprises and cooperatives. Stakeholders in different sectors of the economy are permitted to establish transformation charters or good codes of practice within their sectors. Similarly, organizations of the state, by direction from the minister, may be permitted to specify pre-qualification criteria in their procurement of goods and services. Where organizations of the state and public entities develop and implement procurement policy, criteria for public private partnerships, award for incentives, grant and investment schemes, issue licenses, concessions, and other authorizations in respect of economic activities in terms of BBBEE, they should do so taking into account and as far as reasonably possible, relevant good codes of practice in terms of any state laws. Notwithstanding, some organizations of the state or public entities may be exempted from the requirements above.

The minister can approve and gazette deviations where, upon consultation, it is found that there are objectively verifiable facts and/or circumstances applicable to such an organization of the state or public entity necessitating such an exemption or a deviation. As such, that organization or entity becomes measurable against that code of practice, and they must annually report on their compliance thereof. In fact, local, provincial and national spheres of government, organizations of the state and public entities must report their BBBEE compliance through their Annual Financial Statements (AFS) and any other annual reports as prescribed in the PFMA. This includes also all companies listed on Johannesburg Stock Exchange (JSE) and Sectoral Education and Training Authorities (SETA) considered in terms of the Skills Development Act. Furthermore, similar to PPPFA, where it is found that the contract award was based on false claims furnished by or on behalf of an enterprise, an organization of the state or public entity reserves the right to terminate such a contract without any prejudice.

2.7 THE COMPETITION ACT (NO. 89 OF 1998)

The democratic government of SA, upon taking over in 1994, recognized that as a result of apartheid and its discriminative laws and practices, the national economy remained in the hands of the few, being the white minority. There were very weak enforcement measures to curb the anti-competitive economic trade practices and unjust restrictions on full and free participation

by all South Africans. There was a great need to open up the economy to ownership by the majority of South Africans. As such, credible laws with effective structures to administer the law and create an enabling environment for an efficient functioning economy became necessary. This context gave birth to The Competition Act (No. 89 of 1998). This law ensures an efficient and competitive economic environment wherein the interests of workers, owners and buyers are balanced; it also focusses on developments that will benefit all South Africans. In the scope of public procurement, the requirements of The Competition Act (No. 89 of 1998) are fulfilled by one of the principles of procurement namely, competitiveness (South Africa, The Constitution of the RSA, 1996: 94). The South African government as a principal agent of this Act also conforms to its directive. When contracting for goods and/or services, state organizations first invite bidders to quote (South Africa, National Treasury, 2005: 50). Thus, allowing fair and equal opportunity for suppliers to participate in the economy. This law further permits consumers to freely choose the quality and variety of goods and/or services they want, including competing in international markets. On the other hand, this Act protects South Africans by prohibiting certain trade practices which undermine a competitive economy, such as: price fixing; collusive tendering and dividing markets by allocating market shares, customers, suppliers, zones or explicit types of goods and/or services; or manufacturers or suppliers deciding on a minimum resale price.

The manufacturer or supplier may only suggest the selling price; this is not binding and therefore remains a 'recommended price' and must be indicated as such on items. Further, it is prohibited for a dominant supplier to charge exorbitant prices to disadvantaged consumers. To guard against practices such as the above, the Competition Commission and Competition Tribunal were established in line with this Act. South African consumers recently experienced so much abuse with the outbreak of the Covid-19 pandemic, wherein prices of personal protective equipment (PPEs) rose as much as double the reasonable selling price under normal times. Government institutions too became a victim of this. As a result, the National Treasury issued instruction note number 5 of 2020/2021 to regulate ceiling prices for each of the PPE items (South Africa, National Treasury, 2020: 1-2).

2.8 PROMOTION OF ACCESS TO INFORMATION ACT (NO. 2 OF 2000)

The Promotion of Access to Information Act (PAIA) came about as a remedy to the past culture of secretiveness and unresponsiveness that dominated both public and private sector bodies, which often led to the abuse of power and violations of human rights. The inception of the

Constitution of the RSA advocated for the respect, protection, promotion and fulfilment of the Bill of Rights as these serve as a cornerstone of democracy in SA (South Africa, The Constitution of the RSA 1996: 9). A supporting law, namely PAIA was enacted. This law supports subsection 32 of the Constitution that indicates "everyone has a right of access to (a) any information held by the state; and (b) any information that is held by another person and that is required for the exercise or for protection of any rights" (South Africa, The Constitution of the RSA, 1996: 17). However, South Africa, The Constitution of the RSA (1996: 20) further adds that the said access to information may be restricted wherein it is reasonable and justifiable to do so in terms of the law of an open and democratic society based on human dignity, equality and freedom as contemplated in section 36 of the Constitution. Restrictions include, but are not limited to, restrictions aimed at the reasonable protection of privacy, commercial confidentiality, and effective, efficient and good governance, and carried out in a manner which balances that right with any other rights, including those in the Bill of Rights in Chapter 2 of the Constitution. So, by this, PAIA therefore fosters a culture of transparency and accountability in public and private sector bodies by actively promoting a society in which the people of SA have effective access to information, to enable them to fully exercise and protect all of their rights whilst not infringing those of others. As such, the government of South Africa is mandated to make valuable information available openly, fairly and transparently to the public and communities at large. Likewise, information on tender advertisements and awards is made openly available, to achieve the stated purpose.

2.9 STATE INFORMATION TECHNOLOGY AGENCY ACT 88 OF 1998

The State Information Technology Agency (SITA) is similar to the South African Social Security Agency (SASSA) in that it operates to support the state in the acquisition of Information Communication Technology (ICT) related goods and/or services. So the principal objective of the agency is to provide ICT, information systems (IS) and related services in a maintained information system security (ISS) environment to, or on behalf of, participating departments and organs of state. Therefore, it acts as an agent of the SA government. The main functions and powers of this agency as tabulated in par 7(1) (a) to (h) of the Act include the following. These are to:

- Provide data processing services;
- Provide ICT and IS training;
- Provide application software development and maintenance services;

- Promote the effective utilisation of ICT to enhance the efficiency at all levels of the public service;
- Provide technical, functional and business advice and support regarding ICT;
- Provide ICT and information systems management (ISM) services;
- Act as a procurement agency with regard to any of the above functions in respect of ICT requirements, in accordance with state procurement policy; and
- Perform any other function which the Minister may, from time to time, determine to give effect to the objective of the agency.

In the execution of the said duties, the agency must conform to the applicable norms and standards as well as regulations made in this regard by the Minister in terms of the Public Service Act 103 of 1994 and this Act. The above provides a new or rather additional aspect of procurement so that, in terms of ICT-related procurement, there is a body specifically established for such. So in addition to the National Treasury which is responsible for transversal contracting on behalf of a number of state organizations or entities, SITA performs the same, but solely for the ICT-related goods and/or services listed above. According to SITA's engagement model and guidelines (South Africa, State Information Technology Agency, 2014: 5) the agency must, in the best interest of the state, ensure timely procurement of ICT goods and/or services for the repetitive requirement of government departments through a conclusion of a transversal term contract by means of a competitive bidding process. This author adds that such a contract can be concluded after the agency's consultation with Department of Public Service and Administration (DPSA), Standing Committee on ICT Procurement (SCPROC) and Government Information Technology Officers Council (GITOC).

The government departments are compelled to make use of such a contract; meanwhile, it is optional for public bodies. This guideline further stipulates that institutions must make use of suppliers designated for specific goods and/or services for deliveries at the provinces designated. For procurement related to ICT, the PPPFA as discussed in the previous chapter applies, which means for all procurement equal to or exceeding R30 000.00, the award will be based on either the 80/20 or 90/10 principle. This is in line with the principle of fairness as per the requirement of section 217 of the Constitution (South Africa, The Constitution of the RSA, 1996: 94). Having said that, it is worth mentioning that provision of ICT capita by this agency is of crucial importance with its ability to produce processes that are used to organise, process, communicate, store, and retrieve information. Therefore, this agency supports procurement

units to source ICT goods and/or services for the provision to SC's end customer. It is important to point out that, as Gourdin (2006: 168) asserts, communications systems expose organizations to vulnerability; and the more systems, the more vulnerable an organization becomes. This agency also plays a significant role in the development, upgrading and maintenance of LIS that SCM use for processing orders to fulfil end customer's requirement. As such, this agency can be regarded as an important partner in SCM.

2.10 CONCLUSION

This chapter discussed a few legislative frameworks that govern and/or guide the procurement of goods and services in the public sector. It began with a brief discussion on the requirements of the Constitution of the RSA that states that "when an organ of the state contracts for goods and/or services, it must do so in a manner that is fair, equitable, transparent, competitive and cost effective." The same requirements were identified in the discussion of the PFMA in its dealings with revenue, expenditure, assets, and liability. It proceeded with a detailed account of PPPFA, Treasury regulations, BBBEE directives and the Competition Act. It concluded with a brief discussion of PAIA and SITA as some of the partners in public sector procurement.

CHAPTER THREE

UNDERSTANDING SUPPLY CHAIN RISK RELATED THEORIES, THE CONCEPTS SUPPLY CHAIN RISKS, VULNERABILITY AND RESILIENCE

"The identification, namely, understanding the reasons that gave rise to probable problems and estimation of probability and destructive impact of such problems are key elements for managing it" (Abdel-Basset et al., 2019: 490).

3.1 INTRODUCTION

Given the importance of theories in any field of study and their power to assist in knowledge development and thereby provide fresh viewpoints of any phenomenon, scholars began to suggest that SCM too should develop some theoretical underpinnings. In the same vein, scholars argue that borrowing theories from other disciplines is necessary (Swanson et al, 2017: 300). This study reviews perceived risk theory, normal accident theory (NAT), prospect theory, resource dependency theory, resource-based theory (RBT), and governance theory, which are all of much relevance to the investigation at hand. First, NAT highlights that due to systems being complex and tightly coupled, mishaps are expected to occur. Perceived risks theory agrees with NAT and asserts that this is the nature of most crucial decisions, wherein due to uncertainty, they bring about a chance for danger to happen.

Amidst the presence of risks as defined, prospect theory then emphasises that organizations have a choice amongst economic decisions. Either one can take a chance, and invest resources in anticipation for a favourable outcome, or else simply opt for choices with more certain outcomes. Resource-based theory (RBT) is of the view that it is capabilities and resources that are treasured, uncommon, inimitable and non-substitutable that will enable the realization of a Sustainable Competitive Advantage (SCA). However, resource dependency theory warns organizations never to depend on a particular single resource as this act is itself a risk to continued service delivery. Governance theory is used as set of rules for deciding on what needs to be done in reducing a supply chain's risk exposure. This chapter concludes with an exploration of the concepts of SCR, SCV and Supply Chain Resilience in detail.

3.2 PERCEIVED RISK THEORY

In light of the complex nature of SCM, it is subject to a number of risks, some of which are perceived. Perceived risk is defined as "subjectively determined expectation of loss: the greater

the probability of this loss, the greater the risk thought to exist for an individual" (Mitchell, 1999: 168). This term was first introduced at its broadest level in the marketing world in the 1960s by Raymond Bauer and his associates at Harvard Business School (Bauer, 1960: 24). This author defines perceived risk as a two-dimensional phenomenon comprising of uncertainty and a negative consequence construct. According to Mitchell (1999: 166), "uncertainty" exists when knowledge of an exact probability is not known. Meanwhile a negative consequence relates to the criticalness of a loss (Peter and Ryan, 1976: 185). In addition, the preceding authors modified and simplified risk as follows:

Risk = Probability of consequence occurring x Negative consequences of poor brand choice

In other words, risks pose possibilities for expected standards not to be met. According to Rindfleisch and Crockett (1999: 159), consumer behaviour involves risk in the sense that any action of a consumer will produce consequences that one cannot anticipate with anything approximating certainty, some of which are likely to be unpleasant. Simply said, it is a deviation from the expected outcomes and their likelihood (Mitchell, 1999: 180). "Most important decisions involve uncertainty, and, accordingly, the ability to reason rationally about uncertainty (probabilities) is crucial to make decisions that maximize the expected return in terms of value or utility, the predominant conception of rational decisions" (Juslin et al., 2009: 856). Kogan and Wallach (1964), cited in Mitchell (1999: 167), assert that risk involves two aspects, namely "a chance" wherein there is a probability for risks to occur and "a danger" referring to the severity of a negative consequence that is to occur.

Though criticized by some scholars, Cunningham (1967: 37) took this a step further, asserting that risks are characterized by two components, namely what is at stake that could be lost should the consequence of an act become unfavourable, and what is the individual's subjective feeling on the certainty that a consequence will be unfavourable. As such, risk factors play a crucial role in proper decision-making; they must be borne in mind during the decision-making process. So in order to derive the best possible outcomes of a phenomenon, featuring perceived risks through the assessment of the certainty of consequences and the negative consequences associated with the behaviour is considered beneficial (Mitchell, 1999: 180). Rindfleisch and Crockett (1999: 159) assert that with perceived risk theory, "people tend to focus on reducing the likelihood of making errors instead of maximising value in the process of committing a risky behaviour". Nevertheless, "a person's behaviour is determined by his or her goal, his or

her cognitive limitations, and the structure of the environment" (Gigerenzer, Todd & the ABC Research Group, 1999, cited in Juslin, Nilsson and Winman, 2009: 856). Having said this, it is worth mentioning that uncertainty or consequences may exist either with known or unknown probability (Cunningham, 1967: 83).

3.3 NORMAL ACCIDENT THEORY (NAT)

As a result of complex and tightly coupled systems, the literature reveals that accidents are expected to occur. These occur as a result of unexpected interactions, which neither system developers nor end users are able to anticipate, recognize or stop from happening. According Wagner and Neshat (2012: 2880), NAT is capacitated to support the identification of structural sets in an SC that might be vulnerable. They state that the interface of two or more failures in a system will have a major impact on each other, which in turn may subject the entire organization to a major accident. Similarly, Scheibe and BlackHurst (2017: 4) support this notion, noting that catastrophic failures could be the result of small defects that run out of control. Starting from one part of the system, they spread across and affect other parts of the system.

Although they may begin small, they may in fact give rise to bigger failures. This theory stems from Perrow's 1999 inspiring piece of work which established a very solid foundation on industrial safety during the 1980s. This author argued about the inescapability of accidents in certain types of techno-organizations, so-called high-risk systems (Le Coze, 2020: 1-2). Perrow's book sparked new areas and topics of research within the social sciences, namely technological risks, safety and disasters. Despite it being widely applauded, Le Coze (2021: 4) mentions that some scholars challenged and/or rejected Perrow's work, indicating it was solely technologically focused, it ignored important elements such as people manning such systems (Bierly, Spender, 1995: 645), and it did not pursue organizational issues in any depth (Hirschhorn, 1985: 847). Responding to the challengers and what could have been a misunderstanding of his point, Perrow clarified that accidents do not systematically happen because of intrinsic and structural features of high-risk systems but many happen as a result of managerial and/or regulatory issues. Furthermore, Perrow mentioned that component failure accidents referenced were in fact issues in the design, equipment, procedures, operators, supplies, materials, and environment surrounding system of an organization (Le Coze, 2021: 5).

3.4 PROSPECT THEORY

Prospect theory can be traced back to 1979 when it was first published by Daniel Kahneman and Amos Tversky (Balaz et al 2013: 656). This was later extended and renamed as the "Cumulative Prospect Theory" model as presented by Kahneman and Tversky in 1992. Both original and extended versions are recognized as valid descriptive models for decision-making in choices-related problems (Mahmood and Shah, 2015: 574). According to Balaz et al. (2013: 656), "the prospect theory can be viewed as an extension of the expected utility theory which has dominated economic thought on decision-making on micro-level for over seven decades". Expected utility theory holds a view that people are risk averse in their risky decisions because they are confronted with the problem of diminishing marginal utility (Mahmood and Shah, 2015: 574). This theory explains how investors behave when making decisions in risky and uncertain environments.

According to Mahmood and Shah (2015: 574)), investors are much more risk averse in their attitude when they are in a gain domain, and they are risk seekers in their attitude when they are in a loss domain. This means investors' attitude differs depending on a target or reference point. Though this theory has wider implications on decision-making on the stock market, it has also gained momentum in the corporate world. In this sector, it has been studied to describe the strategic management choice of decisions so as to improve an organization's performance. With its application, the preceding authors state, organizations are able to take capital investment decisions that have been evaluated comparably to a target or reference point. Having said this, it can be argued that decision-making under risks is actually a gamble as proposed by expected utility theory (Kahneman and Tversky, 1979: 263).

According to these authors, the theory suggests that organizations must choose an action (gamble or prospect) in return (expecting) of an outcome by putting together resources (asset integration) and/or being risk disinclined (risk aversion). Said in a laymen's terms, this is "calculated risk taking". This, according to Mahmood and Shah (2015: 574), means decision-makers will come across several alternatives and adopt one or more of these available alternatives that are favourable to an organization. This is mainly done to secure the interests of an organization. In light of the supply chain domain, this theory could be used to study what policies are in place to curb supply chains' vulnerability to risk.

3.5 RESOURCE DEPENDENCE THEORY

According to Nienhuser (2008: 10), the "Resource Dependence Perspective" gained public awareness in 1978 through the book titled, *The External Control of Organizations,* by Jeffrey Pfeffer and Gerald Salancik. Based on Pfeffer and Salancik's (1978) work, Rahayu et al. (2019: 39) assert that no organizations can meet their own needs; all organizations make use of resources that come from the environment to fulfil their mandate, therefore environment somehow influences operations of organizations. This includes banks supplying finance, skilled professionals, or any other workers (Chinyoka, 2020: 89). In fact, Rahayu and Rosidi (2018: 39) argue that people are the most important resources in the organization. In light of this, they add, resource dependency theory is a theory that helps us understand how an organization's external resources influence organizational behaviour, with behaviour understood as a "global" term which includes actions, decision-making or non-decision-making as well as its results thereof, like the organizational structures (Nienhuser, 2008: 11).

The reality is that each member, such as human resources of an organization, will contribute if they perceive that their contributions will be highly rewarded (Gudono, 2016: 109). That is why Chinyoka (2020: 89) believes that placing dependence on a particular resource provider or providers in any part of an organization is not good. It poses risks. This author suggests that organizations should find ways to reduce dependence on any resource by finding alternative and/or equivalent resources. In contrast, Barnard (1938: 88) suggested that people need to be motivated to work well and achieve the highest performance for the organization. So much so because resources, as reported by Chinyoka (2020), are the basis of the power of any organization. In addition, Nienhuser (2008: 12) asserts that to be able to apprehend organizational behaviour, one must first clarify which resources are the most critical, which according to Pfeffe and Salancik (2003: 46), can be measured by the ability of the organization to continue operate in their absence. According to the preceding authors, a resource is critical if its unavailability endangers the functioning of an organization.

3.6 RESOURCE-BASED THEORY

Implementing the processes are made possible by the people, and the supply chain structure is also made up of people. Resource-based theory (RBT), also known as the resource-based view (RBV) (Barney et al., 2011: 1303), therefore becomes inseparable from SCM discussions. Its principal proposition is that for an organization to achieve a state of Sustainable Competitive Advantage (SCA), it must secure, and control, treasured, uncommon, inimitable, and non-

substitutable (VRIN) resources and capabilities (Barney 2002 cited in Kraaijenbrink, Spender and Groen, 2010: 2). Treasured resources are those that are used to exploit opportunities and/or offset threats to an organization, while uncommon resources are those that are in restricted supply and are rare to be found by current and future competitors (Lockett, Thompson and Morgenstern, 2009: 11). Imitable ones are those with lesser probability to be falsified, while the non-substitutable are those that cannot be simply exchanged (or substituted) for the other. It can be said that having such resources positions an organization to stand out from the rest. For this reason, Lockett, Thompson and Morgenstern (2009: 10) assert that an organization is equivalent to the type of assets and resources connected to it for a set time period. These authors mention resources such as physical assets and capabilities, including organizational processes and information. Lockett, Thompson and Morgenstern (2009: 10) add that having resources alone is insufficient – SCA is also dependent on such resources' functionality, their efficiency and effectiveness when combined, and their capacity to be shaped. Similarly, Barney (2002), cited in Kraaijenbrink, Spender and Groen (2010: 2), argues that beyond having the named resources, an organization itself must be geared to absorb and apply such resources and capabilities to achieve SCA.

Based on the above assertions, it could be argued that an organization's survival is dependent on its people the same way it is on itself. Hence, RBV, as presented by the preceding authors, is 'structure-conduct-performance focused'. Unlike industrial organization (IO), RBV explicitly looks for the internal sources of SCA. It accepts that information about the future value of a resource is unevenly disseminated but asserts that if managers can "estimate the future value of a resource better than their competitors or when they are simply lucky – this provides their firm with ex ante sources of SCA". Nevertheless, the strategic goal of RBT is to heighten the functioning of an organization's resources and capabilities in the bid to achieve SCA (Francisco, 2015:50), and, in turn, to improve organizational performance (Yang, 2009: 1260).

3.7 GOVERNANCE THEORY

Governance can be defined as "rules of collective decision-making in settings where there is a plurality of actors or organizations and where no formal control system can dictate the terms of the relationship between these actors and organizations" (Chhotray and Stoker, 2009: 214). Simply put, it is 'rules-in-use' (McKean and Ostrom, 2000: 111). So, governance could be

defined as what guides the conduct of a range of stakeholders. Chhotray and Stoker (2009: 3) mention that rules can be anything from formal to informal methods.

Within the SCM domain, this can be presented in terms of policy directives, which in turn inform processes, and in-house practices adopted by SA government institutions for the procurement of goods and services. Governance's focus though is to improve internal processes, as recommended by the New Public Management (NPM), the current government's strategy, aligned with the principles of New Public Service (NPS) and New Public Governance (NPG) (Denhardt and Denhardt, 2015: 665-666). These have been established in the quest for new solutions that involve citizen participation and engagement in areas of public interest such as policy development, implementation, and feedback (Denhardt and Denhardt, 2015: 665-666). Chesbrough (2003: 63) suggests that organizations should seek integration with other organizations or external agents to create concepts and improve their goods and services offerings, including getting their clients involved in process co-creation to improve their experiences.

Having discussed the above, this research adopts a hybrid of theories, being resource dependency theory and the resource-based view. This is due to strengths that each of these theories brings to the situation. Firstly, it is aligned with resource dependency theory that asserts that organizations depend on resources that come from the environment to fulfil their mandate, which in turn influences the functioning of organizations. It can be argued that vulnerability to risks will somewhat be influenced by an organization's environment, such as finances, skilled professionals, or any other workers.

3.8 THE CONCEPT OF SUPPLY CHAIN RISKS

According to Ghadge et al. (2012), cited in De Oliveira et al. (2017: 617), risks in supply chains can be defined as the exposure to an event that causes disorder, which in turn affects the efficient management of an SC. Abdel-Basset et al. (2019: 490) view risks as the probability of the occurrence of a realized hazard and volume of the occurrence; the probability of alteration in the occurrence of an event that has either positive or negative impacts; and a set of uncertain events which affect the achievement of objectives. Moreover, these authors describe risks as probable events which could cause damage or loss, affect the achievement of objectives, or result in negative outcomes due to uncertain situations.

Risks could therefore be regarded as problems that disrupt the attainment of set objectives. Those that happens in the supply chain are referred to as supply chain risks (SCR). Abdel-Basset et al. (2019: 490) define SCR as the "divergence in the distribution of potential outcomes of supply chain, their probability and their subjective values". These authors further define SCR as the appearance of an accident with the incapacity of the influenced organization to deal with its consequences. It is the potential and influence of mismatch among supply and demand, and anything that disrupts the information, materials or the flow of product from original suppliers to end users. Mhelembe and Mafini (2019: 2) regard risks as danger of harm, damage, loss, liability or any other occurrences that are argumentative that happen as a result of internal or external vulnerabilities of a supply chain. These authors assert that these occurrences may be avoided through preventative actions. Mhelembe and Mafini's (2019: 2) view is supported by Abdel-Basset et al. (2019: 490) who write that there are internal and external risks.

Internal risks are those manageable within the organization while external risks are those uncontrollable from within (Yan, 2017: 20). Yan (2017) further argues that these risks happen often on a very small scale. However, Waters (2007: 8) warns that this does not mean that these risks are less important since they may have a significant effect. On the other hand, external risks, those from the outside of an organization, may have major repercussions on the SC (Briano, Caballini and Revetria, 2009: 193). Nevertheless, when risks happen, regardless where they happen in any part of a supply chain, it negatively affects every part of it (Kırılmaz and Erol, 2016: 2). Despite the above assertions pointing to risks' negative effects, Yan (2017: 8) reveals that although risks are generally connected to negative outcomes, they could also come with positive outcomes. The Chartered Institute of Procurement and Supply (2017), Abdel-Basset et al. (2019: 491) and Kırılmaz and Erol (2016: 2) identify the following supply chain risks in the public sector; these include internal, external and double-barrel risks as shown in Figure 3.1, Figure 3.2 and Figure 3.3 below.

Figure 3.1: Supply chain risks in the public sector

Nature of risk	Description of risk	Source
Supply chain risks in the public sector	government policies	Chartered Institute of Procurement and Supply (2017)
	supply complexity	
	availability of skills	
	supplier performance monitoring	
	information security	
	process efficiency	
	socio-political events	Briano et al. (2009: 193)
	economic events and	
	technological events	
	hostile climates	Waters (2007: 7)
	changing government policies	

Source: Researcher's own compilation

Figure 3.2: Internal and external risks

Internal risks		**External risks**	
Manufacturing risks	occurs due to disturbance of inside operations	Demand risks	occurs due to unexpected customer demand
Business risks	occurs due to alterations in key structures	Supply risks	occurs due to obstruction of product flow, whether by materials or parts of the supply chain
Planning and control risks	occurs due to inappropriate estimation and planning, which reach ineffective management	Environmental risks	usually related to governmental, economic, social and climate factors
Mitigation and contingency risks	occurs because contingencies or alternative solutions are not placed when wrong things occur	Business risks	occurs due to many factors including the stability of a supplier's finance or management, or purchase and sale of supplier companies
Cultural risks	occurs because business culture tends to stow or retard negative information	Physical plant risks	occurs due to the condition of a supplier's physical facility and regulatory compliance

Source: Abdel-Basset et al. (2019: 491)

Figure 3.3: Internal, external and double-barrel risks

Internal risks		**External/Internal risks – double-barrel**		**External risks**	
Inherent risks in operations	These may be accidents, the reliability of equipment, loss of an information technology system, human errors and quality issues	Risks from suppliers	reliability, availability of materials, lead times, delivery problems, industrial action,	interactions with its environment	accidents, extreme weather, legislation, pressure groups, crime, natural disasters, wars
Risks that arise more directly from managers' decisions	The choice of batch sizes, safety stock levels, financial problems and delivery schedules	Risks from customers	variable demand, payments, problems with order processing, customized requirements		

Source: Kırılmaz and Erol (2016: 2)

In light of the above risks, this study focuses on public sector policies, processes and support structures in any field of work operating in a country governed by a rule of law. It is the study's view that there are policies that govern the manner in which any operation ought to be carried out. These policies give birth to processes to be followed when performing such activities, which in turn will inform the structure and persons required to carry out different tasks. In light of the above, it is evident from chapter two of this study that supply chains operate within the ambit of laws. Confirming this, Ambe and Badenhorst-Weiss (2011: 1111) underline that the SCM process is directed by laws and regulations which inform intelligent decisions. The authors list the Constitution; Public Finance Management Act (PFMA) (Act No. 1 of 1999); Local Government: Municipal Finance Management Act (MFMA); (Act No 56 of 2003); Preferential Procurement Policy Framework Act (PPPFA) (No. 5 of 2000); Policy to Guide Uniformity in Procurement Reform Processes in Government; Broad-Based Black Economic Empowerment Act (BBBEE) (Act 53 of 2003); and National Treasury RSA (2005), as some of the laws governing supply chains, as discussed in chapter two. However, despite the availability of such legislative frameworks, the public supply chain in South Africa continues to be inflexible and faces many challenges (Mhelembe and Mafini, 2019: 8). These authors found in their study that effective government policies lead to increased flexibility, meaning it is only *effective* policies that result in enhanced flexibility.

Therefore, policies may exist, but if ineffective, flexibility may not be attained. So what is the implication of these findings to all these supply chain laws? Is it implementation issues as reported by Migiro and Ambe in 2008 or some undefined reasons? Ambe and Badenhorst-Weiss (2012: 251) warn that public sector supply chains face pressure from both internal and external sources and advise that there is a need for a review of how the government plans, prepares budgets, implements and manages programs and delivers services. The preceding authors blame lack of compliance with existing policies, too much decentralisation of the procurement system, and ineffective monitoring and evaluation. In the same breath, Mhelembe and Mafini (2019: 2) assert that at times policies are found to be ambiguous and fragmented, thus causing uncertainty in the application; they report this as a major barrier in SCM in the South African public sector. Chapter four of the current study reveals that there are formal processes or rather business processes in place to apply the laws discussed in chapter two. Business processes account for a critical part of any set goal. They contribute to the realization of such a goal. The current SCM in SA was adopted and introduced in conformance with internationally accepted best practices (Migiro and Ambe 2008: 231). SCM practices subscribe

to reporting standards which are in line with International Financial Reporting Standards (IFRS), the rules and regulations of a London-based association called the International Accounting Standard Board (IASB) (Suryantoa and Komalasarib, 2019: 171). These standards promised better business processes – efficient business processes. According to Nkwanyana (2021: 4), all these efforts were aimed at achieving total quality management (TQM). Total quality management is defined by Gunasekaran and McGaughey (2003), cited in Vanichchinchai and Igel (2011: 3407), as an action that brings about cost reduction, the construction of high-quality goods and services, customer satisfaction, employee empowerment, and measurement of outcomes. This means that when supply chains implement TQM, they are better positioned to assess their performance toward the satisfaction of the needs of their clients at the lowest possible cost whilst building a capable workforce.

Every organization should strive for efficient business processes; this is because it is necessary to compare the amounts of inputs required to achieve the target value (Lohrmann and Reichert, 2013: 18-19). As previously mentioned, the main goal of this is to utilize the least inputs to achieve maximum outputs at any given time. In this light, Prajogo, Hou and Zan (2012: 306) propose that ISO 9000 standards are excellent tools that could support the realization of improved internal management processes and better responses to customers or pressures from other external stakeholders.

In addition, Chang (2009: 82) identifies customer focus, leadership, involvement of people, process management, system management, continual improvement, factual approach to decision-making, and mutually beneficial supplier relationships as eight principles that inform the success experience of organizations in developed countries, including the public sector. Further, South Africa's public sector supply chains adopt principles of fairness, equity, transparency, competitiveness, and cost effectiveness (South Africa, The Constitution of the RSA, 1996: 94). In addition, supply chain processes are streamlined to conform to ethical conduct (South Africa, Department of Justice, and Constitutional Development, 2021: 48). Unfortunately, due to its complexity, this process is prone to abuse (Pienaar, 2019: 14). Therefore, the process on its own is a risky exercise. There are issues of alleged corruption (Merten, 2020), thus tampering with flexibility of a supply chain because, according to Mhelembe and Mafini (2019: 12), it is the adoption and implementation of efficient processes and procedures that results in flexibility.

Nevertheless, any process is made possible by a formal structure comprising of personnel that make the documented activities possible, as discussed in chapter four of this study. The information above should support the operations in the attainment of set organizational objectives. This is supported by Mhelembe and Mafini (2019: 9), who, in their study, found that a most flexible supply chain is that which possesses qualified, knowledgeable and well-experienced human resources in the public sector. Surprisingly, it seems no adequate care is devoted to this by the public sector organizations. Just recently, Nkwanyana (2021: 1) reported a worrying mix of human resources-related quandaries. The author found a shortage of personnel carrying out SCM functions, lack of suitable training of personnel, and as a result, scanty knowledge on SCM processes.

Skills and capacity deficiencies were in the past reported by Fourie and Poggenpoel (2016: 6). This raises concern as to how organizations can then ensure that they have a quality, capable and relevant workforce to support organizational goal achievement (Handfield et al., 2011: 21). This is especially concerning because as Crook et al. (2011: 443) assert, there is a correlation between human capital and an organization's performance. This is supported by Overstreet et al. (2019: 42) who conclude by that the life of an SCM is dependent on its people and its workforce and when these people lack competence, accidental errors are likely to occur (Pienaar, 2019: 33). Thus, human resources are a critical part of the performance of a supply chain. Nevertheless, Abdel-Basset et al. (2019: 491) assert that the exposure to risks is determined by first, the probability of such events occurring and their impact in the supply chain; and second, the vulnerability or resilience characteristics of such a SC. This means organizations should be aware of the potential risks and their inherent effects and should build controls to ensure resilience to overcome the vulnerability of SCs, thereby engaging in SCRM.

Supply chain risk management (SCRM) is defined as the application of approaches to manage both usual and unusual risks in the supply chain (Abdel-Basset et al., 2019: 491). It is based on continued risk estimation, aiming to minimize vulnerability and guarantee continuity. To achieve this, the risk management tools are used to evaluate and deal with risks and uncertainties. Amongst others, these include risk identification, risk prioritization with an emphasis on establishing the root causes of such risks. Following this is risk analysis, and risk evaluation, then an efficient program for supply chain risk management. This program should provide three things, namely: protection of the supply chain; reacting to events; and keeping business operations going while recovering from events. Ongoing communication,

consultation as well as monitoring and review are critical. The monitoring and review process includes assessing the impacts of risk treatment and maintaining a plan for responding to changes that affect elements of the supply chain. Where risks factors exist, decision-makers in an organization have a choice among the risk mitigation strategies or responses listed below in dealing with such matters (Abdel-Basset et al., 2019: 491).

3.8.1 Risk mitigation strategies or risk management responses

- Avoidance:

These are simple means of risk management. This is where one circumvents that which could cause risk.

- Acceptance

This is where an organization consents to accept risks as they are. This could be because such risks are very trivial and that the expected value and/or impact from the risks are insignificant while the resources it would take to mitigate them are considered higher. Such a risk is better managed by just waiting for it to happen and then treating it.

- Compensation

This requires that one takes another risk to substitute the other. It is a popular method in finance for minimizing exposure.

- Transferring

According to Abdel-Basset et al. (2019: 491), risk transfer is when a principal organization opts to handover the risk to another party. This can be done via insurances or by contracting with non-insurance party.

- Reduction

It means reducing the probability of an unwanted event or shortening its impact.

Kırılmaz and Erol (2016: 2) agree with Abdel-Basset et al. (2019) that risk could be avoided by discontinuing the provision of specific goods in particular geographical markets or customer organizations, or to suspend the use of a specific supplier. The authors add further risk mitigation strategies in supply chains.

- Controlling vertical integration; increasing stockpiling and the use of buffer inventory; maintaining excess capacity in production, storage, handling and/or transport; imposing contractual obligations on suppliers.

- Co-operation; joint efforts to improve SC visibility and understanding; joint efforts to share risk-related information; and joint efforts to prepare SC continuity plans.
- Flexibility, postponement, multiple sourcing and localized sourcing.

Having said this, it is important to point out that before an organization decides on an action, risk management processes must be in place. The following, adopted from Kırılmaz and Erol, (2016: 2), are the risk management activities that will be adopted by this study in quest to assess vulnerability of supply chains and in turn devise mitigation strategies. These includes risk identification, risk measurement, risk evaluation, risk mitigation and risk monitoring and control as discussed below.

3.8.2 Risk management activities

(i) Risk identification

Risk identification represents the first and most crucial stage in the process of managing risks. Kırılmaz and Erol (2016: 3) propose that risks associated with each element of the supply chain, such as suppliers, manufacturers, warehouses and distribution channels, be identified and examined specifically. It is therefore through this process that a comprehensive list of risks from different sources, the events, their causes and potential consequences, and the areas affected, can be generated (De Oliveira et al., 2017: 620). According to Kırılmaz and Erol, (2016: 3), each organization should have a SCRM department; they identify supply chain managers or logistics managers as the responsible managers within the structure. However, they add, every employee of an organization forms part of SCRM as their experience should be taken into account. This will aid in creation of an efficient risk register, utilising data on registered risks in the literature, historical records of the firm, opinions and experiences of workers and experts, and internet sites. In addition, De Oliveira et al. (2017: 623) identify feedback from stakeholders, observations and forecasts (amongst others) that could be used for this purpose. On the other hand, Tummala and Schoenherr (2011: 476) expand on the above by arguing that risk identification should be about first finding threats then identifying resources of the organization that could be affected by such threats.

(ii) Risk measurement

Kırılmaz and Erol (2016: 4) assert that measuring risks involves ascertaining the probability and impact of a risky event. De Oliveira et al. (2017: 620) are in agreement, adding that this phase is to understand the risks, their possible causes, sources, impact and potential consequences. Therefore, organizations need to quantify the frequency at which a risky event could occur, together with its expected impact. It could do this by obtaining historical data on an event and establishing the likelihood of its occurrence, thereafter estimating and computing the impact of risk in advance. According to the preceding authors (De Oliveira et al., 2017: 620), the depth of assessment will be dependent on the nature of the risk in question, the reason for such assessment, available information, and the resources at hand. The latter is reported to be a very difficult task because a bottleneck in one part of SCM could affect many other SC parts, thus making it difficult to estimate impact in every part affected (Kırılmaz and Erol, 2016: 4).

(iii) Risk evaluation

Recognising that it is rather impossible to abstain from all risks, Abdel-Basset et al. (2019: 489) note that risks have become a serious part of our lives, such that they are present in all that we do and participate in. All we are left to do is to find ways to relieve such risks. Indeed, according to these authors, certainly every risk can be minimized to a manageable level. In this light, risks must be evaluated to ascertain whether or not such risks are acceptable or tolerable (Kırılmaz and Erol, 2016: 4). On this point, De Oliveira et al. (2017: 620) contend that it is crucial for an organization to compare risks during this stage so that it could prioritize their treatment accordingly. Risks may be at a very low, low, medium, high or extremely high level. At the end of the risk evaluation phase, a risk owner can select one of the four different strategies, namely, avoid risk, reduce the probability and/or impact of risk, accept the occurrence of risk, and prepare contingency plans. Nevertheless, risk strategy is selected on the basis of a trade-off between risk-related expected impact and the cost associated with the implementation of a proposed strategy (Kırılmaz and Erol, 2016: 4).

(iv) Risk mitigation

Following the identification, prioritization and quantification of how much attention each risk deserves, as discussed in the previous stage, now the organization must carefully consider the importance of each risk and the number of resources required to deal with them. Kırılmaz and Erol (2016: 5) indicate that there are two risk mitigation strategies: reactive and proactive

approaches. In a reactive approach, risk managers take no action prior to the occurrence of a risky event; risk mitigation only gets implemented after an event occurs so as to mitigate its impact. The proactive approach is vice versa. In this approach, plans are implemented to mitigate the risks before they occur. This approach may include the execution of plans to either decrease the probability or reduce the impact of the risky event in advance. This approach is supported by Tummala and Schoenherr (2011: 479) who argue that risk response action plans to contain and control risks should be developed in this phase. These authors propose the use of hazard totem pole (HTP) analysis, wherein SC risks are evaluated systematically to determine their level of severity, probability of occurrence, and the implementation cost of a risk response action plan. Nevertheless, mitigation actions are necessary to curb vulnerability as a response to risk management analysis (Kurniawan et al., 2017: 4).

(v) Risk monitoring and control

Since supply chains are very dynamic and can change very fast, the risks impact or likelihood can change as well. Therefore, Kırılmaz and Erol (2016: 4) and Yan (2017: 29) assert that events should be observed and the data about events should be updated and assessed all the time. This phase includes both observations about previous assessments, and observations of the current changing situations and the environment. New risks may be identified and/or new judgments about previously identified risks may be revised by means of this phase. According to Tummala and Schoenherr (2011: 480), this is to guard against any deviations from anticipated results, strange cases, and SC disruptions. Information systems should be utilized and a high coordination and information sharing system should be established for efficient monitoring and control. Real time observation and tracking of progress made after implementation of plans is very critical, thus allowing corrective actions to be taken (Tummala and Schoenherr, 2011).

3.9 THE CONCEPT OF SUPPLY CHAIN VULNERABILITY

Supply chains' weakness to succumb to risks, and the resulting dent in the attainment of organizational goals, may be defined as vulnerability. Vulnerability is mainly about how fragile a supply chain is to risks, how much pressure it can take, and what it can resist. According to Wagner and Neshat (2012: 2878), vulnerability has been defined in many ways by different authors. Nonetheless, they share the view that supply chain vulnerability is a subtle concept that can be determined by certain characteristics, design variables, and the environment in which the supply chain is embedded. The preceding authors cite a mix of sources of

vulnerability, such as supply chain's infrastructure, processes, its operation and management, and a combination of infrastructure and environmental factors such as political turmoil or proximity to a fault line. Unfortunately, according to Miller et al. (2021: 331), this is one of the reasons that little is known about what makes supply chains so vulnerable, because no single, widely used framework for characterising supply chain vulnerabilities exist. As such, Kurniawan (2017: 1) identifies vulnerability as one amongst many perplexing issues currently facing supply chains. Unfortunately supply chain vulnerability is related to supply chain performance; for instance, Wagner and Neshat (2012: 2887), in their study, found that organizations with a lower supply chain vulnerability index (SCVI) perform better whilst those with higher SCVI perform poorly. This means the performance of an organization depends on their ability to manage their risk index. These authors also found that organizations that have professional supply chain management strategies and processes, and those that place an emphasis on both supply chain performance and on supply chain vulnerability and risk, are somehow able to overcome the trade-off between benefits and risks.

Nevertheless, the larger the organization, the more human resources and the higher the SCVI. Miller et al. (2021: 331-333) identify threats related to goods manufacture and threats related to local availability. These authors cite the recent anarchy of PPE shortages as a result of demand being greater than the supply, as well as due to movement limitations wherein restrictions were imposed on international transportation and countries prioritised their own needs over those of international countries. These vulnerabilities hit many countries, including SA. Similarly, according to Hobbs (2021: 190), during this time all countries experienced supply shock in food retail as a result of the sharp rise in demand when there was a sudden shift from food service to food retail, as well as due to panic buying behaviour. Agreeing with Miller et al. (2021), Liu et al. (2016: 1-2) presented a wide range of activities different authors use to assess supply chain vulnerability. This includes Barnes and Oloruntoba, who, in 2005, tested vulnerability utilising an analysis of characteristics of the entire supply chain using the special case; Stephan and Wagner, who, in 2010, used validation of the policy by comparing it with those of other organizations; while Zhong and Xie proposed "3P" management principles and supply chain vulnerability management principles to prevent and respond to damage at the tactical level in the year 2005.

In 1995, Albino and Garavelli focused on supply chain systems sensitivity under the conditions of that time. Liu et al. (2016: 3) utilized the failure mode and effect analysis (FMEA) method,

which is a way for prospective reliability analysis and safety assessment. This method analyses every failure mode that exists in the system and then it calculates a risk priority number (RPN) for the consequences of all failure modes. Once RPN for each failure is known, corresponding measures are taken to prevent and avoid such failures from happening. According to the preceding authors, FMEA uses three aspects for assessment. These include severity (S), occurrence (O), and detection (D). They regard it as being a powerful tool to define, identify, and eliminate potential failures in the system, design, process or service before they reach the customer. It assesses the degree of the effect a potential failure will impose on customers (severity), then the possibility of how often it could occur (occurrence), and thereafter describes the possibility of the current system not recognizing the failure modes or reasons (detection). The traditional FMEA method has a weakness however of the inability to recognize the importance of the relationship between all the failure modes and every decisive factor in the vulnerability. Further, when the evaluation language of experts is qualitative and subjective, the traditional FMEA method makes its evaluation effect limited.

3.9.1 Drivers of supply chain vulnerability

Having discussed the concept of vulnerability, it should be noted that despite the existence of risks in every management decision taken, the severity and impact of these risks depends on a number of factors. Meaning, certain circumstances accelerate and/or decelerate the severity of exposure to such risks. According to Wagner and Neshat (2010: 122), supply chain vulnerability is the result of certain "drivers"; these are supply chain characteristics or antecedents that either accelerate and/or decelerate risk impact. In the past decade, Peck (2005: 218) reported four different categories of sources and drivers of supply chain vulnerability. The first category, or level one, includes value stream, product or process; level two includes assets and infrastructure dependencies; level three is inter-organisational networks; level four is the environment. Level one proposes that vulnerability is evaluated based on the efficient, value-based design and management of processes relating to workflows and their accompanying information (Peck 2005: 219).

The author adds that as a result of a supply chain process informed by specific management decisions, requirements or industry trends, an organization may experience unanticipated side-effects. Such a process aspires a better flow of materials and information. Level two touches on assets and infrastructure such as IT assets, commercial assets, sites or facilities required to produce and transmit the goods and information flows. Within these, the authors state, they

bear some degree of risks, and may subject an organization to either vulnerability and/or resilience. Therefore, networks should be assessed in terms of the implications of the loss of links, nodes and other essential operating assets. For instance, the mode of transport will automatically determine immediate transportation asset-related risks. Level three views supply chains as inter-organizational networks, whilst level four is concerned with the macroeconomic and natural environment in which organizations do business.

Wagner and Neshat (2010: 122) identified three categories of supply chain vulnerability drivers; these include supply side, demand side, and supply chain structure vulnerabilities. The demand vulnerability entails the dependency on customers and their financial situation, the complexity and life-cycle of goods, as well as distribution and transportation (Erhun et al., 2007, cited in Wagner and Neshat, 2010: 123). Further, Nagurney et al. (2005) and Tang (2006), cited in Wagner and Neshat (2010: 123), assert that demand vulnerability entails uncertainty surrounding the haphazard demands of the customers. Supply vulnerability, on the other hand, looks into the supplier portfolio or the supplier network, such as the relationship between suppliers and the supply base complexity and its structure. Lastly, vulnerability of the supply chain structure stems to a large degree from a collapse of value-adding activities in supply chains, and globalization.

Wagner and Neshat (2012: 2878) again studied the supply chain vulnerability index (SCVI), and analysed and compared the supply chain vulnerability of various categories of organizations based on supply chain performance and firm size (number of employees and sales revenues), amongst others. In their study, they found a positive link between supply chain vulnerability of an organization and its performance. According to these authors, the lower the exposure to risks and disruptions, the greater the performance, and vice versa. Further, the bigger the firm, the more employees there are, which somehow retards information sharing thus resulting in vulnerability. Likewise, Blackhurst et al. (2018: 4) assessed the vulnerability of a supply chain based on its structure using a combination of Petri nets with a Triangularization Clustering Algorithm (TCA). In this study, they looked into uncovering vulnerabilities and their spread path in the supply chain design, meaning the structure, the connectivity and the dependence within the supply chain.

Grosse-Ruyken, Zarembaand Wagner (2012: 25) singled out supplier concentration, single sourcing, supplier and customer dependence as some of the key drivers of supply chain

vulnerability. According to these authors, if an organization is dependent on fewer suppliers as their means to curb complexity, this results in limited options in the case of emergency (supplier concentration). Or if there is dependence on one supplier amongst the pool as a result of its uncommon characteristics, such as technological expertise, it may dominate the supply and in turn significantly exercise its power over a buying organization (supplier dependence) thus causing vulnerability. In addition, these authors contend that where a sole supplier is totally responsible for the supply of goods or services (single sourcing), problems are most likely to occur. Having said this, it could be concluded that damaging impacts from supply chain disruptions are an indicator of the vulnerability of the supply chain (Blackhurst et al., 2018: 20). Authors such as Blackhurst et al. (2018: 2) and Wagner and Neshat (2012: 2878) unfortunately share the same view that assessing vulnerability of a supply chain is a challenging task because of high levels of supply and demand uncertainty, interconnectedness, and because it cannot be observed or measured directly, one ought to measure their drivers and their interrelationships to actually conclude on the supply chain vulnerability construct. Nevertheless, all organizations must know and understand their supply chain vulnerability because, as stated by Wagner and Neshat (2012: 2887), this allows for better decision-making against risk exposure. Zhang, Jia and You (2021: 8-9) refer to twelve supply chain vulnerability drivers. These include quality risk, delivery risk, suppliers' dependency, worker strikes, machine failure, risks in global logistics network, sudden demand fluctuation, forecasting error, customers' dependency, natural and manmade disasters, political instability, and exchange rate fluctuation as some of the vulnerability drivers in the supply chains.

3.10 THE CONCEPTS OF SUPPLY CHAIN RESILIENCE

Elleuch et al. (2016: 1449) define resilience as "the ability of a system to return to its original state or a more favourable condition, after being disturbed". Gunasekaran, Subramanian and Rahman (2015: 6811) state that "the ability to antedate the impact of risks would be a valuable skill set if they are to respond and recover within a short span of time until the next major event will distinguish the high-performance businesses from the rest". So resilience could be associated with the tree situated on open land, which, through all seasons, whether hot, windy or rainy, is exposed to these situations; and at all times, it fights back to return to its original form of life. Ponomarov and Holcomb (2009) in Zhang, Jia, and You (2021: 3) expand on this by arguing that supply chain resilience is the adaptive capability of the supply chain to firstly prepare for unexpected events, secondly, respond to disruptions, and lastly, to recover from such disruptions by maintaining business continuity at the desired level of connectedness and

control over structure and function. Similarly, Zhang, Jia and You (2021: 4) define resilience as a coping ability of a supply chain to reduce the likelihood of facing sudden disruption; and if it happens, to resist its spread through control over structures and functions, and thereafter recover and respond by immediate and effective reactive plans to restore it to the usual state of operations.

As discussed above, risks pose threats to the wellbeing of a system, while vulnerability exposes a system to become more prone to such risks. Simply put, vulnerability allows a system to be negatively impacted by risks. Unfortunately, many risks are unavoidable as they may originate from various sources, i.e., both internal and external. In many companies, logistics activities, such as the raw materials' supply, assembly of components, and production and product defects, are the results of external supplier activities, but whenever a disruption happen 'there', it definitely will impact a supply chain. Yan (2017: 20) discusses external risks as those exerted by external forces, thus making them uncontrollable, while those that are internal have some degree of controllability by an organization. So organizations could find themselves at risk at any time. Unfortunately, as Kaviani et al. (2020: 1931) point out, in most cases, these disruptions occur speedily and without warning.

Organizations should build repellent forces within their systems to curb their predisposition to risks. This applies to supply chains too. According to Zhang, Jia, and You (2021: 1), to attain supply chain business continuity, managers need to improve supply chain resilience and weaken supply chain vulnerability against risks. However, as these authors indicate, organizations must strike a sound balance between resilience and vulnerability amidst limited resources. Therefore, organizations need to analyse the trade-off between the 'weapons' needed to protect their supply chains versus the impact the exposure will bring should risks strikes. Gu, Yang and Huo (2021: 1) expand on this by categorizing resilience into internal and external resilience, with external being supplier and customer related. These authors cite the example of Ericsson who, when their chip supplier faced a chip crisis caused by a fire disaster, Ericsson stopped the mobile phone business as they could not find external resilience. Meanwhile Nokia and Philips collaborated, adjusted their production plans timeously, and captured the market share. Further, these authors introduce IT to share information and knowledge across functions and organizational borders, thus improving an organization's potential to deal with unforeseen events rapidly and to compete successfully in an ever-changing environment.

Nevertheless, there are times where risks are not worthy pursuing, because according to Zhang, Jia and You (2021: 1), there are times where resilience could actually be the source of vulnerability and new risks may emerge. For example, although one could resort to establishing multiple decentralised factories as a means to reduce supply risks, that could increase financial risk as this comes with the need to invest large amounts of resources – human resources to actually perform the work, facilities where the business will operate (either leased or owned), and insurances to protect this new site from acts such as vandalism, fire and looting (as was witnessed in SA in the week of 12 to 16 July 2021). In practice, the effort of mitigating one type of disruption (equivalently improving SCR) may initiate another disruption elsewhere (equivalently increasing SCV) (Spiegler, Naim, and Wikner, 2012, cited from Zhang, Jia, and You, 2021: 4). Again, supply chain resilient acts that turned into risks were seen in 2020, at the outbreak of Covid-19. Due to a sudden increase in the demand for face cloth masks, many manufacturers faced a risk of supply disruption when some manufacturers stockpiled large quantities of high-priced raw materials, making their supply chains much more resilient towards such disruptions (Zhang, Jia and You, 2021: 1). However, these authors cite that the tables turned when the Covid-19 pandemic stabilized; with more and more supplies available and demand melting down, the prices of it dropped down gradually and the manufacturers holding expensive raw materials faced immense losses.

It is therefore crucial that in the quest to improve supply chain resilience and/or reduce supply chain vulnerability unilaterally, decisions are made in a more scientific and effective manner, enabling an organization to invest resources where they are most required, avoid misallocation of resources, and reduce inputs. According to Gu, Yang and Huo (2021: 2), excellent use of IT could be beneficial to risk recovery. They assert that organizations could use IT to either exploit or explore. Exploitation is when they explore their current structured processes to improve information processing capability, thus enabling the organization and its supply chain partners to take speedy decisions and actions when addressing chain disruptions. Exploration is when they could explore unstructured processes to strengthen extensive inter-organizational information sharing, thereby enabling them to collaboratively develop novel solutions towards supply chain disruptions.

3.10.1 Elements or drivers of supply chain resilience

Christopher and Peck (2004: 12-13) assert that traditionally supply chains were established with the main aim to achieve sound customer service at the lowest possible cost, not really with

resilience as an 'objective function'. These authors propose that perhaps this ideology ought to change. They assert that given the risks to which modern supply chains are exposed, there is a need for resilience to be built into supply chains, and for organizations to have risk reduction in mind as they establish a supply chain. Likewise, Agrawal and Pringle (2020: 276) assert that to date, the current supply chains need to be reconfigured, rearranged and redesigned to incorporate resilience into their system, due to increased vulnerabilities in the supply chain. In addition, Zhang, Jia, and You (2021: 7) point out that the resilience of a supply chain cannot be observed directly, but through drivers that determine the level of resilience in any system. Figure 3.4 below therefore represents drivers of supply chain resilience as found in the literature.

Figure 3.4: Supply chain resilience drivers

Authors	**Driver of supply chain resilience**
Christopher and Peck (2004: 12-13)	Supply chain (re) engineering Supply chain collaboration Agility Creating a supply chain risk management culture
Zhang et al. (2021: 7)	Supply chain agility Supply chain structure Supply chain visibility Information sharing Risk and revenue sharing Geographic distribution
Tan, Cia and Zhang (2021)	Redundancy structure Redundant capacity Backup plants

Source: Researcher's own compilation

3.10.1.1 Supply chain (re) engineering

As means of resilience for a supply chain, Christopher, and Peck (2004: 12-13) propose that a supply chain must be re-engineered in a manner that optimizes costs and enhances customer service. The authors add that the same can be achieved by carrying out the following activities.

(i) Understanding a supply chain, including the network that connects the business to its suppliers, its supplier's suppliers and to the ultimate customers. This, Christopher, and Peck (2004: 12-13) believe, will allow mapping of 'pinch points and critical paths', thus enabling a

supply chain to identify bottlenecks, longer lead-times, where little or no information is shared between nodes, and high levels of identifiable risk. This could be compared to one of the means for resilience, namely a supply chain network structure, which has been found as a determinant of the degree of impact of a disruption (Zhang, Jia, and You, 2021: 7). As such, an appropriate supply chain structure can increase resilience and/or vice versa.

(ii) The second element as per Christopher and Peck (2004: 12-13) is supply base strategy which proposes a move towards the reduction of the supplier base. Although single sourcing, where a sole supplier is responsible for the supply of specific goods and/or services may be advantageous from a cost and quality management perspective, it is dangerous in terms of resilience. As such, organizations should apply this strategy to a limited degree. Nevertheless, risk awareness of the supplier should form part of the basis in the selection of suppliers.

(iii) Next, Christopher and Peck (2004: 12-13) identify design principles for supply chain resilience, in that a number of aspects need (re) engineering for an organization to achieve resilience. They propose choosing supply chain strategies that keep several options open, taking into account 'Real Options Theory' in investment planning. These authors warn that though centralisation of distribution facilities may be the lowest cost option, it could also shut down other options and thus increase vulnerabilities. Moreover, they put forward the need to re-examine the 'efficiency vs. redundancy' trade off. They assert that organizations should be mindful of inventory carrying costs against the impact costs of not having such slack 'just-in-case' inventory.

3.10.1.2 Supply chain collaboration

Supply chain collaboration (Christopher and Peck, 2004: 7) entails collaborative acts between manufacturers and retailers in a form of planning, forecasting and replenishment. It is reported that collaboration can create a bond and trust amongst partners, and thus quicker response when one faces disruptions; this was confirmed by the respondents in the study named 'Striking a balance between supply chain resilience and supply chain vulnerability in the cross-border e-commerce supply chain' by Zhang, Jia, and You (2021: 9). Moreover, the preceding authors assert that collaboration amongst supply chain partners positively influences increased supply chain resilience; this it achieves via increased visibility, velocity and flexibility. On the other hand, Christopher and Peck (2004: 7) believe that collaboration is achieved through exchange of information. These authors contend that the underlying principle of successful collaboration

is that it reduces uncertainties. As such, information sharing between community members in the supply chain should take centre stage of an organization, to achieve risk reduction. This will ensure a high level of 'supply chain intelligence', where risk profiles and changes thereof are constantly observed.

3.10.1.3 Information sharing

Adding to Christopher and Peck's insights of 2004 regarding supply chain resilience, Zhang, Jia, and You (2021: 8) identify information sharing as means of resilience. They contend that a community centred on the core enterprise must be established so that supply chain members can share, and this should be done quickly and accurately. Information to be shared includes not just process related information, but also that such as sales information, new product research and development and product strategy. This then assists a supply chain to significantly mitigate risks.

3.10.1.4 Agility

Christopher and Peck (2004: 7) define agility as the "ability to respond rapidly to unpredictable changes in demand or supply". The response should be timely. Zhang, Jia, and You (2021: 7) similarly contend that high agility is when a supply chain is able to respond quickly to volatile events so as to maintain a competitive advantage in the market. According to Christopher and Peck (2004: 7), many organizations are at risk because they take too long to respond to demand changes and/or supply disruption. They note however that the agility of a focal organization is dependent on the agility of other partners both upstream and downstream. These authors believe this could be achieved through visibility and velocity.

Visibility, according to these authors, entails having a view of inventories, demand and supply conditions, and production and purchasing schedules, coupled with clear lines of communication and agreement. In the same view, Wei and Wang (2010: 239-240) assert that supply chain visibility is about information processing and display throughout the whole supply chain, which encompasses all partners and events involved with end-to-end orders, including design, production, inventory, transportation, distribution, return, and any events occurring in the supply chain. On the other hand, velocity is defined by Christopher and Peck (2004: 20) as "distance over time". This element can be measured through "the elapsed time from when the focal organization places orders on its first-tier suppliers to time when it delivers to its customers". To achieve velocity, the authors propose streamlined processes, reduced in-bound

lead-times and non-value-added time reduction. Streamlined processes are when processes are simplified in a way that the unnecessary number of stages or activities are reduced. Activities are performed in parallel rather than in series and they are electronic-based rather than paper-based. Reduced in-bound lead-times refer to making a good choice about suppliers, and picking those that are able to respond rapidly in terms of delivery and are able to cope with short-term changes in volume and a variety of requirements. Lastly, non-value-added times such as idle times that add no value from a customer perspective should be reduced. Zhang, Jia, and You (2021: 7) found that some studied organizations have invested in having warehouses in foreign countries to increase their supply chain resilience.

3.10.1.5 Creating a supply chain risk management culture

According to Christopher and Peck (2004: 7), a need exists for a risk management culture to be created, not just within the business but to extend beyond the boundaries of corporate risk and business continuity management to become 'supply chain continuity management'. Leadership from the top is needed to lead this culture change. Unfortunately, according to these authors, there has not been representation of supply chains in strategic discussions. Matters related to supply chain risks are limited to information systems-based perspectives presented by IT Directors or Vice-Presidents. Therefore, at this time, no real-time risk information that would inform an appropriate risk culture exists, as reliance is placed on third party information systems. On the other hand, Zhang, Jia, and You (2021: 8) underline the importance of sharing risk information as it is believed that it could increase cooperation and trust among supply chain partners so that they can collectively cope with sudden changes.

3.10.1.6 Geographic distribution

Although the literature suggests that the geographic distribution of supply chain members may influence the supply chain's ability to cope with disruptions, Zhang, Jia, and You (2021: 8) found that geographic distribution had little effect on resilience; however, clustering or co-locating supply chain entities were reported as possible enablers for a supply chains to work closely together and recover more speedily from disruptions. Nevertheless, this too depends on a focal organization's ability to control the supply chain.

3.10.1.7 Redundant Structure

As identified by Tan, Cai, and Zhang (2020: 5176), this strategy is based on having multiple production plants for goods and/or parts. The authors propose the redesign of supply chain

networks to give priority to risk mitigation by improving the redundancy of critical plants in the supply chain network; in doing so, an organization will identify a set of critical plants which will then be duplicated into redundant plants with the same production capacity. As such, production will go on at other plants despite any one plant having been disrupted.

3.10.1.8 Redundant capacity

According to Tan, Cai, and Zhang (2020: 5182), redundant capacity "provides additional production capacity to fulfil incoming demands and to simultaneously assist with the fulfilment of the accumulated backorders". As a mitigation strategy, all plants are designed to produce more than the current needs of the customers, so during times of disruption, excess capacity is available for business continuity, and fulfilment of backorders during recovery. Even if the redundant capacity does not completely detach the disruption, it can lessen the duration experienced by customers.

3.10.1.9 Backup plants

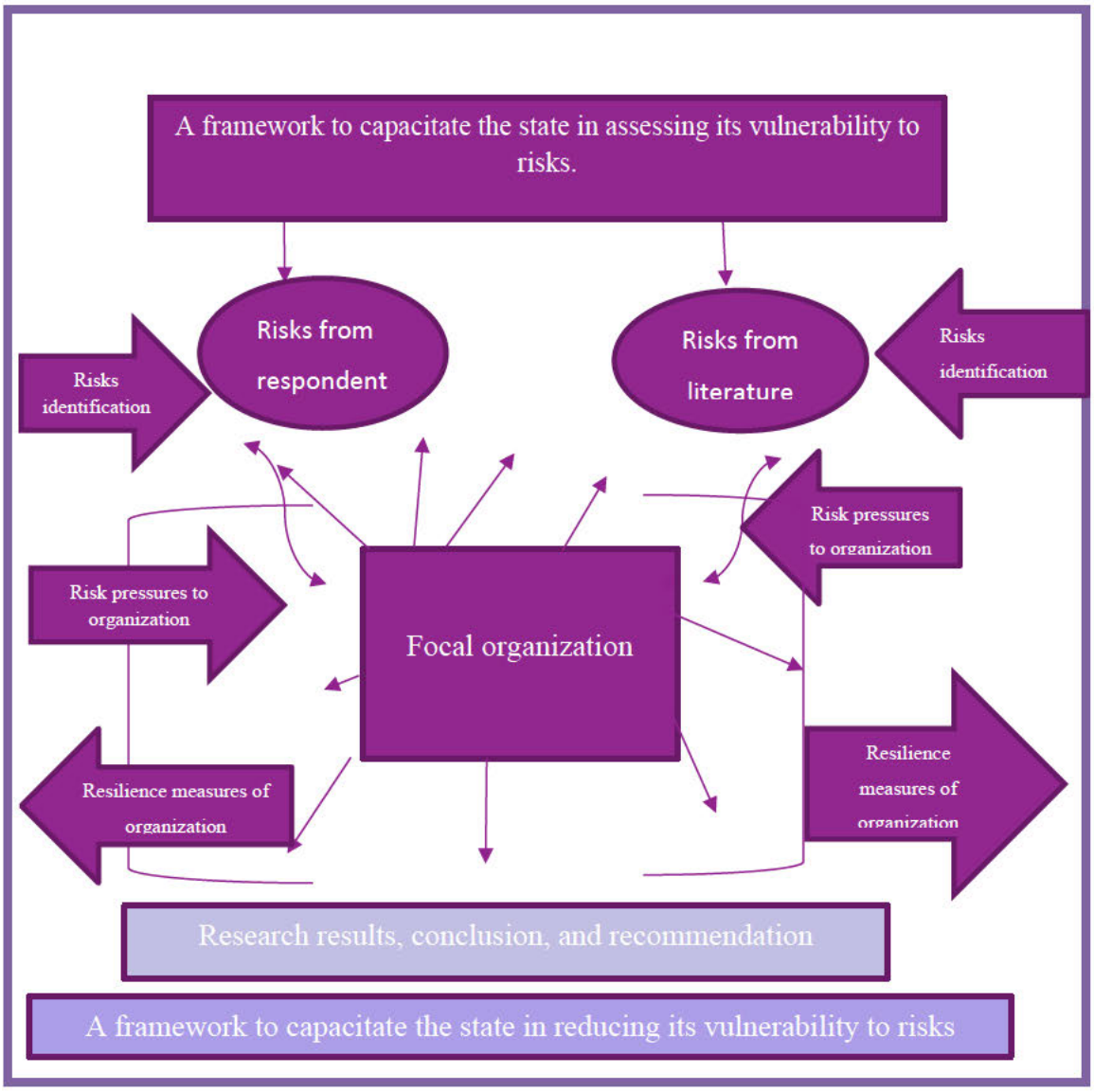
Tan, Cai, and Zhang (2020: 5182) indicate that backup plants serve as an alternative source to critical plants; though at a much higher cost, these provide a potential reactive contingency strategy to maintain production during a disruption. As such, they should be activated selectively, only in circumstances where the disrupted plant is of critical importance. These authors add that "during and after the disruption, the backup plant can partially fulfil the incoming orders and reduce the accumulation of backorders". Nevertheless, as soon as a disruption is stabilized, the backup plant must be deactivated. Having said that, the overall view of Zhang, Jia, and You (2021: 5) is that an ideal supply chain should be characterized by the highest supply chain resilience with lowest supply chain vulnerability. Because the more resilient the supply chain, the more quickly it will recover from a disruption. However, for various reasons, this ideal situation is rare to find in practice. So these authors rather propose that supply chain resilience and supply chain vulnerability should at least be kept at relatively reasonable levels.

3.11 CONCEPTUAL FRAMEWORK CAPACITATES THE STATE IN ASSESSING ITS VULNERABILITY TO RISKS

Risks exist in every management decision being taken. In fact, risks are part of everybody's daily life, including public sector organizations. The effects of such risks on organizations is dependent on its resilience and/or vulnerability level. It is known that resilience is associated

with providing an organization with powers to withstand risks, and the coping mechanisms that reduce adverse results as a result of risks. On the other hand, vulnerability is the weakness in the supply chain to succumb to risks, thereby disturbing accomplishment of its objective. Wagner and Neshat (2012: 2887) reported that organizations with a lower SCVI perform better whilst those with higher SCVI perform poorly. Currently there is no one single widely accepted method to assess supply chain vulnerability, hence Liu et al. (2016: 1-2) presented a wide range of activities different authors use to assess supply chain vulnerability. To find out how vulnerable supply chains are to risk, and thereafter to propose measures to reduce vulnerability of supply chains to risks, this study profiles risks from the literature review and asks participants to identify risks. These risks' impact on supply chain performance, being service delivery, are then individually and collectively quantified. The same is utilized as a basis for vulnerability. Lastly a conceptual framework assisting the public sector to assess and reduce its vulnerability to risks is proposed, as shown in Figure 3.5 below.

Figure 3.5: Conceptual framework to capacitate the state in assessing its vulnerability to risks



Source: Researcher's own compilation

3.12 CONCLUSION

This chapter discussed the theories that underpin this study. These include Perceived Risk Theory, Normal Accident Theory, Prospect Theory, Resource Dependence Theory, Resource-based Theory and Governance Theory. Their key elements and the multi-dimensional approach or notions were unpacked to provide insights into their application and relevance to the governance of procurement and its related vulnerability to risks. It explored the concepts of risks, vulnerability and resilience in detail. It expanded on the different types of risks, namely internal, external and double-barrel risks, then proceeded to discuss risk mitigation strategies

and risk management activities that organizations can adopt in dealing with risks. Further, a discussion on drivers of vulnerability and those of resilience were discussed in full.

CHAPTER FOUR

THE PROCUREMENT PROCESS IN SOUTH AFRICA, DEPARTMENT OF JUSTICE AND CONSTITUTIONAL DEVELOPMENT AND ELSEWHERE

"It is the adoption and implementation of efficient processes and procedures that results in flexibility (Mhelembe and Mafini, 2019: 12). Similarly, "Our lives in earth are enriched and complicated by what we have contributed to its condition" (South Africa, Department: The Presidency, 2012: 11).

4.1 INTRODUCTION

The SCM model is rather complex. As stated in South Africa, National Treasury (2005: 49), this model must provide for at least six management functions. Amongst these, acquisition management and risk management are critical functions in supply chains' (SCs) success. Acquisition management is concerned with buying or purchasing or procurement of goods and services, while risk management is concerned with risk detection, prevention and risk control. So this study seeks to establish the vulnerability of SCs to risks in government in general, as a result of current policies, processes, structure and the environment under which the procurement functions are carried out. Moreover, it will ascertain the impact that such vulnerability has on the attainment of organizational goals within the public sector. Then it proposes mechanisms to reduce the vulnerabilities of supply chains to such risks. The government in general, namely national, provincial and local departments, employ in-house policies, processes and controls derived from principal Acts, as discussed in chapter two, to manage and implement their SCM affairs. To that end, this research conducts a detailed investigation of in-house policies, processes and structures of SCM procurement within the DOJ and CD and elsewhere. For the purpose of this research, the terms buying, acquisitions and procurement are used interchangeably.

4.2 BACKGROUND OF THE REPUBLIC OF SOUTH AFRICA

The Republic of South Africa (RSA), commonly known as SA, is a country located at the southernmost tip of the African continent. South Africa has common boundaries with Namibia, Botswana, Zimbabwe, Mozambique and Eswatini, the latter two situated on the north east side of SA. It occupies a land space of about 1 221 037 square kilometers, with a population of about 60 142 978, rated as the 23rd most populous country in the world. Of these people, about 80.7 percent of persons are Black, 8.8 percent are Coloured, 7.9 percent are White and 2.6 are Asian. In SA, these categories or groupings of people are historically-based and particular to

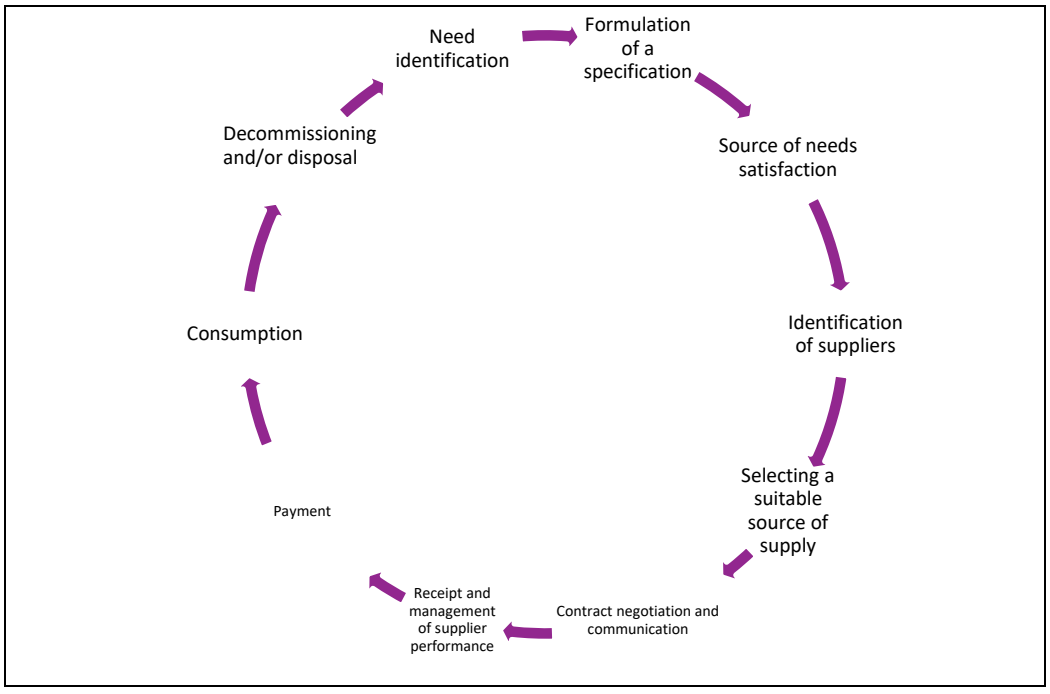
South Africa; the categories were the basis on which oppressive policies were enacted and carried out during apartheid. The categories continue to be used, but are now supposed to be for different purposes, such as to track transformation of the economy etc., and toward empowerment efforts. South Africa consist of three capital cities, being Cape Town, Bloemfontein and Pretoria. The country is governed through executive, judiciary and legislative branches of government. According to the 2020 Ibrahim Index of African Governance (IIAG) (2020: 21), SA is ranked position 6 with a score of 65.8 amongst the best governed countries in Africa. Governance itself is defined by The Mo Ibrahim Foundation (2020: 8) as "the provision of political, social, economic and environmental public goods and services that every citizen has the right to expect from their government, and that a government has the responsibility to deliver to its citizens". Given the above, this foundation then assesses the delivery of public goods and services and public policy outcomes in African countries, looking at the wide spectrum of governance dimensions. Anti-corruption is one of the new three governance dimensions being assessed, with public procurement procedures, anti-corruption mechanisms, absence of corruption in government institutions, and absence of corruption in the public sector being the key indicators of anti-corruption. On the other hand, the Economist Intelligence Unit (EIU) (2019) ranked SA position 4, titled as having a "flawed democracy" in Africa, and position 40 in the world's ranking at a score of 7.24. South Africa's democratic state somewhat slightly improved as it was rated at a score of 7.5, though still at position of 45 and 44 amongst global country's in the years 2020 and 2021 respectively.

4.3 BRIEF HISTORY OF PROCUREMENT

In SA to date, procurement, a part of SCM, has been in existence since the inauguration of organized trading. According to Thai (2001: 11), the origins of procurement can be traced to Spain and Egypt in 300 BC, between Greek and China in 800 BC, and in Syria between 2400 and 2800 BC, wherein contracts were entered into, procurement practices formulated, and silk trade and a procurement order for smooth oil were issued, respectively. During this period, most procurement functions were not performed by practitioners but rather commissioners in exchange for a commission such as kickbacks, since these posts were unpaid civil servant posts. According to Jachi and Mandongwe (2019: 44), as a result of inconsistencies and irregularities in the adopted procurement practices, the need for legislation arose and was first passed in 1792. A more central administration of procurement became dominant, later followed by separate procurement departments. This field continued to gain ground, together with the constant refining of methodologies and techniques as a result of an increase in trained officials.

Further, in and around the 1980s and 90s, small scale publications of procurement books and articles began to emerge (Chick and Handfield, 2014: 18). As such, recognition of procurement practices and their contribution to organizations also emerged in public and inter-governmental organizations (Jachi and Mandongwe, 2019: 44). According to Odhiambo and Kamau (2003: 27), in one of the African countries, these practices were not without flaws; due to centralization of processes, the system was vulnerable to abuse. As such, reforms became necessary. This is supported by Jachi and Mandongwe (2019: 44) who echo that reforms were needed so as to establish a sound procurement system directed by a clear legal and institutional framework. It is therefore correct to state that with lessons learned from the world, in the year 2003, SA also introduced reforms that were geared toward a total transformation of the manner in which the state conducted its procurement business. This chapter therefore provides insight into the acquisition or procurement processes employed in the public sector in line with the legislative directives discussed in the earlier chapter. It further highlights grey areas or risk factors of implementation in relation to the legislative requirements as discussed in chapter two. In line with the current process employed in compliance with the requirements of South Africa, National Treasury (2005: 49), the acquisition or procurement process in the public sector can be presented as per Figure 4.1 below.

Figure 4.1: The procurement lifecycle



Source: Adapted from Cordell and Thompson (2019: 3)

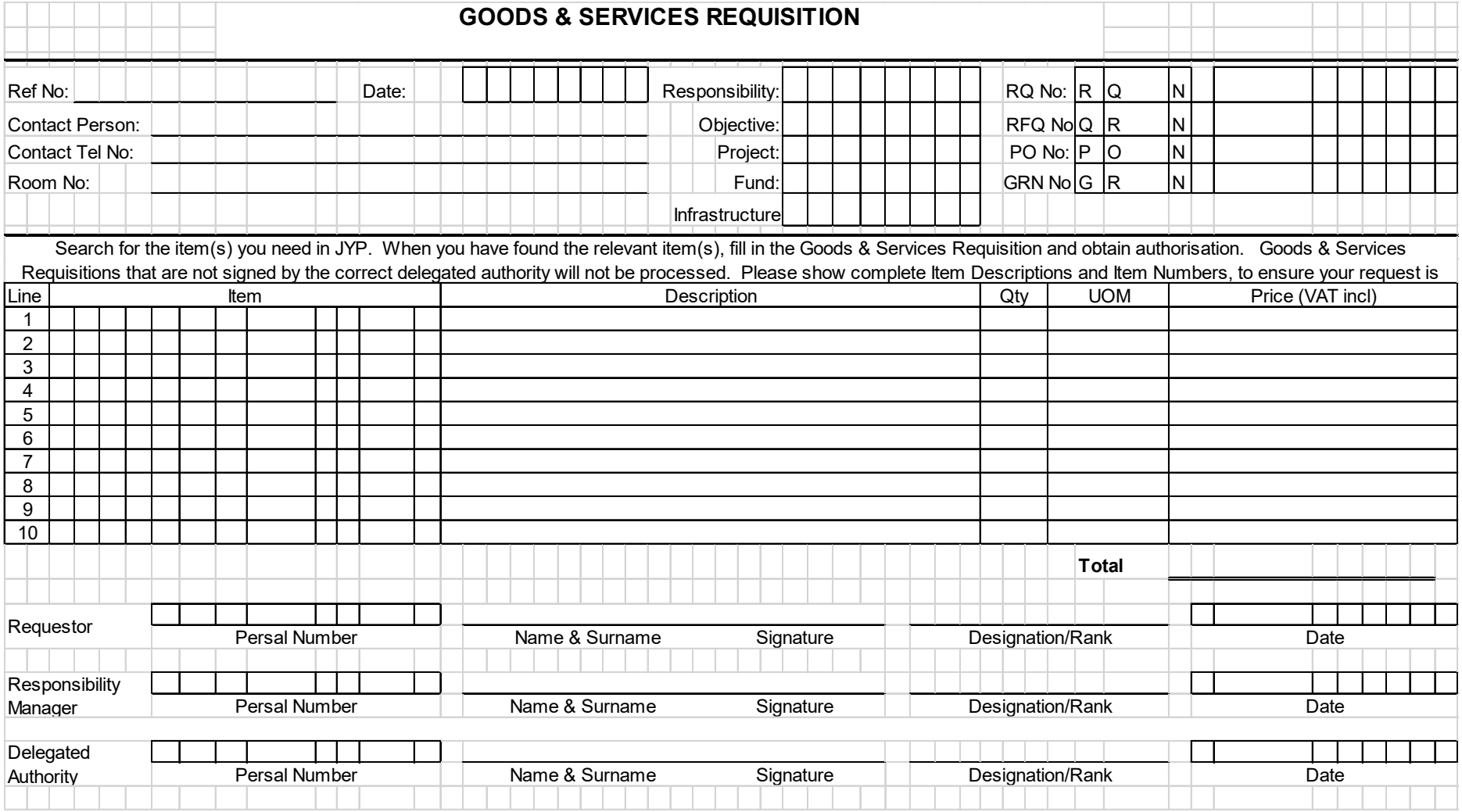
4.4 THE PROCUREMENT PROCESS IN SOUTH AFRICA

4.4.1 Need Identification

For any organization to achieve its Sustainable Competitive Advantage (SCA), namely its strategic objectives in the public sector, it requires capable resources to take advantage of the environment (Barney, 1991, cited in Sarkis, Zhu and Lai, 2011: 4). These resources, such as human resources, may already be in the employ of an organization whilst others may still have to be procured. As such, goods and services are therefore procured in support of the organization's strategic goal. According to Cordell and Thompson (2019: 3), the procurement lifecycle begins with needs identification wherein an organization has a requirement that needs to be fulfilled through procurement. According to Hugo and Badenhorst-Weiss (2011: 12), needs originate from end-users or the store's carrying capacity as part of inventory. These inform the quality, quantity and time when such commodities are needed. According to Badenhorst-Weiss et al. (2017: 49), these must be identified well in advance to circumvent preventable urgent purchases.

Nonetheless, specific procedures on how to handle urgent purchases must be set (Hugo and Badenhorst-Weiss, 2011: 48). The authors propose that such purchases be considered as urgent purchases to be delegated to senior person(s) in an organization. A number of methods exist as to how end users communicate their requirements to a purchasing department. These, according to Mbanje and Lunga (2015: 16-17), include a purchasing requisition, travelling requisition, forecast or customer orders, routine reordering, stock checks and bill of material requirements identified during new product development. These authors emphasize that the end-user must make certain the purchasing department knows the type, quality and quantity of commodities to be acquired. Upon receipt of a purchasing request, a purchasing unit is expected to procure in line with applicable policies governing such transactions (Badenhorst-Weiss et al., 2017: 49). Further, the authors note the need for a stock control system that is designed to provide an alert on reorder points. Figure 4.2 represents an example of a purchasing requisition used by an organization under study.

Figure 4.2: A purchasing requisition



GOODS & SERVICES REQUISITION

Ref No: _____ Date: _____ Responsibility: _____ RQ No: R Q N _____

Contact Person: _____ Objective: _____ RFQ No Q R N _____

Contact Tel No: _____ Project: _____ PO No: P O N _____

Room No: _____ Fund: _____ GRN No G R N _____

Infrastructure _____

Search for the item(s) you need in JYP. When you have found the relevant item(s), fill in the Goods & Services Requisition and obtain authorisation. Goods & Services Requisitions that are not signed by the correct delegated authority will not be processed. Please show complete Item Descriptions and Item Numbers, to ensure your request is

Line	Item	Description	Qty	UOM	Price (VAT incl)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Total _____

Requestor — Persal Number | Name & Surname | Signature | Designation/Rank | Date

Responsibility Manager — Persal Number | Name & Surname | Signature | Designation/Rank | Date

Delegated Authority — Persal Number | Name & Surname | Signature | Designation/Rank | Date

Source: DOJ and CD- CFO-Forms

4.4.2 Formulation of a specification

A need identified in stage one above will determine the nature of goods and/or services to satisfy the need. As such, stage two requires that the nature of goods and/or services be documented in writing. This is referred to as a specification. Specification is defined as a precise description of physical features of goods, quality and/or expected performance to which all offers to be considered for award must conform (CIPS and NIGP, 2016: 1). Hugo and Badenhorst-Weiss (2011: 50) assert that specifications are clear, precise and comprehensive descriptors of needs, which, according to Cordell and Thompson (2019: 3), assist prospective suppliers in determining technical and pricing aspects of such goods and/or services. The preceding authors place the responsibility of ensuring proper specification on both purchasing practitioners and end-users.

Although purchasing practitioners may have the prerogative to interrogate specifications, they may not alter them without prior approval by the end-user, since specifications represent instructions as authorized by delegated person(s). On the other hand, South Africa, Treasury Regulations (2005: 50) assert that for the process of normal procurement up to the value of R1 000 000.00, the responsibility of formulating specifications is placed with the end- users, whilst for tender processes above R1 000 000.00, it is placed with the Bid Specification Committee (BSC). Van Weele (2010: 32) identifies two key specifications, namely functional and technical specifications. Technical specifications, as stated in the Chartered Institute of Procurement and Supply (CIPS) and National Institute of Governmental Purchasing (NIGP), could be associated with design specifications which are often used when precise shapes, dimensions, close tolerances, and a high degree of manufacturing precision are required (e.g., construction and heavy equipment). Functional specifications are linked to a performance specification, which describes the desired outcome or intended use of goods and how they will perform (e.g., number of items, distance to travel, time required). Specification seeks to achieve compliance with one of the seven principles of SCM, namely openness. Specification also provides reasonable assurance that an organization will receive the desired goods and/or services as all quotations would have been done based on specification. In line with this requirement, Badenhorst-Weiss et al. (2017: 51) assert that keeping a database of commonly required commodities represents the most effective way to ensure uniformity.

4.4.3 Sources of need satisfaction

As soon as it is known what is required to satisfy end-user's needs, an SC must identify whether such needs can be fulfilled with either internal or external supplies.

4.4.3.1 Internal supplies

An internal supply means an organization is able to make its own goods or have them readily available for immediate use. The 'make' element is very uncommon in state organizations because, historically, procurement in this sector is geared to integrating the process of order placement from the end-user to its fulfilment by the supplier (Grant et al., 2006: 94). However, the Department of Correctional Services (DCS) in SA somewhat exemplifies the 'make' model of an SC through its offender skills development program; they grow their own fresh produce, sew their own uniforms and manufacture their own office furniture. On the other hand, warehouses are the most popular and common sources of internal supplies in almost all state organizations in SA. Through inventory management, SCs forecast goods that are frequently required and/or used in their organization, procure these in bulk, and issue them as and when the need arises.

This, according to Radasanu (2016: 145), is directed toward customer satisfaction, since a well customer is a valuable asset of an organization. The author further states that keeping inventory is aimed at minimising stock-out during the upcoming replenishment cycle. As such, the service level of an organization is informed by its stock level. The author concludes that stock level must be high enough to cover suppliers' delivery times and adequate to cater for customers' demands, and not be so high that it compromises organizations' finances due to high carrying costs. In the same vein, Malindzakova and Zimon (2019: 895) echo that the fundamental aspect of inventory management is to maintain a fine balance between the costs and benefits of carrying an inventory.

4.4.3.2 External supplies

In the event where goods and/or services are not available for immediate supply, that opens an organization to a 'buy' option. 'Buy' is when goods and/or services have to be acquired or procured from a third party for customers' needs to be fulfilled (Cordell and Thompson, 2019: 4). Such procurement is either done by way of quotations, through a bidding system or contracts as informed by the present situation and/or applicable threshold values. The three must and should have conformed to the basic principles of good governance, namely, fairness, equity,

transparency, competitiveness and cost effectiveness (South Africa, National Treasury, 2005: 50). This is one of the areas that have received tremendous interest from scholars, academia and the society at large in SA and across a number of other developing countries (Mamiro, 2010: 1). This aspect is grossly labelled as being flawed, according to Mujemula (2014: 24). Nonetheless, this function is governed by laws in SA, and it is expected to operate within the ambit of such laws; PPPFA, BBBEE, and Procurement regulations as amended (2017) are dominant regulatory frameworks directing this function. As indicated in South Africa, National Treasury (2017: 5), prior to the invitation of bids or requests for quotations (RFQ), a proper procurement plan that is aligned with an organization's objectives should be in place.

The plan must detail projected costs, prequalifying special conditions to advance certain group of persons or industries, and also provide pre-specification of subcontracting for tenders above R30 million. Once decided upon, these conditions are to be included in the RFQ or tender advertisement, and tenderers who do not meet these standards are to be disqualified from further evaluation. Moreover, projected costs are also used as a basis to determine if an organization has the funds to carry out such purchasing. These will also assist in determining the preference point system to be indicated on the advertisement, which will be later used by the Departmental Bid Evaluation Committee (DBEC) or SCM to evaluate the proposal. Where the threshold equals or exceeds R30 000.00 up to the value of R50 million, the 80/20 preference point system will be used, whist for all cases exceeding R50 million, the 90/10 will be used. Therefore, this necessitates that procurement planning is integrated with a budget process (Kiage, 2013: 55). Post evaluation, DBAC and or SCM will award works to the preferred bidder(s) via formal letter of award and/or a purchase order (PO). The bidder will thereafter be expected to deliver based on the offer and as per stipulated delivery times or less, followed by payment from a receiving organization.

Another aspect of external supply is through contracts. Although contracts are arranged in the same manner as the process discussed above, once in place, they must be managed accordingly. Contracts can be classified into: (1) those arranged by National Treasury, named as Transversal term contracts (RT); and (2) those arranged by government organizations. South Africa, National Treasury (2005: 51) allows organizations of the state to participate in RT contracts arranged by the National Treasury or through bidding processes; any organization may arrange a contract or opt to participate in any state organization's contract arranged as such, on condition that written approval is received from such an organization. Once an organization

participates in any contract, it is not permitted to solicit bids for similar items outside the contract. As such, Musanzikwa (2013: 122) contends that terms and conditions (penalties on breach) of the contract, costs, specifications, lead time, quantity and date of issue form part of the features of the contract agreement. The existence of contracts opens another sub function of an SCM, named contract management. The Chartered Institute of Procurement and Supply (CIPS) (2019: 1) also recognises contract management as an SCM function that can neither be transferred to another section nor just happen behind the scenes. Contract management is defined by Mwangi (2018: 16) as a check and control function by all parties involved; this is aimed at ensuring obedience to the terms of the contract. According to the author, this includes amongst others, adherence to contract terms, sound communication, management of contract changes, invoicing, and timely payments. Therefore, through effective contract management, the risk of non-conformance to agreed-upon obligations are reduced and continued supply is somewhat assured (CIPS, 2019: 10). The preceding author indicates that managing contracts involves but is not limited to:

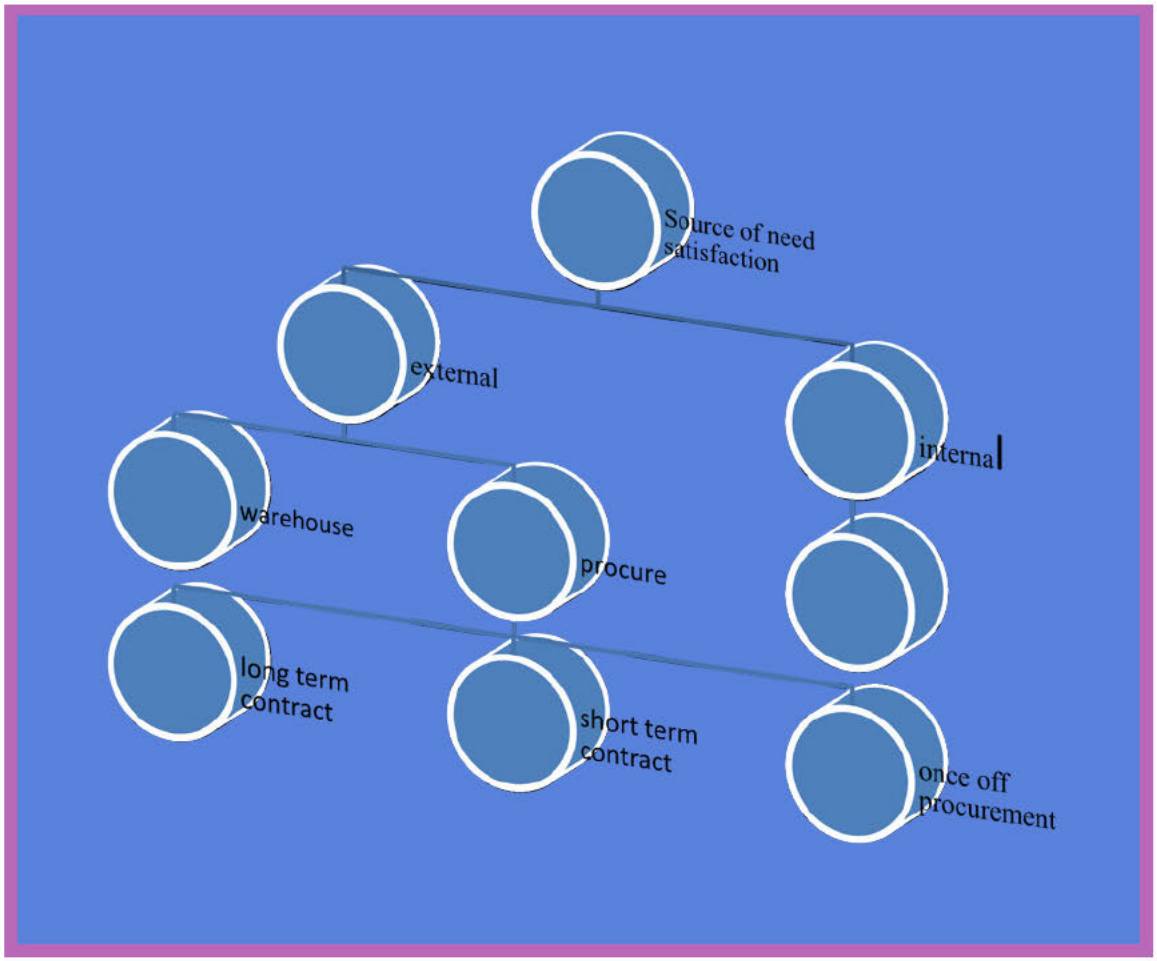
- Identification, analysis and management of risks.
- Quality management.
- Key Performance Indicators.
- Effective communication incorporating soft skills.
- Supplier relationship management.
- Contract development, mobilisation and implementation.

Mwangi (2018: 16) asserts that where a contracting party is not monitoring contract delivery terms, the contractor is likely to deviate or violate the contract terms. The Chartered Institute of Procurement and Supply (CIPS) (2019: 10) mentions that contracts usually fail as a result of failure to effectively manage them.

However, literature across the globe presents flaws in the manner in which procurement is being handled. According to Musansikwa (2013: 119), procurement processes are subjected to controversy. Concerns include the use of financial resources not in line with principles of value for money, exorbitant prices being paid for goods and/or services (De Lange, 2011), a lack of implementation, incompetence, delays in payment of service providers, fraudulent and corrupt activities, and negligence and/or violation of laws (Migiro and Ambe, 2008; Ambe, 2009;

Tshamaano, 2012; Kiage, 2013; Musansikwa, 2013; Dlova and Nzewu, 2014; Bizana, Naude and Ambe, 2015). This is supported by AGSA (2019) – as indicated in the integrated annual report, the top three projects failed, due to, amongst other factors, poor financial management and a lack of corrective actions to address project failures and SCM irregularities. The Auditor General of South Africa (AGSA) blames this on poor planning, inadequate practices, a lack of credible reporting, a lack of accountability and inadequate monitoring by all role players involved in the SCM process. On the other hand, Musansizwa (2013: 123) believes that technological advancements, which forced the procurement function to become a specialized function rather than a clerical function, may have had an impact in this mayhem.

Figure 4.3: Sources of need satisfaction



Source: Researcher's own compilation

4.4.4 Identification of suppliers (on contract or once off)

Where price quotations are to be used to fulfil a customer's needs, as mentioned earlier in this chapter, invitation is only extended to a certain number of prospective suppliers registered on the Central Supplier Database (CSD) to make offers in response to the requirement. The CSD is one of the best initiatives that the government of SA has implemented. It holds a database of organizations, institutions and individuals who can provide goods and services to government. It serves as a single source of consolidated, accurate, up-to-date, complete, key and verified supplier information, where state organizations obtain their prospective suppliers (South Africa, National Treasury, 2016: 7). It has been implemented for use from 01 April 2016. Prospective suppliers interested in pursuing opportunities within the SA government self-register on the CSD. This self-registration application represents an expression of interest from the supplier to conduct business with the SA government.

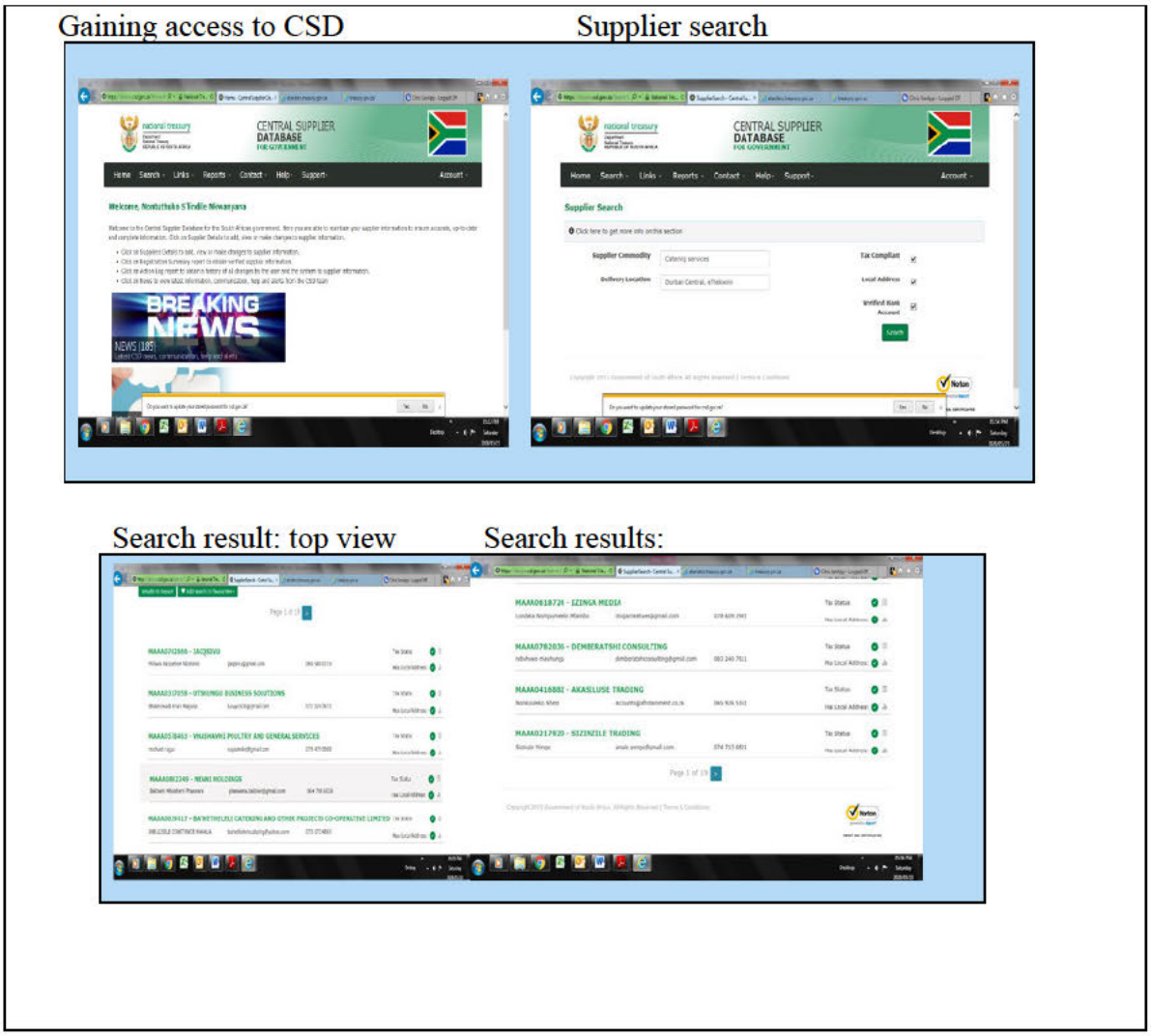
Whether or not suppliers registered on CSD are indeed prepared to do business with the SA government is yet another investigation for the future, which falls outside the scope of this work. Again, whether the conduct of the SA government warrants it to be viewed as a trusted business partner by CSD enterprises is yet another question to be answered (Aarnio, 2019: 5). The preceding author argued that supplier managers should direct all their efforts to working collaboratively, as a team, with IT partners, strategic IT suppliers and procurers to deliver increasingly efficient supplier management services so as to become a trusted business partner. While it is known that a buyer-supplier relationship provides better outcomes for both parties (Naude, Ambe and Kling, 2013: 3), government policies in SA prohibit the development of relationships between procurement officials and suppliers; the SA government is less focused on relationship building through public procurement but rather focuses more on obtaining the lowest price possible at a given time (McKevitt and Davis, 2014: 550). It aims to achieve this through supplier rotation in the interests of fairness.

With the SA government, not many relations are formed; it's a 'give, take and pay' model and paths never cross again. Although it is undeniable that these restrictions somewhat prevent corruption, the feeling is that at times it is too rigid, thus causing possible loss of benefits associated with supplier-client relationship (Independent Commission Against Corruption (ICAC), 2011: 27). Naude, Ambe and Kling (2013: 3) share the same sentiment, in that although there is unethical conduct from time to time, there is seldom the link of such to supplier relationship management (SRM) in the private sector. Therefore, this should not stop

procurement practitioners from harnessing the benefits associated with SRM. McKevitt and Davis (2014: 553) also believe that detachment from SRM is rather risky. Aarnio (2019: 5) argues that the idea of a single web portal where information can be viewed by all relevant persons in an organization adds value to the efficiency of an organization as it reduces time and resource utilization and thus creates value for procurement processes.

While CSD exemplifies the above, and can be regarded as a 'one stop shop' that has achieved the goal of reduction of administration burden and cost saving for both suppliers and government organizations, it is debatable whether this database has overcome one of the risky parts of SCM, that is, 'selective or favourite supplier selection'. As excellent as it may be in its ability to integrate and verify supplier information with: SARS for tax compliance status; SANAS or SANAS agencies for BBBEE status level; Payroll systems to check the employment status with government for company directors, tender default and restriction status; banking institutions regarding account validity; as well as with CIPRO in checking if the company is active or not (Mabanga, 2019: 29-30), challenges faced by public sector buyers in this regard are yet to be explored. Figure 4.4 below depicts a quick view of the CSD search engine in obtaining suppliers for a specific commodity in a specific area.

Figure 4.4: CSD search



Source: Researcher's own compilation

Can this database not be used to achieve more, in terms of lessening SCs' vulnerability to improper supplier selection and thus reducing fraud? Perhaps it could be built in a manner that systematically selects the batch of suppliers to quote from when each SCM practitioner across the public service selects a particular commodity and delivery address, so as to avoid an individual's own discretion and preference in selection, and possible fraud and/or corruption. This would conform to Klitgaard et al.'s (2000: 24–29) position that successful prevention of corruption can be attained through clarifying and limiting public officials' discretion in their actions, reducing dominating power and increasing transparency. In order to achieve absolute transparency and build public confidence and trust in the procurement system of the SA government, the question remains: how can CSD be enhanced to become a "block chain" to

record all procurement transactions against each supplier from every government organization and all entities, as mentioned in SmartProcurement (2019: 24)? How can government use this database as a vehicle for real "viable economic empowerment"? Can equal opportunities be given to all those suppliers that meet minimum standards across the government sector through CSD? Or can this perhaps be enhanced to include compulsory feedback, or a system build rating of performance and quality of work by each organization after use, as proposed by Aarnio (2019: 6) at Roche? Similarly, government institutions' ratings may provide a sound platform of transparency and relief to enterprises planning to offer their businesses to the state. This premise is also in line with SmartProcurement (2019: 24), which states that a block chain enhances human to human (H2H) cooperation since it implants mechanisms that give assurance that users are who they say they are. It provides information such as identity numbers and past transactions that can assist state organizations to know and measure supplier reputations. Nevertheless, in line with the obligation of competitive procurement as required by National Treasury regulations (South Africa, National Treasury, 2005: 46), a certain minimum number of offers are to be received from suppliers sourced from CSD to enable the buying process. The Department of Justice and Constitutional Development, as many other government institutions, needs a minimum of a single quotation for all procurements up to R2000.00, whilst a minimum of three quotations are needed for all purchases exceeding R2000.00 up to and not more than R1 000 000.00 (Department of Justice Financial Instructions, 2021: 54(27)). Although this organization encourages the invitation of as many possible prospective suppliers for the procurement of goods and/or services within the threshold value between R30 000.00 up to R1 000 000.00, three remains the minimum number acceptable to invite. Such suppliers are obtainable from CSD.

4.4.5 Selecting a suitable source of supply

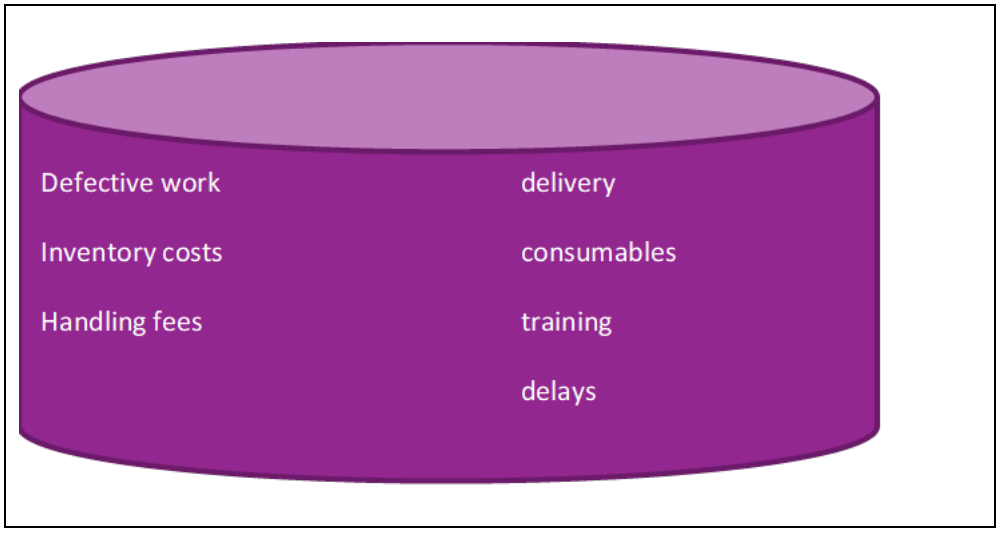
Where the source of supply is through a contract, the contract terms are followed in sourcing goods and/or services. Where a quotation or bidding route is an option, an evaluation process kicks in on the closing date and time of the RFQ or bid. According to Mamiro (2013: 7), this phase encompasses a series of meetings involving evaluation teams and/or committees. In this phase, the ethics of SCM practitioners continue to be put to the test, and more so their competence. Pienaar (2019: 18) considers ethics to be associated with democracy. This author contends that government officials must conduct themselves in an independent, responsible and impartial manner. Their acts must be vested in the best interest of communities, fairness and equal treatment of all people, and the conscientious use of public resources.

On the other hand, competence refers to sufficiency of knowledge and skills that enable one to perform in a wide variety of situations. As such, competencies of SCM officials can assist in enhancing organizations' performance (Kumar and Nambirajan, 2013: 86). Unfortunately, the findings of a recent study by Nkwanyana and Agbenyegah (2020: 8) present the competence of SCM practitioners as being in limbo. The latter was also highlighted in Pienaar (2019: 33) who noted a lack of competence as one of the causes behind accidental errors. The author gives the example of Eskom, which, through mismanagement, corruption and incompetence, has ended up with enormous debts, and this is blamed on governance incompetence. In the same vein, Munzhedzi (2016: 2) blames the state organizations, which, through the appointed AOs, fail to exercise their role to take effective and appropriate disciplinary steps against any official who makes or permits unauthorised expenditure, irregular expenditure or fruitless and wasteful expenditure as per the requirements of the PFMA. Manjate (2019: 21) shares the same sentiments about lack of skills and expands this, arguing that procurement personnel lack capabilities too.

Further, the author adds that although National Treasury's plans are underway to professionalize the procurement industry so as to capacitate SCM practitioners with the requisite skills and competencies for procurement – such as negotiating skills, analysing prices, procurement cycles and analysing costs – challenges continue to rise. Other soft skills pertinent to procurement teams include networking, collaboration, teamwork and adaptability (SmartProcurement, 2019: 27). Surprisingly, the state became aware of this chaos about five years ago, since issues of incompetence, a lack of resources, computer systems, no up-to-date databases, and no motivation were some of the key findings of the SCM review conducted by the National Treasury in 2015 (South Africa, National Treasury, 2015: 4). Meanwhile other authors such as Gabela (2017: 12) somewhat disapprove of BBBEE, indicating that the advancement of the previously disadvantaged persons may be the root cause of incompetence, thus leading to a step back in effective functioning of public procurement in society. Mamiro (2013: 7) contends that where incompetence exists, the process can become costlier, causing the approving body to reject the submission(s) for re-evaluation by concerned persons or bodies. In a worst-case scenario, incompetence can result in court cases or arbitration should the award be given to wrongful supplier(s). Can the SA government's policy inceptions become one step forward and ten steps backward? That is an interesting question for future exploration. Even with the history of chaos, unethical acts and incompetence as presented by different authors in the literature, at this stage, the SCM practitioners and/or bid committees pre-screen

offers for acceptance, evaluate, adjudicate and select the most suitable supplier(s) that conform to the end-user's specifications and requirements based on factors such as cost, quality, capacity and delivery (Lawal, 2015: 10).

Figure 4.5: The price/cost iceberg



Source: Researcher's own compilation

An obvious and yet commonly ignored fact is that costs are informed by a variety of factors, as depicted in Figure 4.5 above (Baily et al., 2005:14). As Baily et al. (2005) indicate, these costs are hidden, but must be considered and/or accounted for in business decision-making. Therefore, the final price payable by the end-user is the price for handling fees, delays, consumables involved, staff training, delivery costs, inventory costs and defective works that may have happened or happen throughout the lifecycle of the purchased goods and/or services. Quality is a rather difficult tasks to measure; however, for the purpose of this study, inference is made to conditions stipulated in the advertisement, with which all offers must comply. In accordance with South Africa, National Treasury (2017: 25-27), comparison is done amongst all acceptable offers utilising either the 80/20 or 90/10 principle depending on the threshold value of the work. Sometimes offers will only be compared on the basis of price and conformance to specifications; this is applicable for all cases valued at R30 000.00 and below. Proportions of 80% or 90% are allocated to price and 20% or 10% for BBBEE status level, after confirmation of validity the claimed level from a BBBEE rating regulator. Such evaluations, adjudications and awards are administered by of those delegated with such powers. In fact, this process is itself informed by delegations. Delegations came about with the

decentralization of buying powers from the State Tender Boards to AO's of national, provincial and local government (Gabela, 2017: 3). This was in line with the new policy requirements, namely PFMA and National Treasury Regulations. For instance, National Treasury prescribes that the AO must develop and implement an effective and efficient supply chain management system, which must be administered and/or implemented by an established SCM unit within the CFO's office (South Africa, National Treasury, 2005: 49-50). With this direction, AOs of departments are delegated with ensuring that a sound SCM system is in place and operational in their organization. Thus, full procurement authority and accountability is placed with them. The SCM unit therefore exists to deliver customer goods and/or services whilst ensuring enforcement of policy directives. By definition, delegation means the allocation of a power or a duty imposed by a principal functionary to a delegated official (South Africa, Department of Public Service and Administration, 2014: 2).

To delegate means to entrust a power or duty to somebody else, thus a delegated official becomes somewhat of an agent of the original holder of the power. Delegation is thus tantamount to a "Thuma Mina" campaign. The preceding document mentions that this idea is aimed at but not limited to achieving desired results through the actions of others. Rightfully, the PFMA allows that AOs may delegate in writing some of their duties to any official in their departments (South Africa, National Treasury, 1999: 43). This, according to South Africa, Department of Public Service and Administration (2014: 2), is a coping mechanism aimed at relieving the pressure on AOs, therefore allowing them time to focus on more important tasks. Further, it builds the capacity of other officials as it allows development of their competence, commitment, decision-making experience and new skills. This builds institutional memory at various levels in the department. Gwala (2018: 60) mentions that various levels of authority are clearly defined to distinguish the level of responsibility that is placed with each decision maker. Therefore, officials are delegated different levels of responsibility.

4.4.6 Contract negotiation and communication

Soft skills, namely negotiation as mentioned by Manjate (2018: 21), and those of effective communication as mentioned by CIPS (2019), are required and put to use in this phase, keeping in mind that awards of contracts are based on either lowest price, or the 80/20 or 90/10 principle as per policy (South Africa, National Treasury, 2017:25). Musanzikwa (2013: 120) asserts that whilst considering an award, it is critical to ascertain whether or not such a purchase conforms to principles of efficiency and cost effectiveness. According to this author, to attain this, a

purchase must meet with the ‘six rights’ of supply, namely right price, right time, right quantity, right quality services, and right delivery to the required destination, and from the most cost effective source. Primarily, this demands that goods and/or services offered must comply with the specifications of the advert and they must be priced in accordance to market price. Recall that the market price caters for all costs as shown in Figure 4.5 earlier. Where offers received from the top three highest scoring bidders are not in line with market-related prices, South Africa, National Treasury (2017: 25) asserts that prices should be negotiated with bidders in descending order of their scoring, i.e., price is negotiated with the highest scoring bidder. The aim is to find mutual agreement so that both parties can benefit from each other’s business. However, where no agreement can be reached on market price, an organization may cancel or negotiate with the second highest, up until the third highest bidder; failing which, the bid must be cancelled. This is in line with the requirement of the policies (subsection 217(1) of the South Africa, The Constitution of the RSA, 1996 and South Africa, National Treasury, 2005: 49), which prescribes that a system of procurement or SCM must conform to the principle of cost effectiveness and/or achieve value for money.

Nonetheless, as earlier discussed, there could be ongoing engagement between procurement practitioners and potential supplier(s) even prior to the award. This too requires skill. Unfortunately, supplier relations in the public sector is kept in close check and is more rigid than it is with private sector counterparts (Naude, Ambe and Kling, 2013: 6). As a result, procurement practitioners may be afraid to approach suppliers altogether. The preceding authors propose a five stage approach to assist public sector procurement practitioners to implement SRM. These are documented in Figure 4.6 below.

Figure 4.6: Supplier relationship management

Stage	Description	Key activities
1.	➢ Developing clear guidelines for procurement officials.	➢ Acceptable and unacceptable behaviour regarding communication with supplier be clearly defined, such as ➢ Similar and fair communique to all suppliers. ➢ Document all formal communique. ➢ Records of informal encounters be kept on diaries, journal or file notes.
2.	➢ Developing clear guidelines for suppliers.	➢ Public procurement practitioners should provide clear guide to suppliers in terms of their dealings with them. ➢ Distinguish relations they have prior and post contract award.
3.	➢ Highlighting information in bidding documents.	➢ An indication should be made during advertisement that contact may take place between supplier(s) and the organization and the circumstances under which this may take place.
4.	➢ Documenting communications with suppliers.	➢ Record keeping of all communiques with suppliers(s) especially those before contract award.
5.	➢ Maintaining a relationship focused on the contract.	➢ A need for contact and communication with the awarded supplier either formally or informally. This is required so as to ensure continued performance by supplier thus enhancing relations for long term mutual benefits for both parties.

Source: Adopted from Naude, Ambe and Kling (2013: 6)

As depicted above, entities must clearly define acceptable and nonacceptable conduct in relation to communication with bidders. Suppliers too should be guided by officials on the relations and communication process they may have or follow prior and post contract of the award. Similarly, bidding documents should state under what circumstances communication may take place. All such communique should be documented. Lastly, maintaining a focused relationship with the awarded supplier remains of critical importance for performance. In fact, communique with the awarded supplier commences when a contract is communicated and/or a purchase order is placed (Musanzikwa, 2013: 122).

With the transformation in how SCs are handled in the last decade, moving from a manual, wired and more paper-based system to adoption of ICT (Barakat et al., 2020: 1), an organization needs to be geared up with the proper tools to take advantage of this change. With the inception of the 4th industrial revolution in ICT, Smart Procurement (2019: 5) asserts that organizations need to rethink the value added by procurement. Further, organizations need to make use of automated technology to significantly save time and increase the output of the procurement function. This includes amongst others, RFQs, supplier master data maintenance, access to an extensive supplier database and integrated requisition and sourcing. Though digital platforms are costly, the benefits associated with it, such as eliminating mundane administrative tasks thus allowing procurement practitioners to focus on key buying functions, far outweigh these costs. In addition, SmartProcurement (2019) highlights that those who remains stuck in the ancient way of purchasing will struggle to position their procurement as a strategic contribution to an organization.

Order processing, as a logistics function within SCM (Naude, Ambe and Kling, 2013: 4), demands that appropriate logistics information systems (LIS) be employed to navigate pathways for order placement and order processing by organizations. Gourdin (2006: 168) recognizes LIS as a vital element of an organization's success. In fact, LIS can be defined as a vehicle for transmission of information from one point to the next internally and/or externally. It aids in the delivery, receiving and retrieval of information from within and from SC partners, thereby supporting decision-making. The preceding author points out the growing need for individual organization's LIS to be integrated with those of its partners in an SC. According to Dumase (2018: 61), Electronic Fund Transfer (EFT), Electronic Data Interchange (EDI) and Value Added Network (VAN) are some of the communication tools commonly used to transfer information between SC partners. Electronic Fund Transfer (EFT) transmits funds through

VAN once payment has been affected, enabling funds to be receipted by the partner without any additional effort. Likewise, EDI is meant to transmit order placement information from one partner to the next, including follow up on outstanding orders. Unfortunately, according to Gourdin (2006: 168), this has not been the case in many organizations; instead managers are constrained with having to piece information together from several poorly integrated information systems (IS). Nevertheless, as challenging as may it be, once a PO is placed with a successful bidder, goods and/or services will eventually be delivered and dealt with as indicated below.

4.4.7 Receipt, consumption and management of supplier performance

Upon receipt of goods and/or services, the quality and quantity check principles come to the fore. According to Musanzikwa (2013: 122), this takes place at the delivery point; as such, receivers must be trained to know applicable procedures should goods and/or services not conform to the requirements. The quality of goods and/or services being rendered by the state have received much attention from scholars, academia and society at large. Perhaps because counting the quantity of goods is rather an easy task, whilst the same cannot be said with regards to testing quality. Baily et al. (2005: 108) define quality as "excellence" or rather the extent to which goods and/or services achieve customer satisfaction. Shaw (2010: 22) acknowledges that a successful procurement system is characterised by ethics, accountability, transparency, competition, complexity, and equality, as also tabulated in the PFMA as amended.

Shaw (2020) further identifies quality, monitoring and oversight as some of the critical areas of consideration when organizations contract or procure any goods and/or services. The nature of goods and/or services expected from the suppliers should be indicated at the beginning, during RFQ or bid advertisement via specifications. This demands that specifications be written in a clear, concise, consistent, and precise manner, using plain language (CIPS and NIGP, 2016: 5). Therefore, receipt is gauged against the specified condition, quality and/or performance as indicated during advertisement. This suggests that the end results should be as good as their specifications. Shaw (2010: 22) believes that quality is among the most challenging and unmeasured aspects of contracting. The author indicates that in the public sector, quality is unfortunately regarded as performing beyond a specified job profile and proposes that this sector needs to employ adequate tools to measure the quality of goods and/or services being provided to the public.

Similarly, South Africa, National Treasury (2015: 4) shares the same sentiment; that over and above issues of price, ensuring quality presents itself as a challenging task to public sector SCM practitioners due to societal expectations. For instance, an impressive 1 129 612 cheap houses were built in the year 2000 with the inception of a housing project under the Reconstruction and Development Programme (RDP). However, not so impressive is that around this year, one researcher found that of the total number of houses built, only 30% of those were larger than 30 square meters (David Pottie, 2003, cited in Moolla, Kotze and Block, 2011: 139), thus complying with building regulations. The majority were too small, contrary to government's minimum specification of at least 30 square meters. The preceding authors also mentioned that occupants of these houses complained about roofs and walls that were improperly built due to poor workmanship, doors that did not open or close properly, and the lack of air bricks, thus requiring windows to be kept open for ventilation, resulting in dust entering the houses. It can be recalled that communities were up in arms against this, and African communities did not hesitate to term these houses as "*ovezunyawo".*

This is a classic example of a "humiliating" experience endured by these communities, made possible because of failed procurement processes. But what if specifications were correct, quality considerations were made, and inferior quality was still received? What if specifications were badly compiled? Can it be low functionality criteria? Who was to blame? What was to be blamed? What went wrong? Unfortunately, those expected to consume or those at the receiving end of government's goods and/or services know what they want. South Africa is a free democratic state, with constitutional values that may be symbolized by the phrase advocating "government of the people, by the people, for the people", as first used by Abraham Lincoln, the President of the United States (U.S) in 1863 (Lincoln and Lambert, 1909: 403). The SA government is therefore bound to take into consideration the views of those they lead. Mwangi (2018:18) somewhat supports the earlier assertion in respect to quality as being challenging, and highlights the need for monitoring. Mwangi (2018) notes that monitoring depends on the nature of goods and/or services and is much easier in simple purchases, such as once-off purchases, but it becomes complicated in projects carried out over a period of time. Nevertheless, control routines must be put in place to ensure that a supplier delivers as per contract.

4.4.8 Payment

This process takes place after receipt of goods and/or services. According to Musanzikwa (2013: 122), goods and/or services are received or consumed and/or accepted into stock; the payment process of the supplier is thereafter facilitated by procurement through providing the necessary documentation to the finance division for payment. In bigger state organizations, facilitation of payment is rather a logistics management function within SCM. Upon satisfaction that goods and/or services were received in order, utilising similar LIS used for order placement, logistics will now channel the payment. Although South Africa, National Treasury (2005: 22) prescribes that payments due to creditors must be settled within 30 days from the date of receipt of invoice or that of court judgement, the Auditor-General of South Africa (2019) presented multiple findings that suggest non-adherence to the said 30 days' turnaround time for payment of suppliers in the past years. Emanating from the absence of or inadequate monitoring and controls, South Africa, National Treasury (2015: 19) outlined concerns of payments being made against fictitious invoices. Nevertheless, where goods and or services have been received, payment must be affected.

4.4.9 Decommissioning and/or disposal

The last phase in the procurement space is the de-owning or de-controlling and/or letting go of those goods and assets no longer required by the state. Cordell and Thompson (2019) assert that disposal occurs when goods have reached the end of their life cycle. Life cycle, according to these authors, is viewed by the whole life costs of an item. In government, although stock or inventory is disposed, common disposals that communities mainly have witnessed are those of assets such as furniture and motor vehicles. The disposal process has to be managed. According to Ambe (2009: 429), disposal management is concerned with the management of assets that no longer serve the purpose they were procured for. These, according to Mabanga (2018: 24), include unserviceable, redundant or obsolete items. To do away with these items, an inspection of items must be done, a plan must be done, a database of such items must be created, and the strategy and method of disposal must be determined (Masango, 2018). Depending on the nature and condition of such assets and/or inventory, the following method of disposal may be considered:

- Internal or external transfer
- Internal or external sale/auction (Section 76(1)(k) of the PFMA)
- Trade-in

- Destruction (Controlled dumping)
- Donation

4.5 THE PROCUREMENT PROCESS OF THE DEPARTMENT OF JUSTICE AND CONSTITUTIONAL DEVELOPMENT IN SOUTH AFRICA: THE CASE STUDY

4.5.1 Procurement directives as per the Departmental Financial Instructions of the DOJ and CD

The Departmental Financial Instructions (DFI) is a DOJ and CD in-house policy directive that governs its financial affairs. It sets out policies, procedures and processes that must be followed to control income and expenditure and compliance thereto with financial regulations (South Africa, DOJ and CD, 2021: 1). It aims to achieve this through upholding fair, equitable, transparent, competitive, effective, and efficient financial processes as well as through training, supervision and control. All new officers must be taught how to correctly study and apply DFI in their scope of work (South Africa, DOJ and CD, 2021: 2). The provisions of the SCM directive, as a part of financial management, is discussed in detail in chapter 10 of the instruction manual, and again briefly in chapters 3 and 8. Chapter 10 is geared toward streamlining SCM processes in line with promoting principles of transparency and ethical conduct in the procurement of goods and service as directed by Preferential Procurement Regulations of 2017, as well as National Treasury, SCM Instructions or Practice Notes issued from time to time (South Africa, DOJ and CD, 2021: 48).

According to the document, DFI derives its powers from all legislative frameworks discussed in chapter two of this study, as well as the Prevention and Combating of Corrupt Activities Act, 2004 (Act No 12 of 2004), National Small Enterprise Act, 1996 (Act 102 of 1996, Promotion of Administrative Justice Act, 2000 (Act No 3 of 2000), Protection of Personal Information Act, 2013 (Act No 4 of 2013), Protected Disclosures Act, 2000 (Act No 26 of 2000) and South African Transport Services Act, 1981 (Act No 65 of 1981), which are outside the scope of this work. The procedure manual, DFI, is consistent with the requirements of the Constitution of the RSA as well as the PFMA, in that it subscribes the department to conformance to pillars of procurement, namely, fair and ethical dealings, equity, accountability and reporting, competitiveness and value for money (South Africa, DOJ and CD, 2021: [54]3). More so, it pledges the department to also abide by SCM principles, namely, openness, accountability,

uniform application, equal treatment, efficiency, effectiveness and transparency when procuring goods and or services (South Africa, DOJ and CD, 2021: 54[3]). Therefore, it is expected that the DOJ and CD is an environment where there is consideration of financial viability, economical fitness or costs saving, accountability and reporting in respect of the use of finances. It is further expected that prospective service providers are treated fairly and equally, and that bids are subjected to competition through open advertisement. Apart from this, the DOJ and CD, as any other public and private sector institution in SA, has been tasked with a duty to contribute towards poverty alleviation and reducing inequality by the year 2030.

This organization aims to achieve the above mandate by clearly defining roles and responsibilities of key role players such as end-users in the SCM value chain, segregating duties to lessen potential process risks, having strategies in place for risk management within the SCM value chain, and implementing strategies for the rotation of service providers. It also plans to prioritise strategic procurement requirements through business case promotion, rationalisation and funding processes. There are also specific considerations related to radical socio-economic transformation, establishing acceptable process turnaround timeframes that support the Department's Service Delivery Charter, and lastly, objectively handling disputes, complaints or litigations emanating from the SCM bidding process or contractual relationship (South Africa, DOJ and CD, 2021: 54[4]). The preceding document lists the following as activities that the SCM system of this organization must provide. These include:

a) Demand management;
b) Acquisition management;
c) Logistics management;
d) Fleet management;
e) Asset and Disposal management;
f) Contract management; and
g) Risk management and Quality Assurance.

Moreover, this document asserts that to ensure control and accountability, the above activities must be effected in accordance with established levels of authority, namely, delegations. Notably, and in line with the scope of this study, the SCM system of this organization comprises of acquisition management, contract management, risk management, and quality assurance. The buying process thus begins from a procurement plan as informed by the needs, to achieve

the departmental mandate. The route that the buying or procurement process undertakes is informed by the nature of goods or services desired and their expected value or cost. Some of the goods and services will already be contracted to certain service provider(s), as such those that could only be sourced from such service provider(s).

4.5.1.1 Contract Management

South Africa, DOJ and CD (2021: 54[38]) mentions that each contract must be supported by a service level agreement and/or an execution plan signed by both parties within 90 days from the date of acceptance of the letter of award. These terms and conditions must be confirmed as satisfactory by the relevant end-user, and be vetted by Legal Services before signing. Thereafter, the unit Contract Management at National Office must assume the responsibility to maintain the original contractual documentation including related adjustments, variations and extensions (South Africa, DOJ and CD, 2021: 54[38]), including the database of such contracts, to enable them to advise end-users well in advance of contract expiry (South Africa, DOJ and CD, 2021: 54[39] [1]). The end-user too is expected to maintain a record of the contracts, which includes information such as contract number and contract period (South Africa, DOJ and CD, 2021: 54[38]). The management of execution of the contract in terms of service delivery timelines and quality becomes the responsibility of the end-user (South Africa, DOJ and CD, 2021: 54[38]). This includes but is not limited to ensuring that the service provider performs as agreed in terms quality, times and standards; and end-users must also ensure payments to the service provider thereof.

To avoid irregular expenditure, the buying office must familiarize itself with the terms and conditions of a contract before engaging into any transaction. This is necessary because each contract bears its own unique terms and conditions that need to be abided to by all parties. Nevertheless, South Africa, DOJ and CD (2021: 54[38]) asserts that constant monitoring through regular site inspections, where applicable, or regular meetings with service providers to discuss progress, foreseeable problems or amendments shall be held during the term of contract. Any breach of contract terms or poor performance must be reported to the supplier performance unit, which will in turn meet with the end-user, assess supplier performance bi-weekly and impose penalties as per the service level agreement (SLA) or general condition of contract (GCC) should assessment reveal poor performance. Persistent poor performance should be reported to the Chief Director: SCM at National Office, who, in turn, must assess the situation in consultation with the end-user, communicate in writing the unsatisfactory

performance, and where necessary, demand that service provider perform in accordance with the contract terms. Remedial action such as allowing the service provider to mend the default of persistent poor performance should be applied, failing which the department may exercise its rights to terminate and inform the National Treasury accordingly. Another major avenue that SCM uses to obtain goods and services is through request for quotations (RFQ) and/or invitation to bid.

4.5.1.2 Procurement of goods through Request for Bids (RFB) or Requests for Quotation (RFQ)

The DOJ and CD also complies with the requirement of the PPPFA. Reported in the South Africa, DOJ and CD (2021: 54[25-27]) is a mix of methods this organization uses to secure goods and services. South Africa, DOJ and CD (2021: 104[20]) states that where a minor need exists, petty cash can be made available to pay for petty expenditures; before use, the head of office must satisfy him or herself that no other means are available to incur the expenditure other than petty cash. Other more formal ways include the sourcing between R0.01 up to above R1 000 000.00. The procurement using this method follows the selection of service providers from the CSD (South Africa, DOJ and CD, 2021: 54[12]).

The CSD is a database wherein state organizations obtain their prospective suppliers (South Africa, National Treasury, 2016: 7)2016: 7). According to South Africa, DOJ and CD (2021: 54[12]), bids or quotations may only be awarded to prospective suppliers registered on the CSD, unless it is not possible to source them on the CSD and authority has been sought from the delegated authority to approach the market. Prospective suppliers obtained this way must however be registered on the CSD before conclusion of an order. If a purchase was on an emergency basis, such supplier must register on the CSD within 7 calendar days upon conclusion of the work. This excludes transactions concluded via petty cash, sundry payments and foreign suppliers with no local registration. South Africa, DOJ and CD (2021: 54[12] prescribes that the following information must be verified on the CSD utilising the website www.csd.gov.za:

a) Business registration, including details of directorship and membership;
b) Bank account holder information;
c) Persons employed by the state;
d) Tax compliance status;

e) Identity number (CIPC check to be conducted);
f) BBBEE status level (Verification to be done);
g) Tender defaulting and restriction status (Database of Prohibited Suppliers); and
h) Any additional and supplementary verification information communicated by the National Treasury.

The requirements and process of formal procurement as prescribed by DFI can be summarized as follows in Figure 4.7:

Figure 4.7: Formal procurement process

	Procurement valued up to R2 000.00 (VAT included)	**Procurement valued between R2 000.00 and R30 000.00 (VAT included)**	**Procurement valued between R30 000.00 and R1 000 000.00 (VAT included)**	**Procurement valued above R1 000 000.00 (VAT included)**
	A clearly defined scope of work or terms of reference gets developed by the end user.	A clearly defined scope of work or terms of reference gets developed by the end user.	A clearly defined scope of work or terms of reference gets developed by the end user.	A clearly defined scope of work or terms of reference gets developed by the end user.
	Invitation and evaluation of quotations/bids irrespective of the threshold value must be based on a stipulated minimum threshold for local production and content for furniture products, textiles, clothing, leather and footwear.	Invitation and evaluation of quotations/bids irrespective of the threshold value must be based on a stipulated minimum threshold for local production and content for furniture products, textiles, clothing, leather and footwear.	Invitation and evaluation of quotations/bids irrespective of the threshold value must be based on a stipulated minimum threshold for local production and content for furniture products, textiles, clothing, leather and footwear.	Invitation and evaluation of quotations/bids irrespective of the threshold value must be based on a stipulated minimum threshold for local production and content for furniture products, textiles, clothing, leather and footwear.
	One written quotation is obtained from potential suppliers registered on the CSD.	At least three written quotations get invited by end users from potential suppliers registered on the CSD.	As many as possible (minimum of three suppliers) written quotations must be obtained from potential suppliers registered on the CSD.	Invitation in respect of competitive bids must be advertised in at least the Government Tender Bulletin and in any other media as may be deemed appropriate by the DBAC.

	Received quotation is considered on price only.	Received quotations are considered on price only.		
	Other documents to be submitted by prospective suppliers	**Other documents to be submitted by prospective suppliers**	**Other documents to be submitted by prospective suppliers**	**Other documents to be submitted by prospective suppliers**
				Any document determined by the BSC
				SBD 1 (invitation to bid)
	New SBD 4 (bidder's disclosure)	*New* SBD 4 (bidder's disclosure)	*New* SBD 4 (bidder's disclosure)	*New* SBD 4 (bidder's disclosure)
			SBD 6.1 (Preference points claim form in terms of preferential procurement regulations)	SBD 6.1 (Preference points claim form in terms of preferential procurement regulations)
	SBD 6.2 (Declaration certificate for local production and content for designated sectors) **if applicable**	SBD 6.2 (Declaration certificate for local production and content for designated sectors) **if applicable**	SBD 6.2 (Declaration certificate for local production and content for designated sectors) **if applicable**	SBD 6.2 (Declaration certificate for local production and content for designated sectors) **if applicable**
	Annexure C-Local content declaration- summary schedule	Annexure C-Local content declaration- summary schedule	Annexure C-Local content declaration- summary schedule	Annexure C-Local content declaration- summary schedule
	Annexure D- imported content declaration	Annexure D- imported content declaration	Annexure D- imported content declaration	Annexure D- imported content declaration

	Annexure E-Local content declaration	Annexure E-Local content declaration	Annexure E-Local content declaration	Annexure E-Local content declaration
	Proof of BBBEE Status Level. Original or certified and valid, issued by SANAS or DTI or a sworn affidavit attested by a commissioner of oaths in a template prescribed by National Treasury for QSE's and EME's.	Proof of BBBEE Status Level. Original or certified and valid, issued by SANAS or DTI or a sworn affidavit attested by a commissioner of oaths in a template prescribed by National Treasury for QSE's and EME's.	Proof of BBBEE Status Level. Original or certified and valid, issued by SANAS or DTI or a sworn affidavit attested by a commissioner of oaths in a template prescribed by National Treasury for QSE's and EME's.	Proof of BBEE Status Level. Original or certified and valid, issued by SANAS or DTI or a sworn affidavit attested by a commissioner of oaths in a template prescribed by National Treasury for QSE's and EME's.
	Tax compliance status PIN	Tax compliance status PIN	Tax compliance status PIN	Tax compliance status PIN
	SCM official must verify the tax compliance status of a taxpayer on the South African Revenue Service's eFiling system by utilising the tax compliance status PIN provided by the service provider.	SCM official must verify the tax compliance status of a taxpayer on the South African Revenue Service's eFiling system by utilising the tax compliance status PIN provided by the service provider.	SCM official must verify the tax compliance status of a taxpayer on the South African Revenue Service's eFiling system by utilising the tax compliance status PIN provided by the service provider.	SCM official must verify the tax compliance status of a taxpayer on the South African Revenue Service's eFiling system by utilising the tax compliance status PIN provided by the service provider.
	Department to verify the supplier's tax status on the CSD website (www.csd.gov.za) and attach CSD	Department to verify the supplier's tax status on the CSD website (www.csd.gov.za) and attach CSD	Department to verify the supplier's tax status on the CSD website (www.csd.gov.za) and attach CSD	Department to verify the supplier's tax status on the CSD website (www.csd.gov.za) and attach CSD

	registration report of the time of verification on supplier's records.	registration report of the time of verification on supplier's records.	registration report of the time of verification on supplier's records.	registration report of the time of verification on supplier's records.
	Approval must be obtained from the delegated authority.	Approval must be obtained from the delegated authority.	Approval must be obtained from the delegated authority.	Procurement above R1 000 000 up to R50 million must be approved by DBAC through the SCM Bid process. Cases above R50 million must recommended by the DBAC and approved by the Accounting Officer.
	The PPPFA point system requirements are not applicable.	The PPPFA point system requirements are not applicable.	The preference points for evaluation (80/20) must be stipulated upon Request for Quotation/bid (Refer to Paragraph 10.12.17).	80/20 preferential procurement point system is applied for all cases up to the value of R50 million meanwhile 90/10 is applicable for all cases exceeding R50 million.

Source: Researcher's own compilation

A valid original or certified BBBEE level status certificate supports the claims for preference points. Those that fail to submit it forfeit, and thus they obtain 0 on BBBEE points; similarly with those that are non-compliant contributors. The said suppliers do not get excluded from the process (South Africa, DOJ and CD, 2021: 54[19]). Where the recommended bidder is not tax compliant, the bidder must be notified of their noncompliant status and be granted a reasonable timeframe to rectify their tax compliance status with the South African Revenue Service. The bidder must thereafter provide proof of their tax compliance status which must be verified via the CSD or eFiling. If such a bidder fails to provide proof of tax compliance status, the bid must be rejected (South Africa, DOJ and CD, 2021: 54[24-25]). Further, where goods or services have been delivered satisfactorily without any dispute, the payment of invoices must not be delayed as a result of outstanding tax matters, unless directed otherwise by the South African Revenue Service.

4.5.1.3 Principles for requesting quotations

Once clearly defined specifications or terms of reference are developed by the end-user, sourcing commences. This takes place by means of RFQ or RFB. In addition to stipulation of the applicable procurement point system used as a basis of award, as mentioned earlier, the following also must be stipulated:

- Closing date
- Validity period
- Address where the supplies must be delivered, or the services must be rendered
- Where local production applies, RFQ or RFB must stipulate:
- Exchange rate to be used for the calculation of local production and content will be the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid or request for quotation; and
- Minimum of 30% compulsory sub-contracting provision: should it be decided to apply subcontracting as a prequalification, tenders or requests for quotation must be advertised with a clear condition that potential tenderers would be prequalified based on meeting subcontracting conditions of the tender or request for quotation.
- Non-Designated Sectors: where there is no designated sector, a specific bidding condition may be included that only locally produced goods or services with a stipulated minimum threshold for local production and content will be considered,

on condition that such prescript and threshold(s) are in accordance with the specific standards determined by the DTI in consultation with the National Treasury.

- Where a briefing session or site inspection is mandatory and there are disqualification conditions, records of such engagement should be circulated to all prospective tenderers that attended such an engagement. Each attendee to such a session must sign an attendance register. (ii) The Secretariat is responsible for convening the briefing session or site inspection and must ensure proper safekeeping of that attendance register that shall serve as official proof of attendance compliance.

4.5.1.4 Principles for receipt of quotations

- Submission of quotations by suppliers could either be:
  - by hand
  - post
  - courier
  - facsimile
  - email
- They must be submitted on or before the closing date
- A register for all quotations received must be maintained

4.5.1.5 Principles for the award of quotations

Information about the award should not be disclosed to suppliers or any other persons not officially involved in the process, until the successful supplier is notified of the award. Where conditions exist, a two stage approach to evaluation applies; for instance, where local production is a criterion, evaluation in terms of the stipulated minimum threshold for local production and content will first take place. Thereafter, all those in compliance with this go through to the second stage of valuation in terms of either 80/20 or 90/10 preference point systems depending on the threshold value. Only suppliers who score equal or above the prescribed percentage for local content will qualify for the second stage.

4.5.1.6 General principles of procurement

The requirement of the Treasury Regulations paragraph 8.2.2, South Africa, DOJ and CD (2021: 54[5]) directs that no employee of the DOJ & CD may spend or commit to spend public

funds without express approval, which is either in writing or by any other duly authorized electronic means of authorization. This should be done by the authorized Responsibility Manager on JYP requisition forms or by means of electronic approval directly on the JYP system. A manual requisition must be authorized by the Fund Holder concerned. Persons so delegated shall satisfy themselves that Supply Chain Management prescripts and processes are adhered to, the relevant approvals are obtained and details thereof are endorsed on the Purchase Order. In case of approval by RCC/DBAC/DG, the Goods and Service Requisition form must thereafter be signed by the Fund Holder concerned. The normal procurement process applies for the procurement of ICT Equipment through SITA Transversal Contracts, until the gCommerce procurement portal is available. Assets may not be acquired by means of the emergency sundry order or paid for via sundry payment.

Further, procurement of goods, works or services may not be deliberately split into parts or items of lesser value for the intention to avoid a certain procurement process. It also promotes the rotation of suppliers so as to encourage and create wider participation and opportunities for the advancement of designated categories. In line with the South Africa, National Treasury (2017: 23), SCM in the DOJ and CD is also tasked with the responsibility to assist end-users in conducting market or industry research for generic commodities, wherein they could identify targeted sectors and industries that are less or not transformed and pre-qualification provisions could be applied to transform such sectors and industries with a goal to support radical socio-economic transformation (South Africa, DOJ and CD, 2021: 54[7]). Further, before doing so, the end-user supported by SCM must be satisfied that sufficient capable and qualified suppliers or market players registered on the CSD exist in such sectors to tender or quote for the required goods or services, including QSE's and EME's. Aside from end-users and procurement practitioners, a number of committees participate in the buying processes of the DOJ and CD. Figure 4.8 below illustrates the said committees and their roles during the buying process.

Figure 4.8: Procurement committees and their roles

Committee	Role
Departmental Bid Specification Committees (DBSC)	DBSC compile specifications in an unbiased manner, taking into account any pre-approved standards by a relevant department or any other competent organization(s). DBSC also set out relevant evaluation criteria. The same is thereafter submitted for consideration and approval of the DBAC.
Departmental Bid Evaluation Committees (DBEC)	DBEC evaluate bids in line with criteria specified in the bid document. During this exercise, each member and the chairperson evaluate and score against each criterion whilst recording the reason for the same for all offers. Thus they decide whether an offer is disqualified or passed over. Any inconsistencies with scores must be deliberated on and resolved, led by the chairperson, and the outcome must be logically recorded in the evaluation report. This committee remains overall responsible to conduct due diligence to ascertain the preferred supplier's ability to execute the contract by doing checks such as site visits and reference checks. This is mandatory for cases exceeding R10 million. Thereafter a full evaluation report together with recommendations are submitted to DBAC for a decision.
Departmental Bid Adjudication Committee (DBAC)	DBAC is responsible to ensure that procurement processes exceeding R1 000 000.00 are not flawed. They begin by checking if specifications are drafted in compliance with the preferential procurement regulations, 2017, as discussed earlier in par 4.3.3.2. They then check if evaluation was done correctly by verifying issues such as correct scoring, consistency, fairness and reasoning provided. Upon satisfaction, DBAC considers and decides on the award to a preferred bidder.
Regional Control Committees (RCC)	The responsibility of the RCC is almost similar to that of a DBAC except that its functions are only limited to validating, consideration and deciding upon matters up to the threshold value of R1 000 000.00. Again this committee also does not necessarily consider purchases coming from DBEC, but instead, offers considered here would have been evaluated by SCM unit

Source: Researcher's own compilation

In so far as procurement is concerned, every role player in the procurement process must take reasonable, effective and appropriate steps to prevent and report irregular expenditure, fruitless and wasteful expenditure or losses resulting from criminal conduct and expenditure not in compliance with DFI instructions and other relevant regulations. As such, the committees above must ensure such compliance, although SCM must be part of these committees to provide secretariat services and an advisory role. Any other persons such as IT and Legal may

also be invited to provide technical advice, which must be logically recorded in the evaluation report for audits and future reference purposes. The DFI indicates that in addition to checks by the named committees, SCM and other bodies deemed suited must quality assure documents before advertisement and or award. Additionally, there is independence of DBAC from DBSC and DBEC by ensuring no member serves in cross functional committees. Lastly, all physical documents must be safeguarded as part of controls. On the following page, Figure 4.9 illustrates quality assurance bodies and controls in the procurement processes of various thresholds.

Figure 4.9: Control and quality assurance mechanisms in the procurement processes

Activity	Responsible official
The DBAC, Fincom and the Accounting Officer have the prerogative to request an external quality assurance based on the value and/or the complexity of the bid.	The DBAC, Fincom and the Accounting Officer
Development, strengthening and review of terms of reference for the bid committees (DBSC, DBEC, DBAC).	Chief Director SCM & CFO
Quality assurance of documents valued above R50 million to ensure compliance with prescripts and bid requirements.	Chief Director SCM & internal audit
Quality assurance of documents valued above R10 million to R50 million to ensure compliance with prescripts and bid requirements.	Director SCM & internal audit
Quality assurance of documents up to the value of R10 million to ensure compliance with prescripts and bid requirements.	Deputy Director SCM
Commodity prices paid by the Department must be tracked so as to recognize inflated quotes and to achieve value for money.	SCM unit
Payment batches above the value of R 100 000 are to be submitted electronically to the Chief Director SCM for capturing into National Treasury database and submission thereof.	End user or SCM unit
DBAC cannot consist of an official who served on either the DBSC/DBEC or made a recommendation in respect of a specific tender.	
No advisor may form part of the final decision-making process regarding the adjudication of bids.	
Documents must be physically secured, managed and classified for future references.	

Source: Researcher's own compilation

Competitive open tender processes must be followed as far as possible, unless an attempt was made and suppliers were non-responsive or parts of equipment from other suppliers would not be compatible with existing equipment. Similarly, the organization may deviate from this if such goods or services have to be designed by a specific supplier, for legislative, technological or safety reasons, wherein a certain supplier has proven their capability; or where there are only a few potential bidders; or where there is a single source who is preferred for justifiable reasons; or else there is evidence that only a sole supplier exists in the market.

4.5.1.7 Deviation

A deviation occurs in circumstances where it is impractical to invite quotations in respect of emergencies and sole suppliers. The reasons must be recorded and approval must be obtained from the delegated authority. Any other deviation will be allowed in exceptional cases subject to prior written approval being obtained from the National Treasury. Upon award, the Chief Director: SCM (National Office) is required to report within ten working days to the National Treasury and the Auditor-General all cases where goods and services above the value of R1 million (VAT inclusive) were procured by deviating from the competitive bid process.

Deviations are only allowed in cases of emergency and sole supplier. An emergency procurement may occur when there is a serious and unexpected situation that poses an immediate risk to health, life, property, environment, or in potentially dangerous circumstances that call for action and there is insufficient time to invite competitive bids/quotation. Such procurement must have prior approval from the delegated authority, and must be recorded and reported to the Chief Director: SCM (National Office) within ten working days. When the supplies or services required are ordered by e-mail, facsimile or telephone, the purchase order must be forwarded to the supplier as soon as possible after the order has been placed. Sole source procurement may occur when there is evidence that only one supplier possesses the unique and singularly available capacity to meet the necessary requirement. A letter is required from the service provider confirming sole supplier status, coupled with verification thereof by the relevant SCM unit (Regions or National Office). Aside from this, any other deviation will be allowed in exceptional cases subject to the prior written approval from the National Treasury.

4.5.1.8 Limited bidding

Under certain compelling circumstances, an organization may engage in limited bidding. According to South Africa, DOJ and CD (2021: 54[12-13]), this may occur when: a) A competitive (open) bidding process was followed, however all bids received were nonresponsive; b) Goods and services need to be procured or sourced under exceptionally advantageous conditions during a specific period only, like what may have been the case during the start of the Covid-19 pandemic; (c) A change of supplier compels the Department to obtain spare parts or additional equipment or services that are not compatible or interchangeable with existing equipment or services that were obtained from an original supplier; d) The goods, services or works to be bought have to be designed by the supplier; e) When goods, services or works can only be supplied or rendered by a particular supplier and no reasonable alternative or substitute exists, for example, original equipment manufacturer. There are legislative, technological or safety reasons to restrict purchases to suppliers who have proven their capability. In light of the above, limited bidding may therefore be applied where there are multiple sources of goods or services, however there are only a few potential bidders, or in the case of single source where only one amongst a few providers is considered for justifiable reasons or it has been proven that a sole source or one bidder exists for the required goods or services.

4.5.1.9 Direct negotiation

South Africa, DOJ and CD (2021: 54[13]) permits the direct negotiation with suppliers, subject to approval of negotiators by the DBAC; however, such must be conducted in a manner that no stakeholder is advantaged or prejudiced. The following conditions apply for direct negotiation:

- It could be undertaken in cases of urgency as a result of unforeseen circumstances where lack of planning or negligence did not play a role and where following the standard competitive bidding process or the process prescribed for urgency would not be in the Department's best interest;
- In cases of emergencies, where there is an urgent need for goods, works or services, making it impractical to use other methods of procurement, due to the time involved;
- In cases where preferred bidders were identified through a competitive bidding system;
- In cases of original equipment manufacturers (OEM's) and sole service providers, however it must be ensured that the Department receives value for money; and

- Negotiations must be led by the official that can contractually commit the Department. The objective is to reach an agreement on terms and conditions and to obtain the goods and services at a price that is fair and reasonable to both the Department and the bidder prior to the award by the delegated authority. The negotiation terms are authorised by DBAC.

4.6 THE PROCUREMENT PROCESS IN MAURITIUS

4.6.1 Background of Mauritius

Mauritius is an island country in the Indian Ocean. It is a small entity amongst the 54 countries in Africa, situated off the Eastern Coast of Africa, with land occupancy of 788 square meters, that being 0.01 % of 11 723 992 land space in Africa. Its populace was last recorded at a notable high of 1.266 million, with African Asians (Indians) being the most dominant group in this country. This population density is regarded as being the highest in Africa as well as amongst other countries in the world. Its government is made up of legislative, executive and judicial arms, with the President being the head of the state, whilst the Prime Minister holds executive power and heads the government. Out of 54 countries in Africa, Mauritius is ranked by The 2020 Ibrahim Index of African Governance (IIAG) as number 1 of the Africa's Best Governed Countries in 2020 with a highest score of 77.2%, ahead of all other African countries including SA at its position 6 with 65.8% score (Africana, 2020).

According to the preceding author, Mauritius takes the position of 'best governed country' for the 10th time in the past consecutive years since 2010. Notably, according to Nourou (2020), Mauritius received an Economist Intelligence Unit (EIU) 2019 ranking of being 1st in "full democracy" out of 50 countries (excluding Seychelles, South Sudan, Somalia, and Sao Tome and Principe) in Africa whilst being at position 18 in the world. In 2020 Mauritius secured position 20 in the world with a core of 8.14. This country remains at same position in Africa with a slight decline against the world countries, securing position 19, scoring in 2021 EIU rankings with a score of 8.08.

Can "full democracy" contribute to good governance? That a question for future exploration as it falls outside the scope of this work. It is however this study's view that when a country is best governed, all its business affairs, including government procurement, should be in 'good order', hence the government of this country sparks the interest of this study.

4.6.2 Public procurement laws, processes and procedures in Mauritius

Similar to SA government procurement, that of Mauritius is governed by laws. Some of these include the Public Procurement Act 2006 as amended December 2021 as well as the accompanying Public Procurement Regulations 2008 as amended as amended November 2021. These laws, as issued under the ministry of Finance, Economic Planning and Development, currently spearheaded by the honourable Dr Renganaden Padayachy, conjointly direct how the procurement of goods, works and services in this country should be sourced.

Although these kinds of instructions cannot be traced back to this country's short 122 sectioned Constitution like it is in section 217 of the RSA constitution, it can be traced to the Finance and Audit Act, where sections 21 and 22 direct that the Minister designates person(s) to collect and pay revenue and in turn control the expenditure of an entity (Mauritius, Department of Finance, Economic Planning and Development, 2022). Moreover, the Minister has powers to issue instructions related to the collection, receipt, custodianship, issuing, expenditure, due accounting for, care and management of any public monies where he or she sees fit to better carry out the provisions of this Act. This also includes issuing instructions regarding reporting and document control related to an entity's financials.

The following constitutes a guide on how procurement is to be conducted in Mauritius as per Mauritius, Department of Finance, Economic planning and Development (2006).

Note: This does not apply to procurement undertaken for and/or in the below manner:

- To protect national security or defence
- Arrangements or agreement with foreign state(s) where Mauritius is to benefit from that state's expertise and development experience.
- In respect of ICT projects requiring interface with different currently existing systems;
- Where the Minister considers the initial or previous developer of the system due to confidentiality of sensitive information and potential risk in project execution.

Instead these kinds of procurement are handled by the Ministry concerned with assistance from the Board and Policy Office which provides guidance on how the Ministry should perform due diligence.

This policy applies to any other procurement effected by a public body other than those exempted. Exempted organizations are responsible for the establishment of their own procurement rules. Mauritius, Department of Finance, Economic Planning and Development (2006) and Mauritius, Department of Finance, Economic Planning and Development (2008) indicate that regarding governance of a procurement function in Mauritius, there exists a policy office.

4.6.2.1 A policy office

This office, according to Mauritius, Department of Finance, Economic Planning and Development (2006), shall be headed by a Director and two other independent persons appointed as advised by the Prime Minister, post consultation with the opposition. These persons shall be appointed on a three-year term contract subject for re-appointment for one additional term. Coupled with this shall be the appointment of professional staff, also on a contract basis, who should be of high integrity and have extensive experience in the field of procurement, with a strong background in legal, financial and administrative matters. This office serves multiple roles, including policy making and policy monitoring, which excludes any form of implementation, plus dispute resolutions related to procurement issues. Instead it facilitates the implementation, and recommends actions and measures to improve a procurement system, including procurement planning, the introduction of ICT and the setting up of websites dedicated to procurement.

It can also formulate directives, procedures, instructions, technical notes and manuals to direct the implementation of the Public Procurement Act and train public officials, contractors and suppliers and any other programmes that promote professional standards and development in the field of procurement. These, according to Mauritius, Department of Finance, Economic Planning and Development (2008: 2), it aims to achieve through rule and procedure sharing, giving opinions, guiding, and proposing solutions so as to fulfil the objectives of the procurement regulations. It provides guidance in the consistent application of this Act. It can instruct a public body to enter into an agreement for itself, for the other public body, or public bodies. It issues mandatory standard bidding forms, contract forms and any other like documents for use by public bodies implementing procurement.

Moreover, it can consult with the Board, the Review Panel, or any public body whilst developing procurement policy for the government. It also consults with the business

community to obtain their views on the effectiveness of a procurement system and analyses the procurement experiences and practices of other countries; thereafter it annually reports to the Minister with regards to the overall functioning of a procurement system of the country. Other powers of the procurement office include requesting and examining records and/or performing a procurement audit as needed, and any person who interferes with the above commits an offence. Public bodies who have been found non-compliant with any of the procurement directives, including this Act, shall be referred to Head of the Civil Service by the director of Policy Office, who recommends action as he or she may see fit. After all, in the exercise of its functions, the Policy Office shall act without fear or favour and shall not be subject to the direction or control of any other person or authority. The Head of the Civil Service, where needed, will then refer the matter to the Police for enquiry.

4.6.2.2 Central procurement board

According to Mauritius, Department of Finance, Economic Planning and Development (2006), Mauritius makes use of a central procurement board for consideration and award of major contracts for public bodies. Major contracts are defined as those contracts that exceed the maximum threshold which a public body can handle as indicated in Appendix A5 attached. This board shall consist of a Chairperson, Vice-Chairpersons, and other persons; these members must possess comprehensive experience in legal, administrative, economic, financial, engineering, scientific or technical matters, to be appointed by the President of the Republic of Mauritius as advised by the Prime Minister, who himself should have consulted leaders of the opposition. Person(s) in this board also serve three years, though are eligible for an added term of re-appointment. Any other persons may be co-opted any time where expert opinion is needed. This board reports on its activities of the past financial year within six months after the close of every financial year. This is the same board that the Chief Executive Officer of any public body notifies in writing of intent to enter a major contract. The board authorizes for advertisement to occur and thereafter approves the award of every such major contract, with the exception of those concluded as emergencies. The choice of procurement processes that may be adopted by a public body are discussed in detail in Figure 4.10.

4.6.2.3 Chief executive, secretariat and support staff

Along with the central procurement board shall be the appointment of a Chief Executive who shall be a public officer and who shall be responsible for the execution of the policy of the board and for the control and management of the day-to-day business of the board. This Chief

shall attend all board meetings, and may participate in their deliberation with no voting rights. He or she reviews the recommendations of a bid evaluation committee, certifies correct application and compliance to all procurement in accordance with this Public Procurement Act, acts in accordance with such directives as he or she may receive from the Board, and thereafter accounts and answers to the board. Under the Chief's control should also be a Secretary devoted to serve the board, and other public officers where necessary to support the Chief. These persons may be designated by Head of the Civil Service and/or be appointed on a contract basis by the board. Figure 4.10 shows a choice of procurement methods that procurement bodies may choose to utilize.

Figure 4.10: Choice of procurement methods in Mauritius

Method		**Nature**	**Value (if applicable)**
Open advertised bidding	Open national bidding	Bids are advertised in a national newspaper with wide circulation. Only citizens of Mauritius or entities incorporated in Mauritius may bid for bid invitation as per prescribed criteria	
	Open international bidding	Bids are advertised in an international newspaper with wide circulation. It applies for the prescribed threshold. Where goods, works or other services are not available from more than one supplier in Mauritius – no competition exists. Where national bidding was undertaken, but no responses received.	200 million rupees But par 2 and 3b of regulations contradict
Restricted bidding		Where it is believed that goods, other services or works are only available from a limited number of bidders, bids can be directly solicited from them. Where time and cost to consider open bidding is inconsistent with the value of the procurement. However, in this instance bids shall be, as	200 million rupees

	far as reasonably possible, directly solicited bids from a minimum of 5 bidders. Where a pre-approved list of eligible suppliers already exists in a public body, this is mainly done with regard to suppliers of specialised goods and services so as to sustain their technical and financial aptitude.	
Request for sealed quotations	This procurement method may be applied only in the instances of commercially standardized goods that need not be specifically manufactured to suit the specification of a public body and where quantities of works and other services are small. Such quotations shall be requested from not less than 3 bidders in writing unless items is not available from the three suppliers. Requirements should be clearly defined in terms of quality, quantity, terms and time of delivery and any other special requirements. One sealed quotation from each bidder may be receipted, which may not be altered or negotiated.	5 million rupees
Emergency procurement	This can be undertaken under extreme urgency but should be limited to the period of the emergency such as:	

	When the country is either seriously threatened by or actually confronted with a disaster, catastrophe, war or act of God; Where life or the quality of life or environment may be seriously compromised; When the condition or quality of goods, equipment, building or publicly owned capital goods may seriously deteriorate unless action is urgently and necessarily taken. This kind of need for procurement shall be evaluated for its emergency nature by the Chief Executive Officer of the public body who decides on the manner to proceed in order to guarantee value for money, with due regard to prevailing circumstances. • One of the following methods may be decided upon for use by the Chief Executive Officer depending on the level of emergency and the time available: • Extending or modifying an ongoing contract under the same terms and conditions	

	• Call for competition using a restricted or open advertised bidding with accelerated timescales • Competitive negotiations • Direct award due to absence of competition or protection of exclusive rights; or • Direct award due to extreme urgency Before authorizing the Chief Executive Officer shall ensure amongst others that • Such procurement would address solely the emergency, couldn't have been possible to source via normal procurement, quantities shouldn't exceed the duration of an emergency situations, awards should go to reputable suppliers with track records and charging fair and reasonable prices. • All such awards must be recorded, kept, published and be immediately reported to the policy office.	
Direct procurement	This occurs when a public body purchases goods, other services or works from a single source without competition. This is permissible in circumstances where:	Valued 500,000 rupees or less, wherein single item cost is

	• A sole supplier has exclusive rights to manufacture the goods, carry out the works, or perform the services to be procured by a public body and a suitable source is not available. • Additional deliveries of goods by the original supplier which are intended either as partial replacement or extension for existing goods, services, or installations and where a change of supplier would compel the public body to procure equipment or services not meeting requirements of interchangeability with already existing equipment or service. • As a result of unforeseen reasons, subsequent additional work or continuity is required and it was not included in the initial contract.	100,000 rupees or less.
Competitive negotiations	If, due to urgency emanating from of any dilatory conduct, catastrophe, or unforeseeable circumstances, and where irregular or unacceptable bids were received after open advertised bidding or restricted bidding and it would be impractical to engage in open competitive bidding, then at least 5 bidders who have the technical and financial capacity to perform the contract may be invited to participate; three to be shortlisted and awarded.	

	At times this process is done as a complementary procedure where (a) there is a tie of 2 or more bidders or (b) where the lowest evaluated prices exceed the estimated cost. For (b), a public body must re-invite bidders whose quotes are 25 per cent. Once negotiations are completed, bidders shall submit their best and final offers by a specified date and time, with respect to all aspects of their proposals; thereafter no further negotiations may take place. Although this method applies where it is regarding the security interests of Mauritius, no further clarification of how to go about doing so is explained in the Act nor in the regulations.	

Electronic reverse auction	This method applies in simple procurement that will be evaluated solely based on price and where procurement provisions are accurately specified. The applicable process is that a public body will invite all registered suppliers in a specific category to compete by advertising its requirements on the electronic procurement system and its website, including the time limit and goods specifications; offered prices by other bidders will visible to other bidders within the scheduled time without revealing bidder's identity; once pre-qualified, a supplier may not revise its bid upwards within the scheduled time. Thereafter the bid shall be awarded to a lowest bidder at a deadline for the submission of bids subject to the reserve price set by the public body.	

Source: Researcher's own compilation

4.6.3 Bidding process in excess of public body's threshold in Mauritius

Where procurement of goods, services and works exceed the maximum threshold permissible for a public body as depicted in Appendix A5, it is referred to the procurement board. In this instance, the board receives and vets notices from public bodies, publicly advertises bids, and selects persons from its list of qualified evaluators to serve on the bid evaluation committee. At times, the board attends to contracts that, as a result of variations in contracts previously concluded by a public body, the threshold value now exceeds the public body's prescribed limit by more than 20%, or else after a bid advert by a public body, the responsive lowest bidder's quoted price exceeds that of the public body's prescribed amount. However, as per regulations, at least three persons that possess sound knowledge for the goods or services under offer and who have knowledge of public procurement procedures shall constitute the board of the bid evaluation committee. This committee will then examine, evaluate and compare and determine the lowest suitable bid.

The minutes and other records of these committees shall be available whenever required for the policy office's inspection. This government allows bidding by international markets, however the criteria and the applicable percentage preferred for domestic or regional goods, services or contractors shall be stipulated. Nevertheless, for purchases where no prequalification criteria apply and where the cost of goods and/or services exceeds 300 million rupees, such purchases should be restricted to local service providers. No person may serve both in the bid evaluation committee as well as in the bid adjudication committee, however any other expert may be appointed on an advisory and technical capacity to assist. Amongst these persons, someone from the office of the Chief Executive Officer shall be appointed in a secretariat role. The Chief Executive evaluates offers to check compliance to procurement laws, which thereafter gets evaluated and approved by the board or referred back to the evaluation committee for a fresh or further evaluation on specified grounds. Elements of fairness, equal treatment, value for money in terms of price, quality and delivery, having regard to set specifications and transparency, shall be abided by, by the board.

4.6.4 General bidding procedures in Mauritius

Notably, as per Mauritius, Department of Finance, Economic Planning and Development (2008:7), every procurement begins with procurement planning. Every public body must prepare a master procurement plan for every investment that will cover the entire project life,

and thereafter annually prepare an annual procurement plan of the project. The plan should cover the following:

(a) the type and quantity of the goods, works or services to be procured;
(b) the timing and implementation of the procurement;
(c) an indication of possible packages of procurement, and their value;
(d) an indication of possible pre-qualification proceedings and procurement methods to be used;
(e) such other information as may be required in accordance with instructions issued by the Policy Office.

This will assist in ensuring that procurement is carried out within the allocated financial estimates. This procurement plan must be published in that public body's website as and when reviewed. The same is informed by, amongst others, a needs assessment, market research on available solutions in the commercial market, identification of available suitable suppliers, to determine the most favourable contractual and guarantee terms available in the commercial market that would be suitable for procurement and estimation of costs.

No matter under whose jurisdiction the procurement resides, the following bidding procedures apply for every procurement contract as per Mauritius, Department of Finance, Economic Planning and Development (2006):

Firstly, there shall be an electronic bidding system to receive and process bid documents for evaluation, and for the award of any procurement contract. Some procurement must be reserved for small enterprises, medium enterprises, and microenterprises (SMMEs). For instance, for large or complex works, or works of high value, the Mauritius government allows for prequalification, for which they can ask bidders to respond to invitation to submit applications to pre-qualify. A list of successful applicants shall immediately be made available to each applicant. Thereafter bid documents should be issued to these prequalified bidders or any other bidder if the prequalification was not a prerequisite. These documents must stipulate preferences and evaluation criteria. At times, public bodies are permitted to undertake a two-stage bidding process wherein it is not feasible to fully define the technical or contractual scope. In the first stage, the bidding documents shall outline the purpose, the expected performance, the broad specifications of the equipment or works to be procured, and the qualifications

required to perform the contract, then call upon bidders to submit technical bids without a bid price and their comments on the proposed contract conditions. After this, a public body may opt to engage bidders with a view to understand technical aspects or to discuss changes that will make offers acceptable. After rejecting those that still remain non-responsive, the public body concludes on technical specifications, evaluation criteria, and contract conditions in order to maximise competition and articulate appropriate evaluation methodology in order to consider various options put forth by the bidders. In the second stage, only those bidders that were not rejected are invited to submit final bids. Every contractor disqualified may not be allowed a chance to bid; this includes also those contractors whose performance was substandard in previous public contracts, who failed to deliver satisfactory goods, works or services, and have caused prejudice to the public body in the past. At the closing date, place and time of the bid, bids must be opened, and bidders or their representatives shall be allowed to attend.

The process of calling out and recording of every bidder's name, their total bid price, any discount or alternative offered, and the presence or absence of any bid security, takes place. The same record can be given to bidders upon request. This is followed by evaluation, where the lowest responsive bidder is checked against the specified criteria. Thereafter, the contract is awarded to the bidder having submitted the lowest evaluated substantially responsive bid. The Chief Executive Officer of a public body must certify that procurement rules have been met. Thereafter a public body must, within 5 days from the date of receipt of approval from the Central Procurement Board, promptly publish notices of the procurement award. Unsuccessful bidders may request reasons for being unsuccessful; if received within 30 days after the notice mentioned above, a public body must debrief such bidders. It is the duty of the auditor of every public body to report on compliance with the above instructions, annually.

Framework agreements represent another means of procurement, whereby the need is expected to recur for a given time period or the policy office believes that such needs will be best satisfied through a framework agreement. Noted also is a listing of Departmental execution as a method of procurement in Mauritius; here, a public body opts to perform services itself due to a number of reasons, including the case where it is difficult to estimate costs upfront, it is a pilot project, and/or works are not likely to attract bidders in view of the size, nature, location or scattered locations, and financing. This method however falls outside of the scope of this study as it does not involve a procurement procedure which is the purpose of this study.

4.7 THE PROCUREMENT PROCESS IN NAMIBIA

4.7.1 Background of Namibia

Namibia is a country in the southwest of Africa. It is bordered by Angola to the north, Zambia to the northeast, Botswana to the east, South Africa to the southeast and south, and the Atlantic Ocean to the west. Namibia occupies a land space estimated to be 824 290 square kilometres with a population of about 2,533,000 people. Of these, about 85 percent of persons are Black, 5 percent are of European ancestry, and 10 percent, in South African terminology, are Coloured (Cape Coloured, Nama, and Rehobother). Of the Black majority, about two-thirds are Ovambo, with the Kavango, the Herero, the Damara, and the Caprivian peoples following in population size. Other ethnic groups have much smaller populations. Afrikaners and Germans constitute two-thirds and one-fifth of the European population, respectively.

This country is governed through Executive, Judicial and Legislative arms, where a democratically elected President appoints Prime Ministers to head the government. The National Assembly holds powers as the primary legislative body, advised by the National Council; the judicial being the court of last resort and highest appeal. The 2020 Ibrahim Index of African Governance (IIAG) (2020:21) ranked Namibia position 7 with a score of 65.1 amongst the best governed countries in Africa. On the other hand, the Economist Intelligence Unit (EIU) 2019 ranked it as position 8, titled as having a “flawed democracy” with a score of 6.43 in Africa, whilst securing positions 58 and 55 in the world, at a score of 6.52 in the years 2020 and 2021 respectively.

4.7.2 Public Procurement Laws, Processes and Procedures in Namibia

The procurement process in Namibia is governed through the Public Procurement Act No. 15 of 2015 along with Public Procurement Regulations, 2017. These laws have their roots in Article 23 of the Namibian Constitution that prohibits the continued suffering of its people emanating from the past apartheid era. Powers are now given to Parliament to enact legislation that is aimed directly or indirectly at the advancement of persons within Namibia who have been socially, economically, or educationally disadvantaged in the past, through affirmative action (Constitution of Republic of Namibia, 1990 as amended 2010: 16-17). According to Namibia, Office of the Prime Minister (2015: 9), the Public Procurement Act’s role is to regulate, amongst others, the procurement of goods, works and services, the letting or hiring

of anything, or the acquisition or granting of rights. Further, it is to establish and provide powers and functions of the procurement management units, procurement committees, Procurement Policy Unit and the Central Procurement Board of Namibia. It also provides directives regarding the appointment of bid evaluation committees and their functions. Further, it provides directives related to procurement methods, bidding processes, bidding challenges and reviews, preferences to categories of persons, goods manufactured, mined, extracted, produced or grown in Namibia, as well as with regard to Namibian registered small and medium enterprises, joint venture businesses, local suppliers, contractors and service providers and incidental matters. The main aims of the Act are to promote integrity, accountability, transparency, competitive supply, effectiveness, efficiency, fair-dealing, responsiveness, informed decision-making, consistency, legality and integration in the procurement of assets, works and services. It sets to achieve this by integrating procurement policies, systems and practices, such that they maximize the economy of the country.

It also builds capacity, sets and reviews procurement standards and practices and monitors compliance to these by public entities. Further, it sets measures to promote, facilitate and strengthen the implementation and empowerment of industrialisation policies so as to promote or prefer its own firms, and Namibian natural persons or categories of persons, thus creating jobs for Namibian citizens. Public procurement regulations support the implementation of the Act. Notwithstanding, where the application of certain provisions is not practical or appropriate for the Namibian Defence Force, Namibian Police Force, Namibia Correctional Services and Namibia Central Intelligence Service to procure goods, services or works, the Minister may for that specified or unspecified period issue a general or specific exemption. The procurement of the same then becomes strictly confidential and secret. Again, with or without condition, the Minister may grant a general or specific exemption by way of a directive for specific types of procurement where she or he sees necessary.

4.7.3 Role Players in the Procurement Process in Namibia

4.7.3.1 Procurement policy unit

According to Namibia, Office of the Prime Minister (2015: 9), there shall be a specialized Procurement Policy Unit, established within the Ministry of Finance. This unit obtains its administrative assistance from staff members of the Ministry who deal with finance-related matters. The role of this unit is to advise the Minister on any procurement or disposal related

matters. This includes compliance monitoring and review for both procurement and disposal, assessing the impact of procurement systems on the socio-economic policy objectives of the Government, and assessing disposal methods. This unit performs a variety of functions, such as: making proposals to the Minister on e-procurement; preparing guidelines for the same and for the letting or hiring of anything or the acquisition or granting of any right for or on behalf of public entities; disposing of assets; proposing procurement and disposal; proposing various thresholds; providing advice on procurement to public entities including monitoring, training staff, reporting on the performance of the system, contractors and suppliers; setting up mandatory training standards, capacity building and competence levels; setting up certification requirements and professional development paths for procurement practitioners in Namibia with the consent of the Minister; and also preparing, updating and issuing directives, instructions, guidance notes and manuals, including any other incidental documents for mandatory use by public entities.

Moreover, it issues authorised versions of the standardised bidding documents, standard forms of contracts, pre-qualification documents, procedural forms, requests for proposals and other similar documents for mandatory use by every public entity implementing procurement. It sets a list of services and supplies in common use by more than one public entity for centralised procurement, using, among others, procurement contracts, standing offers and supply arrangements. It keeps a roll of suppliers of goods, works and services, including their profiles. In the same vein, it may summon information, documents, records, reports and persons related to procurement processes, and perform investigations. Where any form of wrong doing is done, it may recommend that appropriate actions be instituted by the appointing authority or may refer the matter to Namibian Police, Anti-Corruption Commission or any other competent authority for further investigation. It is the responsibility of the Minister to appoint person(s) to serve the functions of the Procurement Policy Unit and the names of those persons must be reported to the National Assembly.

4.7.3.2 Central Procurement Board

In line with the requirements of Namibia, Office of the Prime Minister (2015:12), there shall be an established juristic *person* to be known as the Central Procurement Board of Namibia. This person's role will be to direct and supervise accounting officers in their management of the implementation of procurement contracts that are awarded by the board. Furthermore, this board conducts the bidding processes and enters into contracts or procurement or disposal of

assets on behalf of public entities, that are either initiated by itself or that are referred to it by a public entity if it exceeds the public entity's threshold as listed in Appendix A6. It also oversees the examination and evaluation of bids, amongst other things. It has also a fiduciary duty, in the best interests of the board and that of the procurement system, to act with honesty, integrity and fidelity. It must be transparent, accountable and obtain best value for money whilst exercising care and diligence in their duties. The position as a member must not be used for gain or to have an advantage, directly or indirectly, nor to make known the confidential information obtained by virtue of being a member that is entrusted to him or her. Any member who does so commits an offence and is liable to a fine not exceeding N$500 000, or to imprisonment for a period not exceeding 10 years, or both.

The board itself consists of nine members; directions stipulate that no more than five of them may be of the same gender, and all must be suitably qualified, fit and having proper knowledge and experience related to the functions of the board. They get appointed by the Minister through a fair, open and transparent prescribed process of invitation, interview and recommendation by a recruitment committee. Amongst the nine members, the Minister must appoint two members, of whom one must be a female, to serve as both Chairperson or Deputy Chairperson and administrative head or deputy administrative head of the board on a five-year full-time basis. Subsequently, the Minister must report this in the National Assembly, publish an announcement of same in the Gazette, and must sign performance agreements with these incumbents within 30 days upon appointment. The Chairperson assumes the responsibility of being an accounting officer of the board. The term of other members of the board is limited to only three years.

4.7.3.3 Bid Evaluation Committee

The board or AO shall make appointment of the ad hoc BEC to evaluate bids as may be required. One of the members must be appointed as a chairperson. The same must be constituted by at least one or two members from the user department, and a person who compiled bid documents if it is anticipated to become useful or add value. However, in total, members of the BEC must be between three to seven persons, after consultation with the Policy Unit. The BEC evaluates the bids, proposals, and quotations and in turn submits a report to the next procurement committee. To avoid conflict of interest and secure independence, no board member, AO and or a member of a procurement committee of the public entity whose bid is under consideration may form part of the BEC.

4.7.3.4 Procurement committee

As per Namibia, Office of the Prime Minister (2017: 5-6), a procurement committee performs roles such as overseeing procurement processes conducted by public entities; reviewing and recommending the evaluation of pre-qualification or bids submitted by the BEC, as well as submissions made for variations, addenda or amendments to contract awards to the AO; and ensuring contract implementation in is order as per contract terms and conditions. Thereafter the committee reports all contract awards to the AO of the public entity annually. This committee is constituted by between three to five members. This includes a financial advisor or manager responsible for finance, one or more other persons at management level and their substitutes appointed in writing by the AO, and the head of the procurement management unit who is an ex-officio member to act as Secretary to the committee. Also, amongst these members, there must be a Chairperson and a Deputy Chairperson. Where, due to an entity's size, it is impractical for an AO to constitute a procurement committee, he or she may consult a policy unit to recommend persons(s) from other procurement committees to be seconded and be appointed by the AO to his or her entity's procurement committee. Likewise, where an AO wishes to appoint more than one procurement committee for perhaps different thresholds, a policy unit may be approached to consider approval.

4.7.3.5 Procurement management unit

Namibia, Office of the Prime Minister (2017: 6) asserts that the procurement management unit must be established within an entity. Depending on the size of a procurement management unit and the level of seniority of the staff in a public entity, this unit must consist of a head and supporting staff; or just a person responsible for procurements in small public entities. This means the size of the unit must be proportionate to the value and volume of procurement in that public entity. The unit's responsibility is to manage the procurement activity from inception to contract award. Their role however excludes evaluation of bids, awarding and/or termination of procurement contracts. Instead, its role is to provide a secretariat, administrative support and technical inputs to procurement committees; to serve as the channel of communication for the public entity procurement, handle complains and report to the AO on how such may be resolved; to prepare annual procurement plans and initiate the buying activity on receipt of a purchase requisition approved by the AO; and overall, to implement procurement policy directives of a public entity. For this, it will need to decide on a procurement method in line with subsection 27 of the Public Procurement Act with reasons for

the same. Subsequent to advertisement and award, a procurement management unit must monitor progress and delivery in line with the contract terms thereof. This unit is responsible for initiating the necessary actions against defaulting suppliers and contractors, and providing timely reports to the AO and the Policy Unit. Lastly, this unit is responsible for maintaining and keeping records of procurement of a public entity in accordance with the provisions of the Act.

4.7.3.6 Accounting officers and other persons as role players in the procurement process

One amongst other key role players in procurement is the AO of each public entity. According to Namibia, Office of the Prime Minister (2015: 21), the AO is responsible for setting up an internal organizational structure which includes a procurement committee and procurement management unit for the conduct and management of procurement of that public entity. He or she therefore takes full accountability for the Public Procurement Act and any other prescripts related to procurement that may be issued from time to time. Moreover, the AO performs procurement planning, via an annual procurement plan, certifies the availability of funds before project commencement, and is responsible for the recording and safekeeping of internal proceedings in the form of documents such as minutes.

Lastly, as per Namibia, Ministry of Finance (2017: 6), an AO may accept the recommendation to award from the procurement committee or may subject the recommendation for re-evaluation by BEC. Again there shall be administrative staff appointed by the board, of which one member from these persons shall be designated to serve secretariat duties of the board (Namibia, Office of the Prime Minister, 2015: 18-19). Figure 4.11 constitutes a choice of procurement methods in Namibia as set out in Namibia, Office of the Prime Minister (2015) as well as Namibia, Office of the Prime Minister (2017).

Figure 4.11: Choice of procurement methods for goods, works and non-consultancy services in Namibia

Method		**Nature**
Open advertised bidding	Open national bidding	Participation is limited to the citizens of Namibia. It is also restricted to entities incorporated in Namibia with no less than 51 percent equity that is owned by Namibian citizens, of which no less than 30 percent is owned by previously disadvantaged persons.
	Open international bidding	Bids are advertised internationally where estimated value of the procurement exceeds the prescribed thresholds indicated in Appendix A7 attached. Where goods or services are not available under competitive bidding and other conditions from more than one supplier in Namibia. Where national bidding was undertaken, but no responses received.
Restricted bidding		Where it is believed that goods, other services or works are only available from a limited number of bidders, bids can be directly solicited from all of them but should be of a minimum of five. Where time and cost to consider open bidding is inconsistent with the value of the procurement and the estimated value of the procurement does not exceed the prescribed threshold. Where a pre-approved list of eligible suppliers already exists in a public entity; this is mainly done with regard to suppliers of specialised goods and services so as to sustain their technical and financial aptitude.

Request for sealed quotations	This procurement method may be applied in instances where goods are readily available in the market and need not to be specially manufactured for the need of a public body and where quantities of works and other services are small. Such quotations shall be requested from not less than 3 bidders in writing unless the item is not available from the three suppliers. Request should clearly state quality, quantity, terms and time of delivery and any other special requirements. One sealed quotation from each bidder may be receipted, which may not be altered or negotiated. The awards and issuing and delivery of a purchase order to the winning supplier is based on the lowest priced quotation obtained which has complied with technical specifications and commercial terms. The same constitutes a binding contract to which a supplier must acknowledge its receipt in three days, may not change or alter its terms, and shall subsequently undertake to deliver on or before the date set in a purchase order.
Direct procurement	This occurs when a public body purchases goods from a single source without competition. Before this method is chosen, a public entity must ascertain if none of other methods listed in subsection 27 of the Public Procurement Act can be utilized. Again the same is permissible in circumstances where:

	• A sole supplier has exclusive rights to manufacture the goods, carry out the works, or perform the services to be procured by a public body and a suitable source is not available, or else; • Additional deliveries of goods by the original supplier which are intended either as partial replacement or extension for existing goods, services, or installations and where a change of supplier would compel the public body to procure equipment or services not meeting requirements of interchangeability with already existing equipment or service. • As a result of unforeseen subsequent additional work or continuity is required and it was not included in the initial contract; and/or • Due to unique qualifications.
Emergency procurement	In cases of emergency, a public entity is permitted to procure goods, works or services using the direct procurement method. This can be undertaken in cases such as: • When the country is either seriously threatened by or actually confronted with natural disaster, catastrophe, war • Where life or the quality of life or environment may be seriously compromised When the condition or quality of goods, equipment, building or publicly owned capital goods may seriously deteriorate unless action is urgently and necessarily taken. This kind of procurement shall be limited only to the time of emergency to allow competitive procurement processes to be utilized once the emergency period ends.

	• All such awards must be recorded, kept, published and be immediately reported to the policy office.
Small value procurement	A public entity may procure small quantities of goods, small works and services without formal competition; however, such must not be in excess of the acceptable threshold. Records of quotations obtained in this way must be maintained per proper filing and a report must be duly signed by the AO containing information on the approved decision for the procedure and choice of bidder, including the basic details of the offer, such as price, payment model, timeframe for delivery and any other data necessary for procurement.
Electronic reverse auction	Where an electronic reverse method is to be used, a public entity shall advise suppliers of, amongst others, the evaluation formula it will use, how such auction will be accessed, deadlines for registration, and dates of openings to submit offers, including closing dates. However, the bidder that bids at the lowest price at the closure of the electronic reverse auction is the successful bidder, unless otherwise provided for in the invitation. This method is practicable if it is feasible for the public entity to formulate a detailed and precise prescription of the subject matter of the procurement, there is a competitive market of bidders expected to qualify to participate in the electronic reverse auction to allow effective competition, and that the criteria to be used by the board or public entity in determining the successful bid are quantifiable and can be expressed in monetary terms.

Source: Researcher's own compilation

The existence of requests for proposals or expressions of interests in a consultancy services method of procurement, which mainly deals with procurement of consultancy services as well as execution by public entities, is also noted; however, they fall outside the scope of this work.

4.7.4 Bidding Process in Namibia

Where there is a need for the supply of goods, provision of non-consultancy services or for undertaking the works, according to Namibia, Office of the Prime Minister (2017: 30-38) as well as Namibia, Office of the Prime Minister (2015: 30-38), the board or public entity must prepare an invitation to bid, which directs suppliers to submit offers. For large and complex procurement, such as those that involve high values, the board or a public entity must conduct pre-qualification proceedings with a view to identify bidders that are qualified, before the invitation to bid. Where pre-qualification is applied, the public entity or the board issue pre-qualification documents to all bidders responding to the invitation, to allow them vital information to prepare and submit applications for pre-qualification. Thereafter a list of successful applicants is made available to each applicant. Only those successfully prequalified are issued with and allowed to make bid offers.

At times the board or a public entity may subject bidders to a two stage open advertised bidding. This occurs mainly where it is not feasible to fully define the scope of works in the manner that ensures competition due to its technical or contractual aspects. For this purpose, the advertising body would first provide information such as the purpose, expected performance, the broad specifications of the equipment or service to be procured, and the qualifications that one needs to perform the contract. Bidders will then respond with technical bids without a price. After this process, the bidding body may engage bidders with the view to understand technical aspects and/or to request changes to make bids acceptable. The end of stage one may cause the board or public entity to reject offers and/or change technical specifications, evaluation criteria, and contract conditions in order to maximise competition. Stage two thereafter deals with actual invitation of bids with price offers. It is followed by the submission of bids in writing, duly signed and in a sealed envelope at the address specified in the bidding documents on or before the set deadlines.

Bids received past the due date must be returned unopened to the bidders. Similarly, those whose standing is not good with the receiver of revenue, does not have a valid certificate of good standing with the Social Security Commission, is not in possession of a valid affirmative

action compliance certificate, or did not submit proof from the Employment Equity Commissioner as evidence that the bidder or supplier is not a relevant employer. In terms of the latter, the bidder must submit an undertaking that all persons directly or indirectly employed for the purpose of fulfilling the contract is employed on terms and conditions not less favourable than those provided for in a collective agreement in that industry or for similar work in the industry at the region or neighbouring region in which the employees are employed, as per Namibia, Labour Act (2007: 111). Amongst other things, as part of the qualification criteria, bidders must provide a bidding entity with a manufacturing record, technical competence such as past three-year key deliveries, financial capability and competence of professionals involved in the installation of such goods, and a catalogue or product list offered for a specific period, its maintainability, service, and spare parts availability.

The opening of bids takes place at the date and time of closing or follows immediately thereafter as may be compelled by logistical reasons. Thereafter bids are evaluated based on the criteria and methodology set out in the bidding documents; they are compared on costs to each other to determine the most economically advantageous bid. Upon finalization of this, the board or a public entity may cancel a bid where all received bids are non-responsive, the lowest evaluated bid is above the acceptable price, and where it has been established that there have been irregularities or collusion between bidders. If all went well, the procurement contract will be awarded to the lowest evaluated bid, the considerably responsive bid which meets the qualification criteria specified in the pre-qualification, or bidding documents were met. An intention to award shall be communicated to both a successful bidder and other bidders, specifying details like price and name of successful bidder. The successful bidder gets awarded after seven days where no application for review of decision is submitted by other bidders.

4.7.5 General Bidding Principles in Namibia

The AO may be required to furnish reasons for unsuccessful application for a bid or pre-qualification to unsuccessful bidders promptly upon their application. According to Namibia, Office of the Prime Minister (2015: 42-43), in performing their duties, staff involved in the procurement process must be fair and impartial and act without fear, favour or prejudice to anyone, ensuring fair competitive access to procurement by suppliers. They must avoid any conflict of interest, uphold confidentiality, and always act in the best interest of the public. Where conflict is anticipated, one must disclose and recuse themselves from the proceedings.

Any person who acts in contravention to this commits an offence and is liable to a fine not exceeding N$5 000 000 or imprisonment for a period not exceeding 10 years, or both.

4.8 THE PROCUREMENT PROCESS IN SOMALIA

4.8.1 Background of Somalia

Somalia is the easternmost country of Africa, on the Horn of Africa. It is bounded by the Gulf of Aden to the north, by the Indian Ocean to the east, by Kenya and Ethiopia to the west, and by Djibouti to the northwest. Somalia's western border was arbitrarily determined by colonial powers and divides the lands traditionally occupied by the Somali people. As a result, Somali communities are also found in Djibouti, Ethiopia, and Kenya, and the border remains a source of dispute. It comprises an estimated population of 14,354,000 and land occupancy of 637 540, that being 5.44% of 11 723 992 square kilometres of land space in Africa. It is governed through a federation wherein, according to the Transitional Federal Charter of the Republic of Somalia (2004:6), a decentralised system of administration was adopted, made up of The Transitional Federal Government, State Governments (two or more regions federate, based on their free will), Regional Administrations and District Administrations. In the 2020 Ibrahim Index of African Governance (IIAG), Somalia is ranked the least "best governed" country in Africa with the lowest score of 19.2.

4.8.2 Role Players in the Procurement Process in Somalia

In accordance with the instruction of Somalia, Ministry of Finance (2015), the following constitutes the procedures, processes and role players in procurement for this country.

4.8.2.1 Public Procurement Authority

According to Somalia, Ministry of Finance (2015: 23), a semi-autonomous public body known as a public procurement authority shall be established. This body shall be managed by a board of directors of nine persons known for their transparency and management expertise, to be appointed by the President of the Federal Republic of Somalia, on the advice of the Council of Ministers, and a secretariat. Of these nine persons, one of which must not be employed by the public sector, have no conflict of interest with functions of the board and is well skilled about public procurement and public administration in general, must be appointed as a chairperson. Four other persons must be nominated from the private sector with similar skills as the chairperson.

The last four must be nominated from the public sector; one being a lawyer and three others with experience in public procurement or knowledgeable about governmental and multi-lateral agency procurement procedures. These persons hold office for four years, subject to good or acceptable conduct and performance, with eligibility for re-appointment for another four years. This authority will function as an oversight body so as to harmonize the public procurement processes, thus ensuring that the purposes of the Public Procurement Act are achieved. Although it may acquire, enter into contracts, manage or dispose of any movable or immovable property to support its function, it may not be operationally involved in the procurement proceedings of procuring entities; instead its role includes policy formulation, capacity building, information sharing about the Procurement Act, monitoring and enforcement of compliance, and to provide a secretariat to the Independent Procurement Review Panel.

4.8.2.2 Independent Procurement Review Panel

The Independent Procurement Review Panel, also known as the Review Panel, shall be appointed by the Minister. These should be eminent nationals who are not active public servants but three members from professional, trade, or civil society organizations and two from the private sector, from the field of law, public procurement, commerce, financial management, engineering and/or public administration. These members shall elect a chairperson from among themselves. These are to serve a four-year term that may be extended by another four years. These persons shall receive remuneration in accordance with authority, rules and approval by the Minister. Their role will be to conduct independent administrative review of complaints and appeals made by bidders on the award decisions on bids and contracts, and thereafter decide on the way forward.

4.8.2.3 The Director

For administrative and other support purposes, the board shall appoint a director to be a non-member and Secretary to the Board. This person selected on a competitive basis shall serve the board for a period of five years, subject for an extension of another five years on the basis of annual performance.

4.8.2.4 Authorizing Officer

According to Somalia, Ministry of Finance (2015:7), there shall be an authorizing officer appointed for each Public Body and State-Owned enterprises, ideally a senior official in such an entity who shall be responsible and accountable for compliance to the procurement Act for

such an entity. Issues such as establishing procurement units and procurement committees, awards and contract signing is the responsibility of this person.

4.8.2.5 Procurement Committees

This committee is made up of five persons from the procuring entity, one of which must be the senior official serving a chairperson role whilst the other four are the senior officers, one of whom is responsible for finance, appointed by the authorizing officer. The secretary of this committee must be the head of the procurement unit. Its role includes reviewing the procurement plan and monitoring its implementation quarterly, reviewing specifications and ensuring their compliance to the procurement Act.

4.8.2.6 Procurement Units

Procurement units are internal bodies decided upon by the authorizing officer with at least one person trained and knowledgeable in procurement. This unit serves under the supervision of the procurement committee. Its functions include procurement planning, bid preparation, publication, distribution of invitations, receipt and safeguarding of bids, evaluation, partaking in technical evaluation committees in the secretariat, and holding an advisory role in making recommendations for contract award. Thereafter, it supervises contract implementation, including record keeping thereof.

4.8.2.7 Evaluation Committee

This committee shall be formed by knowledgeable persons who according to Somalia, Ministry of Finance (n.d: 17), must declare in writing that no conflict of interest exists in the performance of his or her duties as a member, and if any of such subsequently occur, he or she must declare it. Evaluation of bids shall be based on criteria stipulated in the advertisement.

4.8.3 Public Procurement Laws, Processes and Procedures in Somalia

In line with the requirements of Somalia, Ministry of Finance (2015:12), all bidders are permitted to bid with no restriction, unless commercial relations with their country are prohibited by Somalian laws and regulations and a Charter of the United Nations, or where one has misconducted themselves by, directly or through an agent, engaging in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question. Where prequalification criteria have been set, a bidder must have met minimum criteria such as being professionally and technically qualified, thereby allowing them to receive an invitation to bid.

Prequalification is normally applied in complex and large bids and works of high value. Invitation for prequalification shall be published in at least one widely circulated national newspaper, and if feasible, in the National Gazette and procurement bulletin or website; and in the case of International Competitive Bidding, in selected international media in accordance with the Authority's guidelines.

As far as possible, specifications, plans, drawings, designs, and requirements or descriptions of goods, works or services shall be based on required performance, and objective technical and quality characteristics. Upon award, procuring entities shall, within two weeks, publish the award decision, in any newspaper of nationwide circulation, and if possible in a procurement bulletin, website or gazette. Notice includes each contract award in which the price of the contract exceeds the threshold as per Appendix 7 attached, indicating the contract price and the name and address of the successful bidder. Any communication between the bidder and procuring entity shall be in writing, or using another means which does not unduly limit bidders' access to information, allows for a sufficient level of security, and the content of such communication can preserve a record and has been approved by the authority. Figure 4.12 shows the choice of procurement methods that may be adopted by procuring entities in Somalia for the procurement of goods, services and/or works, excluding consultancy services.

Figure 4.12: Choice of procurement methods in Somalia

Method	**Nature**
International Competitive Bidding	For this method, pre-qualification invitation or bid submission is open to both domestic businesses and foreign firms. However, a procuring entity may grant a margin of preference to domestic businesses. This is adopted mainly for the threshold amount stated in Appendix A8 or where it is known that open competition will not be attained unless foreign firms are invited to bid. Once decided upon, the procuring entity must advertise in a newspaper with a wide circulation to attract foreign markets.
Open competitive bidding	Depending on whether this method will adopt a national or international approach, advertisement in at

	least two national publications must be done for national competitive bidding; and advertisement will also be done in least one additional publication with international circulation should the bid also be targeted to the international community.
Two-stage bidding	This method is applicable whenever a technical, quality or other characteristics of the goods, works or services are difficult to be determined upfront. A procuring entity invites bidders to submit proposals without prices, which it will thereafter use to determine final specifications and qualifying criteria. Engagements will be done with potential suppliers on issues of clarity, and where offers need amending to conform to basic requirements, minimum performance, or required completion time, or have any other weakness that require amending. Only those finally meeting minimum standards receive an invitation to a second stage of bidding, to provide offers in line with the final revised bidding documents.
Limited or restricted competitive bidding	Where it is believed that goods, other services or works are only available from a limited number of bidders or else there are justifiable reasons for emergency.
Request for quotations	For procurement less than the value specified in Appendix 7, the procuring entity shall solicit quotations from a minimum number of three suppliers, utilising simplified documents that describe the nature and quantity of the goods or scope of the works (specifications), the desired delivery or completion time, place and time for submission of quotations, and the criteria for evaluation and award of contract. Bids may be submitted via letter,

	facsimile, or by electronic means if possible at a specific time. However, they do not get opened publicly, though evaluation of quotations follows the same criteria as those of open competitive bidding; awards shall be made based on lowest quoted price where an offer responds to the needs of the procuring entity in terms of delivery times and other requirements. In this instance, a bidder may not change price and no negotiations may be undertaken for this method of procurement.
Direct contracting	With prior approval of the Authority, a procuring entity may engage in sole source contracting. This is adopted in cases such as where this contracting is solely to extend the existing contract which was awarded in any nature permitted by the procurement act, for standardization of equipment or spare parts to be compatible with the existing ones, for exclusive equipment that are only obtainable from a single source, and/or due to extreme urgency as a result of an emergency not caused by dilatory conduct on the entity's part.
Framework Contract	For recurrent and common user items, the Authority shall define the composition and lists of such items and services to be sourced from a single or multiple suppliers. Such list shall be published at the Authority's website at least once annually and also be distributed to all procuring entities. In light of this, each procuring entity shall submit an approved annual procurement plan to the Ministry and Authority. Procuring entities may participate in a framework contract arranged by another procurement entity, on condition that the new procuring unit has in their possession verified and satisfactory documents

	supporting correct award of the same contract and also in the case of urgency requirements.

Source: Researcher's own compilation

Other procurement methods, namely the use of government construction teams, was noted; however, this falls outside the scope of this work since it does not involve actual procurement of goods and services from external service providers.

4.8.4 General Bidding Principles in Somalia

In line with the requirements of the Procurement Act of Somalia, there shall be procurement planning in each procurement unit, where details of contract packages, estimated cost of each package, procurement methods proposed for each package, and processing steps and time schedules are recorded in a procurement plan. The same shall be prepared annually in line with government's fiscal year and take into account government's annual budget. The procurement plan must be approved by the procurement committee and thereafter be published on an applicable website without cost packages to avoid putting competition in jeopardy. The procurement committee also monitors the implementation of procurement plans, whilst procuring entities must review and update it on a quarterly basis and notify the Ministry and other relevant authorities of any major modifications. No procurement shall be divided into parts or lower values to avoid following a particular procurement process of a certain threshold. Somalia, Ministry of Finance (2015:18-19) states that procuring entities are permitted to procure in advance; this occurs where no monies are available in the current fiscal year but it is foreseeable in future within the coming quarter. Procuring entities may then commence with "advanced" buying to enable timely award and contract execution. However, no contract may be finalized before funds availability that equate to contract obligations is confirmed by the authorizing officer, and even bidding documents should stipulate that such a bid is 'contingent and subject to availability of funds'. Criteria may be set by a procuring entity for domestic preference, wherein bids offering goods that are manufactured, mined, extracted or grown in the Federal Republic of Somalia are preferred, and preference is given to bids offered by domestic contractors. Upon satisfaction, contracts are approved by the delegated authorities in line with their applicable thresholds as listed in Appendix A7 attached. Thereafter, records of all documents related to awards, including cancellations, shall be retained for a period of six years.

To uphold a high element of integrity in the procurement process of the country, it is required that public officials, bidders, suppliers and consultants must conduct themselves in a manner described in schedule 1 of the Somalia Procurement Act. This includes, among others, being impartial in carrying out their duties, disclosing conflict of interest and recusing oneself from a proceeding where conflict of interest is identified, and always acting in the best interest of the public. Where it has been found that a potential supplier, contractor, or consultant misconducted themselves by committing an act such as submitting false information, collusion and interference, they may be debarred.

4.9 CONCLUSION

This chapter presented in detail the background of governance structure for the countries of SA, Mauritius, Namibia and Somalia. The processes and procedures adopted for the procurement of goods and services in the four countries were examined in full. In addition, specific examination of procurement processes of the DOJ and CD was conducted. Clearly there exist commonalities in the manner in which the four African countries perform their procurement activities, even though some applications differ slightly, thus perhaps making the level of vulnerability in each country's supply chain different.

CHAPTER FIVE
RESEARCH DESIGN AND METHODOLOGY

"A research design is a plan and procedure that contains the steps of broad assumptions to comprehensive methods of data collection, analysis, and interpretation" (Malhotra, Birks and Wills, 2013: 17).

5.1 INTRODUCTION

The purpose of this chapter is to present a detailed discussion on the research approach used to reach a conclusion on the empirical results. Research methodologies, design strategies, instruments, data collection and analysis underpinning this research are discussed in detail. Clarification and defence on the use of the methodological approach is presented in chapter five. This chapter therefore describes the methodologies used and the reasoning applied to find a possible solution to the research problem. This chapter is structured to include the following sections: definition of the research design, the research paradigm, the population, the way in which sampling was performed, and the data collection and analysis techniques, the piloting of the research, the limitations of the research, confidentiality, anonymity, validity and reliability, and the ethical considerations. The core research approach adopted by the study was an assortment of qualitative and quantitative approaches, focusing on both gaining deeper understanding on risks and resilience measures (individual experiences) as well as ascertaining the implications of risks in service offerings (relationship between variables).

5.2 THE OBJECTIVES OF THE STUDY

The study intended to attain the following objectives through the use of both primary and secondary data:

- To identify risks related to procurement of goods and services in supply chains.
- To analyse the implications that procurement risks have on service delivery.
- To explore remedial or resilience measures to cope and/or overcome procurement risks.
- To propose the framework to capacitate the state to reduce its vulnerability to risks.

5.3 RESEARCH QUESTIONS

This study aimed to answer the following questions:

- What are procurement-related risks in supply chains?
- What implications do procurement risks have on service delivery?

- What measures could be put in place to cope with or overcome procurement risks?
- What conceptual framework can be implemented by the state to reduce its vulnerability to risk?

5.4 HYPOTHESIS

Risks exposure has a negative effect on service delivery.

5.5 RESEARCH PHILOSOPHY

Saunders, Lewis and Thornhill (2019: 130) define research philosophy as "a system of beliefs and assumptions about knowledge development. It is that what a researcher does when embarking on the research journey. Saunders, Lewis and Thornhill (2019:130) assert that on the research journey, one will make some assumptions, knowingly and not knowingly. These authors cite ontological (realities from research), epistemological (human knowledge), and axiological assumptions (researcher's values influencing research process) as some of the types of assumptions present in research. It is these assumptions (if well-thought and consistent) that will result in a credible philosophy directing a research process, from the choice of research method, to the analysis procedure, add the preceding authors. Interestingly, there are paradigms that are said to represent a set of beliefs that give assumptions on: (1) ontology; (2) epistemology; (3) methodology; and (4) axiology related to finding realities about the phenomenon under study (Bryman, 2012: 630). It is regarded as the researcher's philosophical way of thinking, a school of thought, and a worldview, which subsequently informs the interpretation of data (Kivunja and Kuyini, 2017: 26). In the same vein, Du Plooy-Cilliers, Davis and Bezuidenhoud (2014: 19) argue that paradigms are clusters of beliefs which dictate what should be studied by scientists in specific disciplines, how such studies should be done, and how the results thereof should be interpreted. It is for this reason that paradigms and philosophies are often confusing and used interchangeably. Saunders, Lewis and Thornhill (2019: 144) point out that critical realism, pragmatism, postmodernism, interpretivism and positivism research philosophies are the five major types of research philosophies. Critical realism philosophy assumes that ideas are independent from the reality of the human mind (Du Plooy-Cilliers, Davis and Bezuidenhoud, 2014: 31); it uses a scientific approach for knowledge development. On the other hand, the philosophy of interpretivism is inductive in nature, in that reality is believed to be based on social constructions such as instruments, language, shared meanings and consciousness. An interpretive approach is particularly concerned with

understanding behaviour or meanings from the participants' own view (Neville, 2007: 6); therefore, the interpretivist philosophy embraces a qualitative research approach. Saunders, Lewis and Thornhill (2019: 144) aver that positivism relies on quantifiable observable facts. It is based on quantitatively measuring and evaluating a phenomenon, and providing its rational explanation (Neville 2007: 6). For this reason, Walliman (2011: 21) asserts that positivism is aimed at providing an accurate description of settings regardless of what people think. Therefore, it is also deductive in nature. Then postmodernism, according to Saunders, Lewis and Thornhill (2019: 144), is founded on the belief that any sense of order is provisional and without foundation until it is described through language, though language itself is not always impartial and adequate. Last is pragmatic philosophy. According to the preceding authors, this philosophy accepts that there are several ways of conducting research and interpreting the environment under study. This means pragmatic philosophy allows the use of any method that is perceived as the most suitable to solve the research problem. For this study, a pragmatic approach was utilised.

5.5.1 Pragmatic philosophy

This research adopts a pragmatic paradigm, rejecting the positivist paradigm view that suggests a single and/or verifiable reality exists independent of human interference (Rehman and Alharthi, 2016: 55). Instead, this research is founded on the view that multiple kinds of realities exist (Tashakkori, Johnson and Teddlie, 2021: 64). As such, the world will be better known if researchers speak, interpret and understand meanings of subjects under study rather than relating the researcher's personal observations (Kivunja and Kuyini, 2017: 33). Moreover, instead of focussing on one technique, pragmatic researchers study the research questions and use all the approaches best fit to answer research questions (Tashakkori, Johnson and Teddlie, 2021: 63). It is for this reason that Creswell (2014:11) asserts that the pragmatism paradigm supports the use of both quantitative and qualitative data generation in studies where the data is either collected sequentially and integrated at some stage or collected concurrently, as it was with this research. This research devoted efforts to understand individual participants and their viewpoints on issues of concern surrounding risks and their implications in their environment. This is believed to hold and provide comprehensive insight on threats and weaknesses within the SC environment, system, processes, structure, and the implications of risks thereof on achievement of the SC goals and its future sustainability.

5.6 RESEARCH DESIGN

Research design may be defined as a plan of action by which a research project will be carried out. It serves as a pathway to be followed in conducting a research project (Wilson, 2010: 130). According to Saunders, Lewis, and Thornhill (2019: 173), research designs are tactics and mechanisms used in the quest for answers to research questions. According to Sekaran and Bougie (2009: 102), there is a wide range of issues for consideration in the research design. These authors assert, given the purpose of the study, the researcher must decide whether their study will be hypothesis testing, explorative or descriptive, amongst others. Will it seek to establish relationships amongst variables, correlations or differences amongst groups? To what extent will the researcher interfere during the research? Where will the research be conducted and what are the measurement tools that will in turn produce results once data is analysed? Therefore, research design describes who will be involved in the study, where the study will be carried out, how it will be carried out, as well as how data will be collected and analysed. Schindler (2019: 71) summarizes this by mentioning that in the main, researchers must develop the sample design, data collection design, as well as measuring instrument(s) as a scope of their research design. In addition, this author notes that it is within the researcher's preference to start with either a sample design plan or data collection plan. Saunders, Lewis, and Thornhill (2019: 173) identify three main types of research methods that a research design may adopt. These includes quantitative research design, qualitative research design, and mixed method research design.

5.6.1 Qualitative research design

Qualitative research design is characterized by its reliance on words rather than numbers; it is based on meanings instead of statistics (Maree, 2019: 59). Du Plooy-Cilliers, Davis and Bezuidenhoud (2014: 234) add that qualitative research engages with human experiences and the meanings associated with a particular phenomenon; it is therefore revealing of the "entire-world". This method utilizes open exploratory research questions which subsequently produce descriptive responses. Qualitative design is known as being the most powerful method when a researcher wants to know more about that which cannot be directly observed and/or measured, such as feelings, thoughts and intentions. It is the best fit tool in answering the 'what', 'why' and 'how' questions (Lacey and Luff, 2007: 5). It also allows the researcher to understand respondents' points of view through ethnography and interviews (Denzil and Lincon, 2008: 17). It can thus be regarded as being less structured but more intensive, therefore more rich in insights and perceptions. This study utilized a qualitative approach as one of the means to

collect and analyse data from officials tasked with the procurement function within the DOJ and CD, in all provinces of SA. These persons were believed to hold valuable knowledge about the studied problem. In addition, the qualitative study design utilizes interviews, which is the data collection tool chosen for this study.

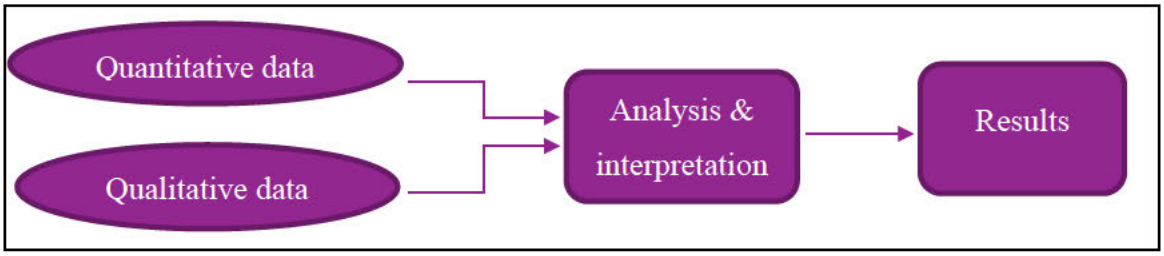
5.6.2 Quantitative research design

Williams (2007:66) describes the quantitative research method as a process of collecting data in order to quantify information. It is about generation of quantitative data (Kothari, 2004: 3-5). Supporting this, Wagner, Kawulich and Garner (2013: 161) assert that quantitative design is described as when data is collected and analysed through statistical methods. This type of research is based on the measurement of quantity. It can therefore be described as being numerical and experimental, given the fact that it involves the utilisation of numbers and measurements. In response to relationship questions or hypothesis testing, quantitative research can be used. This research method may be descriptive, in which the situation is examined in its current state. Quantitative research is associated with closed-ended questions. Its data is analysed and presented as statistics, tables, charts and graphs in relation to the hypothesis. Quantitative enquiry is also present in this research, wherein during the same interview, closed-ended questions were asked that aimed to ascertain implications that procurement risks pose to service delivery.

Utilizing a scale rating from one, being least, up to ten, being high implication, statistical data was generated. As such, this research is a both qualitative and quantitative. This allowed the researcher to gain in-depth insight and understanding about the sector's vulnerability to SC risks and its implications thereof to service delivery and how this sector can cope or overcome such risks. Without discrediting the value added by a quantitative design, in particular, the qualitative part of this research permitted the researcher to explore heterogeneous views from SC experts in this sector, and assisted the researcher to unpack different perspectives about the subject matter. Having said that, it is important to note that both the qualitative and quantitative setup of this study are of significant importance to establish the real life state and solutions to the research problem. Mixing, in this research, occurred concurrently at the data collection phase wherein both closed-ended and open-ended questions were used at the same time during interviews. This, according to Saunders, Lewis and Thornhill (2019: 182), allows for richer and a more comprehensive response to the research question as compared a mono method

design since both sets of data are interpreted together. The research design is shown in the Figure 5.1 below.

Figure 5.1: Concurrent mixed method research design



Source: Researcher's own compilation

As seen in Figure 5.1, this study concurrently conducted the quantitative and qualitative data in the same phase of the research process, analysed and interpreted it simultaneously in order to reach to results.

5.6.3 Exploratory research approach

The exploratory research approach is defined as a study undertaken when little is known or no information exists at all about the studied phenomenon (Sekaran and Bougie, 2009: 103). Such study is much intense and it better comprehends the nature of the problem. In this study, the exploratory approach was found befitting for fact-finding surrounding the nuances of procurement risks in the public sector and subsequently to develop a framework useable to reduce SC's vulnerability to such risks. Given that exploratory research focuses on clarifying and defining the problem of a particular nature that has not been clearly defined in a given setting, it was found fitting for this study. Moreover, the need for an exploratory study could arise as a result of the lack of basic information in an area of interest. The available literature indicated that very little is known of the nuances of SC exposure to risks, let alone the availability of set strategies to reduce vulnerability of SCs to such risks. As such the exploratory approach marks an important part of this research. It is also 'comforting' to know that exploratory research addresses all types of research questions (Adams, et al., 2015:30). As such, it is the best fit for this research.

5.7 POPULATION

Kumar (2011: 65) defines a population as the entire group of subjects that the researcher intends to find the "truths" from, pertaining to the research phenomenon. These subjects, whether individuals, objects or events, should conform to specific criteria that the researcher intends to be able to generalize the results of the research. According to Quinlan (2011: 206), reasonable care should be taken in selecting a target population. This author notes that issues such as practicability as well as available temporal and financial resources to conduct such research need to be considered. The target population for this study is 59 permanent employees in demand and acquisition, namely procurement of the DOJ and CD in the nine (9) provinces, excluding the National Office. This includes 30 junior staff members below supervisory level, eleven (11) supervisors and eighteen (18) middle managers, as shown in Figure 5.2.

Figure 5.2: Population size

Province	Below supervisory	Supervisory	Middle Management		TOTAL PER REGION
			Assistant Directors	Deputy Directors	
KwaZulu-Natal	3	1	1	1	6
Eastern Cape	4	2	1	1	8
Mpumalanga	3	1	1	1	6
Gauteng	4	2	1	1	8
Northwest	4	1	1	1	7
Limpopo	3	1	1	1	6
Northern Cape	3	1	1	1	6
Free State	3	1	1	1	6
Western Cape	3	1	1	1	6
TOTAL PER POST CATEGORY	**30**	**11**	**9**	**9**	**59**

Source: Researcher's own compilation

5.8 SAMPLING STRATEGIES

A sample is a subset of the entire population. A sample is often used to represent the views of the entire population. Neuman (2014: 240) defines a sample as a small set of cases a researcher selects from a large pool in such a way that results can be generalized to the population. Generalisation of the results to the entire population can only be possible if the characteristics

of the sample are similar to that of the population (Wagner, Kawulich and Garner, 2013: 87; David and Sutton, 2011: 226). David and Sutton (2011: 227) assert that certain units of the population should not be under or over-represented. Despite the reports that present a larger sample size as being more conducive to the generalisability of results, this is actually not always the case (Matthews and Ross, 2010: 162). In fact, a smaller sample size too, *if selected with accuracy,* could better represent a population than a bigger sample. A research process can either adopt a probability or non-probability sampling method. Probability sampling is when all subjects in a population have an equal chance of being selected to participate in a research project (Sekaran, 2006: 269-270). Whereas, in non-probability sampling, chances are unknown (Wagner, Kawulich and Garner, 2013:92).

This study adopted a probability sampling method, known as simple random sampling, wherein all participants have an equal chance of participation as they were identified per numbers 1 to 59. A decision of a sample of 40% of a population was decided upon. This was to ensure that heterogeneous groups of persons characterising the population (middle manager, supervisors and junior staff) stand a chance to be participants in the study within the limitedly available resources of the research, being time and monies, so that the study can obtain perspectives from heterogeneous groups, thus allowing reliance and precision of the research outcomes. The 1st and last participants at number 1 and 59 were selected. Then again, the three participants at median point, being 29, 30 and 31, form part of the sample. Thereafter, each participant represented at each 3rd interval from a table were selected, thus making a sample of 23 individuals to participate in the research, as per Figures 5.3 and 5.4. On the next page. Once the permission to conduct the research in the DoJ and CD had been granted (see Appendix A2), an email was circulated to all sampled employees of the Department a month before the research was undertaken, notifying them of the project via letter of information (see Appendix A3) and requesting their participation. They responded by completing and returning the informed consent form (see Appendix A4). The researcher also gave telephonic as well as verbal reminders as the research date approached.

Figure 5.3: Sampling technique

Participants	Selection	Participants	Selection
		30	s
1	s	31	s
2		32	
3	s	33	s
4		34	
5		35	
6	s	36	s
7		37	
8		38	
9	s	39	s
10		40	
11		41	
12	s	42	s
13		43	
14		44	
15	s	45	s
16		46	
17		47	
18	s	48	s
19		49	
20		50	
21	s	51	s
22		52	
23		53	
24	s	54	s
25		55	
26		56	
27	s	57	s
28		58	
29	s	59	s

Source: Researcher's own compilation

Figure 5.4: Sample size

Province	Below supervisory	Supervisory	Middle Management	
			Assistant Directors	Deputy Directors
TOTAL	8	5	5	5

Source: Researcher's own compilation

5.9 PROCESS OF DATA COLLECTION

Once it was known from which individuals the researcher intended to obtain data, the subsequent stage was to determine how such data would be obtained (Sekaran and Bougie, 2009: 126). Data needed included both secondary and primary data. For secondary data, the researcher scrutinized government documents governing SCM to obtain a comprehensive understanding of SCM procurement policies and processes. According to Mpanga (2009: 16), document analysis usually entails doing a content analysis of official government records, internal organizational annual reports or memos, and external reports or articles about a subject matter. Although document analysis could require critical analytical skills, it is advantageous since it does not interfere with or distort the case setting in any way (Mpanga, 2009: 16).

For the purposes of this study, relevant documents governing the management of SCs in the public sector and that of DOJ and CD were examined. These documents included, but were not limited to, the Constitution of the Republic of South Africa of 1996, Public Finance Management Act 1 of 1999, as amended, the Preferential Procurement Policy Framework Act 5 of 2000, the Broad Based Black Economic Empowerment Act 53 of 2003, the National Development Plan 2030, and Departmental Financial Instructions (DFI). Books, theses, journals and other publications on SCM were also reviewed in order to get an understanding of principles, goals and regulations underpinning SCM. On the other hand, the primary data in respect of the vulnerability of SCs to risks in the organization under study was sourced by means of interviews.

5.9.1 Interviews

Interviews are defined as two-way purposive communication where the interviewee shares with the interviewer their beliefs, views, experiences, opinions, ideas and behavior on a subject

matter (Wagner, Kawulich and Garner, 2012: 133). Provided that it is applied correctly, this method is said to be a valuable source of information as it yields descriptive data that helps the researcher see the world through the eyes of the participants, add the preceding authors. Interviews aim to understand the world through the eyes of the participants (Maree, 2019: 108). For this reason, Sekaran and Bougie (2009: 186) describe interviews as the most powerful method of data collection, especially in exploratory research. Walliman (2011:99) mentions three types of interviews commonly used in research; these include structured, semi-structured and unstructured interviews. Whilst structured interviews use a pre-determined set of questions (Walliman), with unstructured interviews, there are no pre-determined set of questions (Sekaran and Bougie, 2009: 186).

Semi-structured interviews, on the other hand, are a hybrid of structured and unstructured interviews. This means, to some degree, pre-determined questions do exist, however questioning is not limited to such questions. Quinlan (2011: 290) points out the five different types of interviews: one-on-one interviews; group interviews; telephone interviews; online interviews; and the photo-elicitation interviews. This study adopted, firstly, a structured interviewing approach wherein a set of questions were pre-determined (see Appendix A9). This method was found ideal as it enables the researcher to be in control, with standard and straightforward questions, thus saving time whilst remaining an excellent tool for qualitative descriptive studies (Maree, 2019: 108-109). It also used a synchronous online interviewing procedure, using web conferencing software named TEAMS. The rationale for this method was to save the researcher time and monies since all the 20 participants were located far apart from the researcher, in the nine provinces in SA.

5.10 PRE-TESTING OF THE MEASURING INSTRUMENT

According to Khanyile (2016: 58), although all caution could be taken by a researcher in designing a data collection tool, there is at least a small possibility of error. Errors in a data collection tool are weaknesses such as asking questions that are vague or ambiguous, or using too much jargon, inappropriate language, and too lengthy an instrument. To obviate these errors, the data collection instrument should be tested before it is distributed to participants (Babbie and Mouton, 2001: 244-245). Therefore, pre-testing is about error detection and eradication. According to Kumar (2011: 31), it aids in the development, refinement and eventual viability of the measuring tool. Cargan (2007: 30) asserts that pre-testing provides some assurance of the validity of the questions asked, and enhances the likelihood of the

reliability of the data collected. For this study, the interview schedule questions were piloted amongst 3 individuals dealing with procurement in the SCM section at the national office of the DoJ and CD. Four sections in the instrument were found to be too long and many questions were repetitive; as such, the sections were cut down to two, shrinking all other questions into part B1 and B2.

5.11 DATA ANALYSIS

Du Plooy-Cilliers, Davis and Bezuidenhoud (2014: 228) point out that data analysis is used to describe facts, determine patterns, develop explanations and test hypotheses. In data analysis, the raw data (unprocessed information) is ordered and organized so as to deduce useful information from it. So, in order to get the data ready for analysis, data was first coded. Each participant was assigned to a unique identification which comprised of a department and number such as DOJCD1, DOJCD2, DOJCD3, etc. The use of pseudonyms not only assisted in easier analysis but also ensured the anonymity and confidentiality of respondents. Then, demographic responses were also coded per number one up to four. For instance, number one represented respondents in the age group less than 30 years, in a position of middle management, and those with five years and below of experience (refer to Appendix A9).

5.11.1 Qualitative data analysis

Qualitative data obtained through interviews underwent a transcribing process. Transcription entails a translation or transformation of sound or images from recordings to text. The transcription was done verbatim. Verbatim transcribing was chosen as a powerful tool as this analysis is based on meanings, silences, evasions, areas of emphasis and sensitivities. According to Quinlan (2011: 422), there is a four-stage approach for qualitative data analysis, which this study adopted. At the first stage, evidence presented by data was identified, meaning initial themes and concepts were identified. This is when the researcher went through a handful of interview transcripts to get an overview of the data set, in the quest to detect recurrent themes and ideas. This stage is referred to as descriptive analysis. The second stage involved interpretation. In this stage the researcher articulated and uncovered the meanings of data. At the third stage, the researcher drew minor conclusions on the implications of data. Lastly, the researcher theorized, by looking back the theoretical framework formulated during the literature review, to ascertain if and/or how the research findings compare with or contradict the findings of past studies as well as the theories they have presented.

Furthermore, using thematic analysis as a data analysis technique, this research looked at the perception in respect of risks present in procurement as well as that which can be done to reduce or overcome such risks. According to Hlubi (2013: 57), thematic data analysis is a qualitative data analysis method whereby the researcher identifies underlying themes. Therefore, thematic analysis is a general approach to analyzing qualitative data that involves identifying themes or patterns in the data. In this study, these themes were later organized in order of priority or severity as per number of counts each theme received, which then resulted in the generation of the findings.

5.11.2 Quantitative data analysis

Following the above, the quantitative data was analyzed, in order to ascertain profiles of participants as well as the overall implications of risks in service delivery. Quantitative data analysis is statistical in nature under the broad category of descriptive research. **S**tatistical analysis is defined as a key tool for organising, highlighting and extracting information for hypothesis testing, developing theories, as well as drawing conclusions from the current investigation (Gray, 2017:180). Statistics assist in exploring the interdependence and/or relationships between variables. In order to achieve this, the responses captured in a data set were analysed utilising the latest version of the Statistical Package for the Social Sciences (SPSS) (version 32 for Windows). SPSS is one of the most commonly known and commonly used research numerical package that is easier to execute and can process extremely highly complex information (Wagner, Kawulich and Garner, 2012: 231). Though it is not the only tool and maybe not the best tool, it is the most user-friendly and available choice compared to tools such as R, PSPP, Stata, SAS, SPlus, JASP, and BMDP (Rahman and Muktadir, 2021: 301). For this study's purpose, the analysis of the statistics was carried out in two phases, that is, the descriptive statistical analysis and inferential statistics.

Descriptive research depicts an accurate profile of people, events or situations under study. These were presented in the form of graphs, tables, calculation of descriptive measures and pie charts as proposed by Wilson (2014: 52). Descriptive statistics describe the critical aspects of the data. Through descriptive statistics, the data is better understood. Inferential statistics on the other hand utilise meaningful statistical tests to obtain correct values of the tested hypothesis. The statistical tool used for such a test assists in the interpretation of results and the discussion of findings of the study. This study adopted three measures of central tendency, namely mean, median and mode, to compare various themes to ascertain their relationship with

service delivery. This was followed by a reliability test, linear regression modelling, ANOVA, Coefficients, KMO and Bartlett's for hypothesis testing purposes.

5.12 VALIDITY AND RELIABILITY OF THE RESEARCH INSTRUMENT

According to Brynard, Hanekom and Brynard (2015: 38), the findings should be valid and reliable for the research to be accurate. Reliability means that the results of study remain the same if the research is repeated. Validity, on the other hand, is about the correctness and truthfulness of the research findings. These two especially are key measures of trustworthiness and credibility of quantitative research (Maree, 2019: 143).

5.12.1 Validity

Validity is about the accuracy of a measuring instrument. It is concerned with how well the instrument measured what it was supposed to measure. Bryman and Bell (2011: 159) argue that validity is about the extent to which a concept was measured when such instrument was used. Du Plooy-Cilliers, Davis and Bezuidenhoud (2014: 256) add that validity is concerned with the reality of the results of the measured constructs. It is concerned with what confidence can be placed in the outcomes of the research. Hasson and Keeney (2011: 1696) mention content, construct and criterion as some measures of validity. These authors assert that content validity measures if a method provides adequate coverage of all aspects of a subject under study, construct evaluates the theoretical basis, and criterion measures the ability of a method to effectively predict a construct.

Validity is concerned with whether the results of tests administered simultaneously (concurrent) correlate with those of a past test or if the results of a current test (predictive) will correlate with those of future tests. It can therefore be concluded that validity is concerned with whether valid conclusions may be drawn from a study, given the research methodology that was employed; i.e., to what degree were research questions answered when a specific instrument was utilized. The best the research question was answered, the more valid the research procedure and the research instrument were. To gain validity of the secondary data, the researcher retrieved materials from the Durban University of Technology’s database, Google Scholar, EBSCO host and UKZN research space to mention but a few. It is believed that these databases house quality and non-predatory publications. Therefore, this research is characterized by construct validity. Moreover, for credibility of research results, questions were crafted and refined to directly find out what risks face public sector procurement, how low or

high they negatively affect goal achievement, and future resilience factors that could be adopted. This was done in accordance with Maree (2019: 144) who asserts that questions should be congruent with reality and be believable.

5.12.2 Reliability

Reliability is associated with the trustworthiness of a measuring tool. According to Maree (2007:215), a measure is reliable if its findings remain comparable even if it is used more than once and at different times with a similar population. The preceding author asserts that reliability determines an instrument's repeatability and consistency, which in turn defines the credibility of the research findings (Du Plooy-Cilliers, Davis and Bezuidenhoud, 2014: 254). Sekaran (2006: 203) describes reliability as being associated with being error free. He contends that reliability is actually a measure of the "goodness" of a measuring tool. Types may include test retest, inter observer and parallel form. So to ensure this study's legibility, the researcher adopted the test retest reliability measure whereby an instrument was first piloted to ensure its relevance, accuracy, completeness, and that it is free from error.

5.13 TRUSTWORTHINESS OF THE QUALITATIVE PART OF THE STUDY

Unlike in quantitative research, qualitative research's "goodness" is based on obtaining detailed and in-depth information (Harney and Monks, 2014: 30). Trustworthiness of the process of the study is measured by the degree to which the research provides true information, as well as the manner in which the results have been obtained. Gray (2017: 42) identified four components of assessing trustworthiness of the qualitative research. This includes transferability, dependability, credibility and conformability.

5.13.1 Credibility

According to Maree (2019: 144), credibility is about consistency of the research findings with reality. Qualitative researchers are especially concerned about 'will the findings be believable to the readers?' Therefore, they are to ensure careful consideration of research design, methods in order to enhance the research's credibility. According to Sandelowski (1986), cited in Cope (2014: 89), qualitative study is considered credible if the representation of participants' experience is recognizable by those who share the same experience. The researcher must also be well familiar with the participants as well as their organization (Maree, 2019: 144). To achieve the credibility of this research, the researcher familiarized herself with the organizational setup, thereby understanding which persons are most suited to participate in the

study. As a result, only 59 persons within SCs qualified for inclusion in the study as they are the only persons performing a procurement function in the nine province of the DOJ and CD. Twenty persons who eventually participated in the study were selected from this 'relevant' population. Both qualitative and quantitative methods were used to gain in-depth knowledge of the current issues on procurement risks through the views of such procurement practitioners. It is for these reasons that this research is considered trustworthy.

5.13.2 Dependability

The term dependability in qualitative study is used instead of reliability. This component is concerned about the 'reliability and consistency' of the research findings (Scheyvens, 2014: 215). It is concerned about the extent to which research procedures are documented, and if any other person will be able to follow, audit and critique the process of the research. Therefore, dependability is demonstrated through the research design, data gathering and analysis tools as well as their implementation. For this reason, Maree (2019: 145) asserts that every detail of the research process, including revisions made, must be documented so that other persons may be able to comprehend the reasoning of decisions taken. In the same vein, this study's dependability can be confirmed through chapter five, wherein every detail of the research design, data gathering and analysis tools is documented. This includes but is not limited to discussions on and validating rationale on qualitative and quantitative designs, research philosophy, the exploratory research approach, interviewing technique and data analysis methods.

5.13.3 Confirmability

Confirmability is about neutrality of the research findings. It is participant-based rather than researcher biased. Maree (2019: 145) points out that researchers need to admit their own predisposition and guard against being too involved, such that they see what they want to see and miss some things outside their expectations, at times, using participant's quotes to indirectly support researcher's own views. The preceding author cited that the use of an external person in checking and keeping audit trail is one of the valuable tools for confirmability. The researcher of this study is aware of and abides by the ethical requirements of conducting a research study. Therefore, any form of falsification is absent in this study. Data from the recordings and notes taken during interviews are available for any audit trail.

5.13.4 Transferability

Transferability refers to findings that can be applied to other settings or groups. It is about the connections that the readers of the research make between research findings and their own experiences (Maree, 2019: 145). "A qualitative study would have met this criterion if the results have meaning to individuals not involved in the study and readers can associate the results with their own experiences" (Cope, 2014: 89). Therefore, researchers should provide adequate information on the research findings such that readers are able to assess if the findings 'fit' or are transferable. With this being said, the findings of this study are documented in detail in the next chapter to answer the research questions, as also clearly discussed in chapter one and five of the study. The questions of the study are guided by theory, following the formation of the research questions. This enables readers to comprehend the study's purpose and thereafter its findings, and relate it to their own experiences.

5.11 ETHICAL CONSIDERATIONS

Ethics may be defined as set standard norms of functioning. Walliman (2011: 43) defines it as honesty throughout the research process to enhance credibility of the research outcomes. According to Du Plooy-Cilliers, Davis and Bezuidenhoud (2014: 264-272), there are those that affect participants as well as those that are associated with "falsifying" data analysis and with misrepresenting data. The preceding authors summarize some of the most important ethical agreements that prevail in social research as having to do with: voluntary participation and causing no harm to the participants; maintaining anonymity and confidentiality; and not deceiving the subjects of the research. To ensure conformance to the above, the researcher sought permission of voluntary participation through informed consent from participants. On the other hand, the participants were assured of anonymity. This is in line with Cohen, Manion and Morrison (2007: 64), who argue that to ensure anonymity, the information provided by the participants should in no way reveal their identity. Then again, all sources of concepts, ideologies, theories used in this study are acknowledged, and participants' views are presented as discussed by them.

5.12 LIMITATIONS OF THE RESEARCH

Limitations are constraints that could negatively impact on research (Du Plooy-Cilliers, Davis and Bezuidenhoud, 2014: 275). These include issues such as a lack of time, resources or financial capability, or access to information. Foreseeable limitations in this study included the

distance between the researcher and participants, which were overcome by online interviews that also became problematic at times due to network connectivity challenges.

5.13 CONCLUSION

This chapter provided details of the research methodology with which this study was conducted. The rationale for the techniques chosen were discussed, including some of the benefits of the methods chosen. The study site was discussed, including sampling techniques used in order to reach a sample size. Furthermore, it gave an account on how the sampled persons were reached, in order for primary data collection to be take place. The procedure with which qualitative data was then converted into meaningful information is also highlighted. It then proceeded with discussion on how validity and reliability is achieved. Lastly, ethical considerations and limitations of the research were highlighted.

CHAPTER SIX

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

"The world will be better known if researchers speak, interpret and understand meanings of subjects under study rather than researcher's personal observation" (Kivunja and Kuyini, 2017: 33).

6.1 INTRODUCTION

In the quest to capacitate the state to face and handle risks, interviews were conducted with various key personnel representing diverse portfolios in the national government department. This chapter therefore presents and analyses the findings from data collected through interviews with reference to risks found in literature. The chapter employ figures and tables to present data in the form of themes and sub themes found. Moreover, it offers critical analysis as well as an in-depth description of the data collected in an attempt to identify risks related to procurement, to establish the implications these risks have, and subsequently find measures that could be adopted to overcome or cope with such risks. Given the nature of study's objectives, data was analysed in two parts, that is, quantitative data analysis and qualitative data analysis. Such data is discussed in detail in the following six sections. Sections A, B and C are a part of quantitative outcomes. These sections A, B and C are descriptive in nature. Section A presents response rate. Section B looks at the study's biographical data of the target population that includes age, position, and experience. Section C represents the implications of procurement risks in service delivery; both risks from primary and secondary data as identified by respondents as well as those found in the literature, respectively. Section D represents inferential statistics. Sections E, F and G present qualitative outcomes. Section E discusses in detail the overall risks present in procurement as highlighted in section three, whether from primary or secondary data. Lastly, section F lists and discusses measures that this sector should employ so as to cope with and/or overcome procurement risks, thereby reducing its vulnerability. These findings are solely based on the views and perceptions of the sampled population.

6.2 QUANTITATIVE DATA ANALYSIS

Quantitative data analysis is a statistical method of analyzing numerical data collected. Sekaran and Bougie (2014: 62) asserts that descriptive statistics incorporate the collection, presentation, classification and analysis of data to simplify a particular situation. This study made use of bar

diagrams, tables and pie charts to present its descriptive data. Inferential statistics were also used in this study to test the hypothesis, thus resulting in a conclusion drawn from a large set of data against the prediction. Descriptive and inferential statistics are presented in the upcoming sections 6.2.1 and 6.2.2.

6.2.1 Descriptive Statistics

Descriptive statistics describe the critical aspects of the data. It is through descriptive statistics that data is described in a suitable and clear form. Descriptive statistics compress huge amounts of data into smaller understandable form, thus allowing conclusions to be drawn about the variables under study. The following data, in respect of the response rate, demographic information of participants and implications that procurement risks have in service delivery, were addressed through descriptive statistics in section A, B, C and D.

6.2.1.1 Section A: Response Rate

In total, 23 employees were sampled from 9 various provinces in the organization; 20 respondents were successfully interviewed, thus making a success response rate of 87% as shown in Table 6.1. This sample, as well as the response rate, still makes a good representation of generalisability of results because, according to Matthews and Ross (2010: 162), a smaller sample size, *if selected with accuracy,* could better represent a population than a bigger sample.

Table 6.1: Response rate

	Target	**Frequency**	**Percentage**
Middle Management	10	8	34.7%
Supervisory	5	5	21.7%
Below supervisory	8	7	30%
TOTAL			87%

6.2.1.2 Section B: Biographical data of the participant's population

- **Descriptive statistics**

The following section contains statistical analysis pertaining to personal details of the respondents relating to age, position and years of experience working in supply chain in the public sector. An overview of the same is depicted in Table 6.2 below. Thereafter, each of the

biographical variables of the sample is graphically depicted and discussed in Figure 6.1, Figure 6.2 and Figure 6.3. In order to assess the vulnerability of supply chains to risks in the public sector, in the quest to capacitate this sector to face and handle their risks by reduction, interviews were conducted with various key personnel performing procurement works in the DOJ and CD. These included various persons whose profiles, namely their age, position and their total work experience, are presented in Table 6.2, Figure 6.1, Figure 6.2 and Figure 6.3.

Table 6.2: Biographical data of the respondents

Categories		**DOJCD Respondents**		**Total (N)**
		Frequency	Per cent	Total
Age group	less than 30 years	3	15%	15%
	30-39	8	40%	40%
	40-49	5	25%	25%
	50-59	3	15%	15%
	60 years and more	1	5%	5%
Position	Middle management	8	40%	40%
	Supervisor	5	25%	25%
	Below supervisory (junior)	7	35%	35%
Years of experience	5 years and below	5	25%	25%
	6-10 years	3	15%	15%
	more than 10 years	12	60%	60%
	Total	20	100%	100%

Table 6.2 above provides an overview of the biographical characteristics of respondents from the organization under study. Then Figure 6.1 reflects the age distribution of the respondents.

6.2.1.2.1 Age distribution of respondents

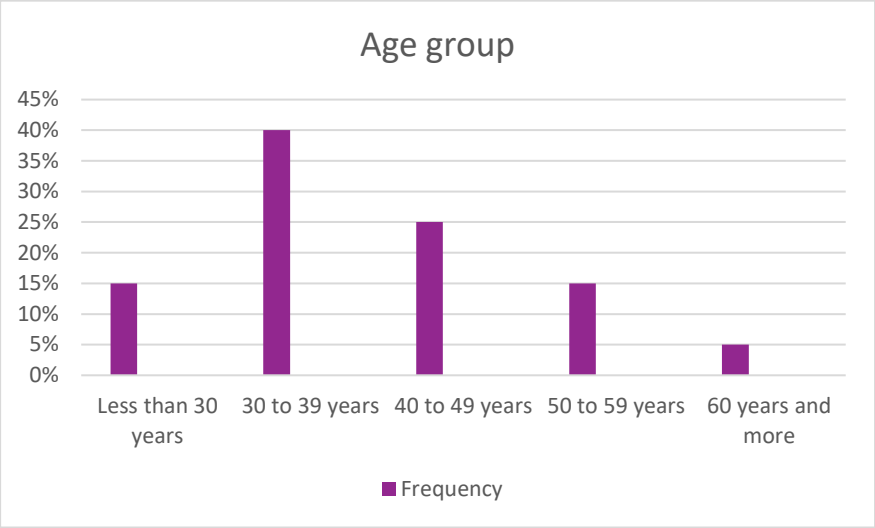
- Purpose of the question

Question A1 of Part A of the interview schedule (see Appendix A9) was designed to obtain a holistic view of the age categories of the population under study that may in turn give meaning to the manner in which they perceive the world and in turn could bring to light the future of supply chains.

- Results obtained

The age composition of the participants is reflected in Figure 6.1

Figure 6.1: Age group



- Analysis of the results

Figure 6.1 shows that the majority of the respondents were aged between 30 and 39 years at 40 per cent, followed by those between 40 and 49 years old at 25 per cent. There was an equal number of respondents aged less than 30 years and those between 50 to 59. Both these age groups had a proportionate number of 15 per cent respondents. It was also interesting know that then those aged 60 years and more were represented at a minority of "just" 5 per cent. This is a fair and equitable distribution considering government's drive to employ younger people. Consequently, these statistics show that at least supply chains are "manned" by at least 55 per cent of the younger generation below 40 years. This should be a "plus" factor to the state. Then Figure 6.2 depicts the position of the respondents.

6.2.1.2.2 Position of respondents

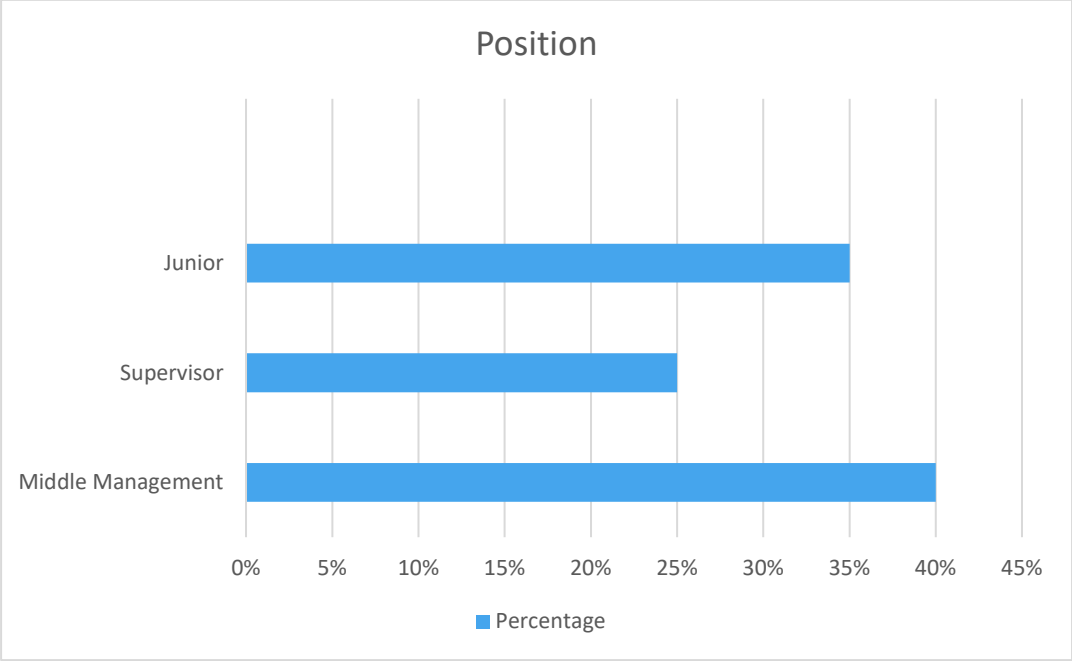
- Purpose of the question

Question A2 of Part A of the interview schedule (see Appendix A9) was to determine participants' positions in the organization in order to ascertain a representation of views from heterogeneous categories of working groups within the supply chains.

- Results obtained

Figure 6.2 below then depicts the positions held by the participants in the organization under study.

Figure 6.2: Position



- Analysis of the results

Figure 6.2 reflects that there were a relatively higher number of persons at the middle management position, namely assistant directors and deputy directors. These persons were recorded at 40 per cent, whereas those below supervisory were recorded at 35 per cent. Thereafter supervisory persons were recorded at a low of 25 per cent. Figure 6.3 next depicts the experience of respondents.

6.2.1.2.3 Experience of respondents working in SCM within the public sector

- Purpose of the question

Question A3 of Part A of the interview schedule (see Appendix A9) was to determine how long the participants had worked within the SCM unit in the public sector ever since employment. This was to gauge the level of reliance that can be placed on the views and solutions these participants bring into the study.

- Results obtained

Figure 6.3 illustrates the number of years (experience) that the participants have spent working within the SCM unit in any government institution, including their current one.

Figure 6.3: Experience

- Analysis of the results

The majority of respondents as shown in Figure 6.3 evidence that 60 per cent of respondents possessed more than 10 years' work experience in supply chains within government. This represents an added strength that currently exists within supply chains that the state ought to take advantage of for the realization of its goal, service delivery. This is because, according to Dyllick and Muff (2016: 6), there is a trade-off between confidence, usually characterised by the younger generation, and wisdom based on years of experience. This was beneficial to know because employees who have been working in the supply chain for long are assumed to have extensive knowledge. This therefore enhances the quality of responses and thereby the quality of the overall research outcomes. Notwithstanding, other respondents, namely, at 25 per cent and those at 15 per cent, possessed 5 years and below, and between 6 to 10 years of experience respectively.

6.2.1.3 Section C: Implications of procurement risks in service delivery

- **Descriptive statistics**

It was this study's objective to determine implications that procurement risks have in service delivery, thereby ascertaining supply chain's vulnerability *against* such risks, whether identified in the literature or by respondents. In line with this, respondents were asked to rate each risk so as to ascertain its consequence (implication) to their supply chains. The severity of the implications for each risk was measured on a 10-point Likert-type interval scale, one being with least implication, five being moderate, and ten being with high implication. Therefore, question 2 of part B1 and question 1 of part B2 as stated in the interview schedule (see Appendix A9), were used to identify the level of implications each risk brings to supply chains. Both those found in the literature and those identified by respondents were put to this test.

Utilising the central tendency, the mean scores of risks, both those that were identified by respondents and those from the literature, were calculated. Apart from inefficient contract management rating five, all other respondent's risks were rated far above "just" moderate with the highest score being 8.70. This indicates that these risks have high negative implications for the supply chain to achieve its service delivery objective. The mode and median were also calculated and were found at 6.90 and 7.00 respectively as per Table 6.3 below. This proves that these risks have high implications in the supply chain's service delivery mandate, as such requires special attention.

Table 6.3: Rating of implication of respondent's risks

Risk		Fraud and corruption	Policy and process dilemma	supplier' s database and supplier selection	Human capita disorder	Budget lack and/or mismanagement	Collusion	Improper demand management	Monitoring and control deficiencies	Management overrule	Inefficient contract management	Others
Valid		22	15	15	14	10	6	5	4	3	3	3
Mean		7.50	6.90	6.90	8.70	8.30	8.00	6.60	7.00	7.30	5.00	6.00
Median		7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Mode		6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90

Key: 1= Implication (least) 5=Implication (moderate) 10=Implication (high)

Table 6.3 above reflects risks identified by respondents, from those identified multiple times to the least identified, as identified per "valid" row. Valid, in simple terms, represents a "chance" for a risk to occur during a procurement process. For instance, in every hundred procurement transactions, a chance exists that twenty-two of those were susceptible to fraud and corruption, whilst a chance of only three transactions are susceptible to inefficient contract management for every hundred transactions. Further to this, Table 6.4 shows data which is an extrapolation of Table 6.3 in order of those risks, with low implication at 5.00 to those with high implication at 8.70.

Table 6.4: Extract showing respondent's risks implication from low to high

Risk	Inefficient contract management	Others	Improper demand management	Supplier' s database	Policy and process dilemma	Monitoring and control deficiencies	Management overrule	Fraud and corruption	Collusion	Budget lack and/or mismanagement	Human capita disorder
Mean	5.00	6.00	6.60	6.90	6.90	7.00	7.30	7.50	8.00	8.30	8.70

Over and above a chance for a risk to occur, according to Kogan and Wallach (1964), cited in Mitchell (1999: 167), there exists a "danger", i.e., how "deep" a negative consequence is when such a risk occurs. So Table 6.4 above reflects the level of danger that each risk brings to service delivery. According to Table 6.4, inefficient contract management risk has the least implication amongst all on service delivery with a moderate rating of 5.00, whilst that with severe implication is human capita disorder at a high of 8.70. It should be noted that though human capita disorder has fourteen times the chance of occurrence in every hundred transactions, its danger when it occurs is most negatively influential at 8.70. On the other side, though fraud and corruption is most likely to occur, at twenty-two times, it's danger to service delivery sits at 7.50. In light of the above, this study argues that the state must find a reasonable balance between the two constructs, i.e., "chance and danger" in prioritising risks requiring much and immediate attention. Table 6.5 below reflects the implication rating of risks from the literature.

Table 6.5: Rating of implications of literature's risks

Risk	Technical failures	Financial	Criminality		Stock levels	Human resources issues	Procedures	Environmental
Valid	**20**	**20**	**20**		**20**	**20**	**20**	**20**
Mean	**7.60**	**7.50**	**7.40**		**6.90**	**6.70**	**6.20**	**5.70**
Median	**6.90**	**6.90**	**6.90**		**6.90**	**6.90**	**6.90**	**6.90**
Mode	**6**	**6**	**6**		**6**	**6**	**6**	**6**

Key: 1= Implication (least) 5=Implication (moderate) 10=Implication (high)

The literature risks were put to the test through rating. From a total number of ten, three risks, namely process efficiency, outsourcing procedures, and supplier-related risks, were compressed to one and named as "procedures", as it was found during interviews that these were in fact closely related and somewhat inseparable. Again human errors and loss of key personnel were grouped to one named as "human resources issues" due to them being alike, thus having total number of seven risks from literature. The literature risks were also portrayed as having negative implications with a rating between 6.20 and 7.60; except for environmental

issues, in the margin at a 5.70 rating. Moreover, the mode and median were also calculated and were found at 6.00 and 6.90 respectively, as per Table 6.5 above, thus showing significance. Table 6.6 below is an extract of the literature risks, in order of them having least implication at 5.70, to the one with highest implication at 7.60.

Table 6.6: Implication of literature risks

Risk	Environmental	Procedures	Human resources issues	Stock levels	Criminality	Financial	Technical failures
Valid	20	20	20	20	20	20	20
Mean	5.70	6.20	6.70	6.90	7.40	7.50	7.60

Table 6.6 shows risks as identified from the literature as having high implications on service delivery in supply chains, apart from environmental issues which are in the margin of "moderate". In brief, when these risks "strike" they bring the danger of distorted service delivery.

6.2.1.4 Section D: Inferential analysis

Section D provides inferential analysis. Inferential statistics were used in this study to test hypotheses and predictions. For parametric tests, the main tests conducted were regression analysis, ANOVA, Coefficients regression analysis test, and KMO and Bartlett's test.

6.2.1.4.1 Regression analysis

Normally regression analysis is a method of using observations to quantify the relationship between dependent variable(s) and independent variable(s) (Bryman and Bell, 2016d). The process of performing a regression analysis allows one to determine which factors matter most and, in this study, a regression model was fitted to model risks vis-à-vis supply chains' weakness in causing service delivery challenges. Table 6.7 thus shows the relationship between risks and supply chain vulnerability that has implications in service delivery. In this table, risks are classified as significant predictors, $F(1, 18) = 14.184$, of vulnerability in supply chains. In fact, an R-square value, which is a coefficient determination, is a measure of the predictive

capacity of the model; furthermore, it measures how well the model fits the data (Field, Discovering Statistics Using IBM SPSS Statistics, 2013). This test, as indicated in Table 6.7, yielded an R value of 0.328 and an R-square value of .107, which indicates a strong degree of correlation between supply chain vulnerabilities and risks.

Table 6.7: Model summary results for the linear Regression analysis test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.328[a]	.107	.100	2.801	.107	14.184	1	118	.000

a. Predictors: (Constant), RISKS

The next section presents the results of the test for the significance of the model, using an ANOVA test.

6.2.1.4.2 ANOVA test

An ANOVA table was used to test the significance of the model. Since the p-value is less than the 5 percent of significance level being .000m the model is significant. The results of the model are shown in Table 6.8.

Table 6.8: ANOVA results for the linear Regression analysis test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	111.251	1	111.251	14.184	.000[b]
Residual	925.549	18	7.844		
Total	1036.800	19			

a. Dependent Variable: VULNERABILITY

b. Predictors: (Constant), RISKS

The next section presents the results that test for the significance of the model, using a Coefficients regression analysis test.

6.2.1.4.3 Coefficients regression analysis test

A Coefficients regression analysis table was used to test the significance of the model. Since the p-value is less than the 5 percent of significance level, being .000, the model is significant. The results of the model are shown in Table 6.9.

Table 6.9: Coefficients results for the linear Regression analysis test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.992	1.459		5.479	.000
	RISKS	.377	.100	.328	3.766	.000

a. Dependent Variable: VULNERABILITY

6.2.1.4 .4 KMO and Bartlett's test

Sample Adequacy and Sphericity Testing Sample adequacy are measures to assess the correlation between variables. The KMO is utilized to measure the sampling adequacy which must be over 0.5 whereas Bartlett's test of sphericity is utilised to check the redundancy between variables and determine how it can be summarised with some factors; its adequate score must be below 0.05. The KMO and Bartlett's test results are shown in Table 6.10, Table 6.11 and Table 6.12.

Table 6.10: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	13.337
	df	1
	Sig.	.000

Table 6.11: Communalities

	Initial	Extraction
VULNERABILITY	1.000	.664
RISKS	1.000	.664

Extraction Method: Principal Component Analysis.

Table 6.12: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.328	66.379	66.379	1.328	66.379	66.379
2	.672	33.621	100.000			

Extraction Method: Principal Component Analysis.

Table 6.10, Table 6.11 and Table 6.12 above show the KMO and Bartlett's test conducted by this study. The results presented also confirm a significant relationship ($p<0.001$) between supply chain vulnerabilities and risks.

6.3 QUALITATIVE DATA ANALYSIS

The following sections, E and F examine the results based on the qualitative data collected. It discusses in detail the themes and sub-themes derived from the textual content obtained from the responses. Therefore, section E discusses risks found to be detrimental to goal achievement of supply chains. Thereafter, section F posits mechanisms that, if adopted, the study argues that supply chains will be able to cope and/or overcome risks discussed in section E.

6.3.1 Section E: Risks related to procurement of goods and services in Supply Chains

- Descriptive statistics

Part B1 focused on risks identification, its impact on service offerings, and establishment of mechanisms to overcome or cope with such risks. To answer research question one, the participants were asked to identify five risks that exist when procuring goods and services.

- Purpose of the question

Question 1 of part B1 as stated in the interview schedule (see Appendix A9), was used to identify current risks that exist with procurement of goods and services in the public sector, other than those found in the literature as listed in Part B2 of the interview schedule.

Results obtained.

Themes presented in Figure 6.5 represent risks that emerged from the primary data, being interviews, whereas those in Figure 6.4 come from secondary data as identified in the literature.

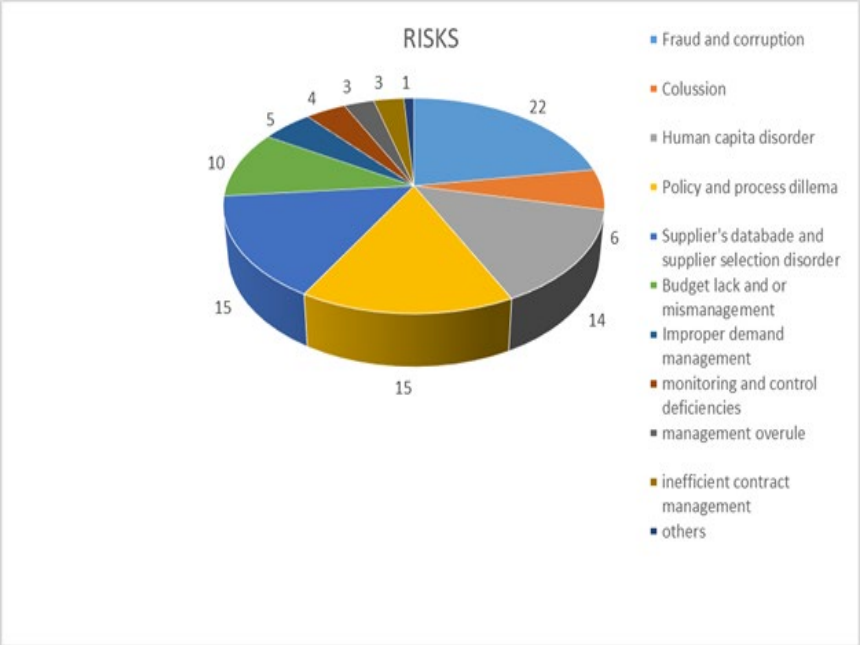
Figure 6.4: Risks from literature

- Analysis of the Results

The literature review suggests that (in no particular order), there exists a wide array of risks related to the procurement of goods and services, as shown in Figure 6.4 above. Although the majority of the documented literature is not public sector specific, many authors such as Mhelembe and Mafini (2019), Abdel-Basset et al. (2019), De Oliveira et al. (2017), Yan (2017) and Kırılmaz and Erol (2016) have actually taken the challenge to write about SCR. For instance, Abdel-Basset et al. (2019: 491) write about **environmental risks**, which these authors regard as being usually related to governmental environment, **economic**, social and climate factors. Kırılmaz and Erol (2016: 2) identify **legislation,** pressure groups and **crime**, amongst others, as being procurement risks in supply chains. From these assertions, the public sector too can learn about the existence of such risks. In fact the Chartered Institute of Procurement and Supply (2017), Briano et al. (2009: 193) and Waters (2007: 7) are referenced, citing public sector specific risks.

In the same vein as Kırılmaz and Erol (2016), the Chartered Institute of Procurement and Supply (2017) and Waters (2007: 7) identify government policies as being risks in the procurement of goods and services. Waters asserts that what possesses risk is government's ever-changing policies. Then again, the Chartered Institute of Procurement and Supply (2017) worries about procedures, including supply complexities, process efficiency and supplier performance monitoring methods as being some risks in the supply chain. It appears that these processess as well as human resources issues, herewith refered to as human errors, like its deficiencies, encourages risks to occurs. Technology related issues (Briano et al., 2009: 193) as well as stock level decisions (Radasanu, 2016: 145) are themselves risks related to stock out and inventory carrying costs.

Figure 6.5: Risks from respondents



- Analysis of the results

Figure 6.5 represents eleven risks that were identified by participants as prevalent within supply chains when procuring goods and services in the public sector. Eleven risks as identified by participants are discussed in detail below.

6.3.1.1 Fraud and corruption

One of the threatening issues in procurement as shown in Figure 6.5 above includes fraud and corruption. Fraud is defined as any intentional act or omission designed to deceive others,

resulting in a victim suffering a loss or a perpetrator achieving a gain. Corruption is defined as an abuse of entrusted power, in return for private gain. The same is ranked as the most prevailing risk in the public sector to date with a count of 22 of 100 views, thus making it a highly recognized risk in the public sector at 22 per cent. As a matter of fact, from discussions during interviews, this study identifies sub themes as presented in Table 6.13 below as elements of fraudulent and corrupt activities.

Table 6.13: Summary of themes: fraud and corruption

Theme	Sub Themes
Fraud and corruption	bribery
	dishonesty
	fronting
	theft
	unethical behaviour
	bid rigging

Discussing fraud and corruptions during interviews

The following were the views shared by participants regarding fraud and corrupt practices during interviews.

DOJCDR19: *"...now and again officials in this space find themselves being tempted by external forces to accept gifting's which we know may be in exchange for something in future."*

DOJCDR3: *"...sometimes service providers will approach you after hours and if you are not honest enough, you will not report, you will take whatever they offer you that's where start your first mistake". This respondent further indicated, "The pressure is the salary levels, because once you work in supply chain, you are stuck in one level for a longer time, you have needs, you are bound to be bribed, service providers have a tendency of offering bribes so that they get the tenders."*

DOJCDR16: *"...deliberately drafting a specification and advertising bids in a manner designed to favour a certain service provider, for instance while you know in the market no one else have a 20 years' experience, then you put 20 years' experience as a requirement."*

DOJCDR15: *"...the not so correct structure, open loopholes, gives people opportunities to do anything and everything without being found, this supply chain, there is no chain, people ends up getting interested in doing wrong things."*

DOJCDR12: *"...there is lost hope, it appears as that nobody really cares, cases we've seen publicized have all fallen in vain. Instead, those who report turn to becoming victims and even lose their lives."*

DOJCDR19: *"...trust no one because you can never know your peers' thoughts."*

This study's findings, as alluded to by respondents above, point out both the internal and external environment as being the originators of corruption. They identify deliberate acts of exclusion of potential suppliers by drafting specifications and/or bids in the manner that favours just a single supplier (DOJCDR16); clearly the principle of fairness as required by subsection 217 of the Constitution of the RSA is neglected. But then suppliers too are party to this anarchy. According to DOJCDR19, suppliers have this "giving hand" that tempts officials now and again. They go to the extent of approaching officials after hours with such gifs, which, due to dishonesty and financial pressure, one is bound to accept and not report (DOJCDR3).

This defies the code of conduct which stipulates "an employee shall not receive or accept any gift from any person in the course and scope of his or her employment, other than from a family member to the cumulative value of R350 per year, unless prior approval is obtained from the relevant executive authority" (South Africa, Department of Public Service and Administration, 2016). DOJCDR15 faults this with the structural deficiencies or loopholes that permit officials to do anything and everything without being caught. DOJCDR1, believes that nobody cares because even all the reported cases have been unsuccessful. On this note, DOJCDR19 says "trust no one". Sadly, risks of this nature were reported long ago as an issue that needed urgent attention (Ambe, 2009; Dlova and Nzewu, 2014; Bizana, Naude and Ambe, 2015). This occurs even though there are measures such as discouraging buyer-supplier relationships (McKevitt and Davis, 2014: 550) and prohibition of companies whose directors acted corruptly to do business with the state. Further, SCM practitioners sign a code of conduct which compels them to avoid any unethical and illegal acts. Nonetheless, the rate of fraud and corruption continues to rise. Pienaar (2019: 14) blames this on process complexity. Having said that, surely something is being done, but surely something more must be done because whatever else that

is in place right now is not working. Perhaps *"zinqanyulwe amakhanda zashiywe",* meaning measures in place currently are insufficient and the roots continue grow.

6.3.1.2 Policy and process dilemma

Chapter two of this study discussed in detail the policies, namely legislative frameworks that govern the procurement fraternity in the public sector in SA. Then chapter four discussed the procurement process in SA, DOJ and CD, and those employed by Mauritius, Namibia and Somalia. Surprisingly this study finds policy and process quandaries to be projected as the second highest risk together with the supplier's database and supplier selection disorder in procurement in the public sector, at 15 per cent. This study identifies the frustration with an intricate process that is tiresome, time consuming and effort draining. Again, it finds that there are too many policies, and they are frustrating (DOJCDR12).

Supporting the preceding respondent, DOJCDR11 mentioned that there are National Treasury policies, then departments have their own policies, of which, according to DOJCDR13, some of these policies bears no practicality for implementation. DOJCDR6, DOJCDR9, DOJCDR13 and DOJCDR17 voiced their concerns on non-policy compliance. But DOJCD10 voiced concerns on policies that are compliance-focused instead of being service delivery focused. Meanwhile, DOJCDR3 and DOJCDR8 believe there is a lack of understanding and knowledge on policies, which, according to DOJCDR3, results in irregular or unauthorized expenditure that can thereafter lead to litigation (DOJCDR1). The following are extracts from some of the interviews with respondents.

Table 6.14: Summary of participant's responses on policy and process dilemmas

Theme	**Participants' responses**	**Source**
Policy and process dilemma	*One of our major risks is our procurement process, it is too complex, tedious, time consuming and effort draining*	*DOJCDR1*
	Policies are unbelievable too many, that we even having more than 10 years' experience, we still fail to cope with these polices, I feel my mind must travel the entire world just to produce a single outcome. This is very frustrating.	*DOJCDR12*

	There are National Treasury policies and departments have their own policies.	*DOJCDR11*
	Some of policies are "not possible" or difficult to implement.	*DOJCDR13*
	The problem is that policies are compliance focused, look at eh PFMA! Even the parliament is concerned about the three quotations	*DOJCDR10*
	Policy understanding and knowledge lacks	*DOJCDR3 and DOJCDR8*
	You are bound to commit irregular or unauthorized expenditure	DOJCDR3
	Non-compliance to policies may lead to litigations	*DOJCDR1*

In light of the above, the following sub themes as stated in Table 6.15 relate to policy and process dilemmas as identified from the view of the respondents.

Table 6.15: Sub themes of policy and process dilemmas

Theme	Sub themes
Policy and process dilemma	policy, prescripts, procedure knowledge, understanding lacks
	Policies are too many
	Policy non-compliance- no consequence
	Compliance focused policies
	Process complexity
	Impossible policy instructions
	inappropriate management delegations

It seems government's own plan backfired. Government's own 'dog' has outgrown it to bite back. In fact, it appears as that SA government's policy inceptions became one-step forward whilst taking a few steps backward. As such, it could be argued that policy directives require a lot of re-thinking. Findings of this study show that these laws have not contributed toward improving internal processes as anticipated by Governance Theory (Denhardt and Denhardt, 2015: 665-666). Instead, it brought about complexities, delays in service delivery and impossibilities that simple add to non-compliance. Similar risks of government policy dilemmas were raised by Waters (2007: 7) and the Chartered Institute of Procurement and

Supply (2017) in the past. Recently, Mhelembe and Mafini (2019: 2) shared the same sentiments as they report ambiguous and fragmented policies as a major barrier in SCM.

6.3.1.3 Supplier's database and supplier selection disorder

As indicated by SmartProcurement (2019: 5), it has been found that the government of RSA has adopted automated technology access to its supplier database, namely CSD. Suppliers register themselves and then buying officers across national and provincial spheres of government select from them. Despite this initiative, this study's findings suggest that this has brought risks into the procurement space. This risk is also ranked second highest together with policy and process dilemma at a rating of 15 per cent. There are mixed feelings regarding this risk. However, respondents' general view is that CSD is too open-ended and is easily manipulated. Amongst other flaws, it allows suppliers to register for anything, everything and for everywhere (DOJCDR20 and DPJCDR13). One then wonders of the possibility for someone to specialize in everything and everywhere. This is perhaps the reason why DOJCDR12 voiced concerns on hardships experienced by supply chains, in terms of prolonged and no deliveries that are caused by "middle men". But DOJCDR9 believes delivery constraints are rather caused by underquoting. There is an outcry from DOJCDR2 of no supplier rotation wherein officials accept three quotes from a single supplier. DOJCDR13 views the three-quotation requirement in a different way for some areas. This respondent feels it is a hindrance to service delivery and a financial burden in that requirements prohibit officials from procuring from one supplier again and again although no other suppliers exist nearby, which then delays service delivery and will result in additional costs in calling out suppliers from afar in the interest of "rotation". Another striking view is that of DOJCDR9 who identified a risk of officials selecting names which they know on the CSD. Meaning that despite the presence of this CSD, "preference supplier selection" still exists.

Some of these frustrations are aptly captured by respondents as below:

DOJCDR20: "… *Since anyone can register for anything in CSD - it creates an impression that those suppliers specialise in those aspects - so we select them - only to find they don't even know what that service is – not to mention having relevant legislative documents to enable them being used - where no documentary proof is required, we end even giving them purchase orders and only to find they can't deliver."*

The same was concurred and further expanded by the below respondent.

DOJCDR13: "…*The fact that they allow suppliers to register for all areas in the country and for all commodities. The risk for me is that you have construction companies doing catering. The quality and time period, all that becomes a problem. We have suppliers that will take the purchase order and they never deliver because at the end of the day, I can't find the stock or it's too expensive, I don't have money - that kind of things, because they have to go to other suppliers to buy it."*

DOJCDR12: "…*These middle men are the main causes for our sufferings, they have no financial power, no reputation to be trusted even by their suppliers."*

DOJCDR20: "…*Supplier rotation requirement for smaller town is itself risk. Prescripts want us to rotate suppliers whereas there's only one supplier for plumbing or electricity or mechanics; now you have a problem every week, now the process expects you to rotate suppliers and that becomes a risk because you keep on asking same supplier, prescripts will tell us you can't do that because you don't rotate suppliers, it doesn't understand that there is no other supplier in the next 15 or 20 or 100 km, now I will have to go to other town and those suppliers will charge additional monies, because they must include transport, even coming to do a quotation."*

From the responses above, it is apparent that the CSD, its requirements and form, though identified as a necessary initiative, also comes with some loopholes that neither spare the public sector from fraud and corruption nor protect it from receipt of inferior goods and services. The same view was expressed in Mpehle and Mudogwa (2022: 6), where 36% of respondents alluded to the fact that CSD was not reliable, for reasons like suppliers are not vetted when registering, and most of the suppliers register for a commodity that they do not specialise in, in terms of the core function of business. They also can register for different locations and for any industry classifications without any capacity validation. This, according to the preceding author, exposes the state to risks of delivery failures due to tight lead times or delivery costs.

6.3.1.4 Human capita disorder

Responses from respondents pointed out that there exist a number of human capita sicknesses in the public sector currently, as depicted in Table 6.16 below.

Table 6.16: Summary of themes, human capita disorder

Theme	Sub themes
Human capita disorder	Structural deficiency
	human capita deficiencies
	junior human resources performing senior work
	human capita misplacement
	one "man's station" no segregation of duties
	human resources with no qualification
	overstay at procurement
	severe exposure to temptations
	employees performing this function purely for money

Respondents reported a mix of disorders as shown in Figure 6.16, rating at 14 per cent, which ranges from no proper supply chain structure, human resources deficiency resulting in no segregation of duties, and lack of proper qualifications, knowledge, skills and capacity. With great concern, DOJCDR8 pointed out that there is supposed to be a chain which links people to one another. This respondent stated that currently this is absent and gave an example of a court with only three people, namely a court manager, an interpreter, and a clerk. In this set up, a procurement document is handled by only three persons, if not two at times. These findings are consistent with the views of Nkwanyana (2021: 1) who reported the scarcity of personnel carrying out SCM functions, lack of suitable training, and as a result, scanty knowledge on SCM processes. This is rather worrying because according to Overstreet et al. (2019: 42), SCM is dependent on its people and its workforce. Therefore, without a doubt, this compromises the segregation of duties and thus poses huge risk of fraud and corruption. In support of this, respondents said the following:

DOJCDR15: *"…Where is the chain? According to me the chain is something long, with many pieces. If it's like that it won't be easy for fraud. How can you make it short? That's why there are loopholes."*

On the other hand, DOJCDR14 mentioned a concern where one person performs the work of more than one, namely capturing and approval, due to no capacity. This was supported by DOJCDR11 who mentioned that in this sector, one will find a junior performing the work of the senior officials simply because there is no one to do it. Another view from the respondents' discussion concerns the "wrong" persons working in supply chain, namely procurement. They

identify personnel misplacement. DOJCDR15 identified misplacement of persons that find themselves in supply chain simply because there are no job opportunities. Another risk is where people have put "money" at the forefront of all that they do. This has taken their passion, love, and respect for their job. Again there are people who have exposed themselves to too much, such that they have placed their cost of living at an undesirable level. This respondent is quoted indicating, *"... money change the mind, people have become greedy"* (DOJCDR15).

Then again, there are people that have been "dumped" and do not qualify to work at the supply chain. This can also be identified from the statement below:

DOJCDR3: "…*Other people are working in Supply Chain. They are not even qualified, they don't know the risks, they don't know policies of conduct because other people are transferred from other sections without going through those processes of working in supply chain."*

Sadly, whilst the public sector possesses the calibre of human resources mentioned above – 'weak and clueless' – the environment under which these persons operate is not a child's play. This is stated in the statement below:

DOJCDR18: *"...the environment is polluted, with external forces forcing way in, via financially rewards."*

This environment brings serious temptations and therefore calls for a serious thinking and action by all stakeholders in it. The reality is that human resources is one of the properties of the supply chain system, and if it weakens, it subjects the entire supply chain to vulnerability.

6.3.1.5 Budget lack and or mismanagement.

Securing the fifth position at a rating of 10% is budget lack and/or mismanagement. Table 6.17 below captures sub themes related to budget lack and/or mismanagement that could be picked up from the study. These include unavailability of finances, financial misuse, irregular expenditure, exorbitant prices and non-receipt of value for money.

Table 6.17: Summary of themes for budget lack and or mismanagement.

Theme	Sub themes
Budget lack and or mismanagement	Financial unavailability
	Financial misuse
	Irregular expenditure
	Exorbitant prices
	No value for money

There is a requirement that the CFO is to be appointed to assist and support the AO in discharging his or her duties, which includes, amongst others, division of revenue, sound budgeting and budgetary control practices (South Africa, Treasury Regulations 2005: 82). Reported herewith are concerns of financial unavailability in the public sector to support it in attaining its constitutional goal of service delivery. One begins to wonder whether or not sound budgeting and budgetary control practices are in place in this sector. Noted were concerns of financial abuse, and unauthorized as well as irregular spending of financial resources, which, according to DOJCDR19, occurs as a result of "no knowledge" of procurement processes. DOJCDR16 believes that this happens as a result of officials' negligence since officials fail to read. Findings such as that of awarding service providers owned by government employees and that of buying goods and services at 'ridiculously' inflated prices are some of the noted concerns. DOJCDR16 states that awarding of works to government employees should 'actually' not be happening because officials know that government employees are prohibited from doing business with the state and the CSD does identify persons who are in the employ of the state.

This is advocated by the below respondents, where they said:

DOJCDR19: "*…you often find that some of our role players don't know processes to procure different items and would approve purchases even outside their scope."*

DOJCDR16: "*…this happens because most of our officials are lazy to read. Findings such as that of awarding service provider owned by a government employee is '>>>>'. We know government employees are prohibited to do work with the state and CSD identify it as yes, so why award such suppliers?"*

Therefore, this study's findings are consistent with the views of Pienaar (2019: 33) who cited mismanagement of Eskom as a result of incompetence. Sadly, the state is aware of this because in its SCM review conducted by National Treasury 2015, alarming issues of capacity deficiency, including incompetence, were raised (South Africa, National Treasury, 2015: 4). Unfortunately, all that is known to date is that plans are underway to professionalize the procurement space by capacitating SCM practitioners with the necessary skills and competencies for procurement (Manjate, 2019: 21).

Whether or not this will eventually happen and/or when it would happen is rather unknown. However, unlike in Namibia, where a procurement policy unit exists to build the capacity and competence of procurement officials, amongst other duties (Namibia, office of the prime Minister, 2015: 9), in SA it is not mandatory for National Treasury to assist public institutions to build capacity; instead, it 'may' do so (South Africa, National Treasury, 1999: 23). As such, the National Treasury remains unaccountable for any lack or whatsoever of capacity in public sector institutions. Instead, it sets norms and standards, and enforces their application and that of PFMA. Thereafter it monitors and assesses their implementation, including taking appropriate steps in the case of gross breach of the same (South Africa, National Treasury, 1999). Therefore, for any procurement competence in SA, it appears that SA has accepted the risk of self-teaching, where each one teaches themselves through reading. If one does not, then one is 'doomed'; a very dangerous game.

6.3.1.6 Collusion

Collusion is defined as secret or illegal cooperation or conspiracy in order to deceive others. In this instance, two or more parties work together to mislead others. Findings of this study identified two different types of collusive acts, namely collusion amongst suppliers and collusion between suppliers and employees. It emerges that there are two root causes of collusion. DOJCDR12 identified that hunger and greed aggravate collusion. During the interview, the following was cited by this respondent:

DOJCDR12: *"…hunger causes temptations though sometimes it is pure greed."*

Though this risk received a rating of 6 per cent in this study, this is however well known or recurring in this space. This was also highlighted in the SCM review conducted by National Treasury a few years ago (South Africa, National Treasury, 2015: 5).

6.3.1.7 Improper demand management

From the respondents' perspective, there is a mix of improper management of the requirement for goods and services, rated at 5 per cent. This includes inadequate profiling of needs wherein the specification is either unclear or lacks detail with regards to the required quality. This, according to DOJCDR9, results in organizations receiving inferior goods during delivery. This is cited by respondents as below:

DOJCDR9: "…*then upon delivery we find quality goods or services being delivered are 'sapa'*."

Another aspect is that of requirement checks of whether or not the public sector is buying that which contributes to overall service delivery. Again, issues of overstatement and misinterpretation of needs is highlighted. This can be confirmed by the statement below:

DOJCDR15: "…*checking if we are really buying what we need which must benefit public."*

This is rather surprising because according to Hugo and Badenhorst-Weiss (2011: 50), specifications must be clear, precise and comprehensive. The responsibility of drafting such specifications is placed with the end-user and BSC depending on the threshold values of goods and services to be procured (South Africa, Treasury Regulations, 2005: 50). Cordell and Thompson (2019: 3) assert that buying practitioners have a role to cross-examine the specifications. Therefore, there should not be a stage wherein procurement officials get surprises at the delivery of substandard goods because unclear specifications should have been identified and referred back for BSC or the end-user's clarification before the RFQ or RFB advertisement.

6.3.1.8 Monitoring and control deficiencies

This study also found monitoring and control insufficiencies in the public sector. Though at a very minimal scale of just 4 per cent, it was identified that there is a lack of oversight when procurement processes are being undertaken; this then, according to DOJCDR19, results in incorrect awards of tenders. Similar findings of lack of monitoring were raised by AGSA in 2019. According to AGSA, this was the main cause of project failures (AGSA, 2019) as well as contract default (Mwangi, 2018: 16).

6.3.1.9 Management overrule

A small number of respondents identified management interference, ignorance and influence. In their view, some managers have influence on needs identification, including its fulfilments (DOJCDR9). Further, managers are reported as using powers to force junior personnel to do things contrary to the law. At times managers simply ignore the policy requirements and prioritize service delivery.

These concerns are well captured below:

DOJCDR3: *"…at times your manager will force you to do things that are not according to the policy."*

DOJCDR10: "*…if manager is service compliant, friction exist with supply chain."*

6.3.1.10 Inefficient contract management

One other issue of concern is inefficient contract management. This study found that there are instances wherein procurement is conducted outside contract terms, thus causing irregular expenditure. This is articulated as below:

DOJCDR20: "*…we are often faced with irregular spent; due to that we did not comply with contract terms."*

This risk has been the challenge for many countries for over a decade (Oluka and Basheka, 2014: 105). Sadly, it is only through effective contract management that risks of non-conformance in agreed upon obligations is reduced and continued supply is somewhat assured (CIPS, 2019:10). A noted requirement from the DOJ and CD is that the end-user is tasked with the responsibility of managing contract execution, and the national office contract management unit simply maintains the original contractual documentation, including related adjustments, variations and extensions (South Africa, DOJ and CD, 2021: 54[38]). Aside from this, each buying office must familiarize itself with terms and conditions for such a contract.

6.3.1.11 Others

Other risks identified at a very low one per cent include job insecurity, procurement delays as a result of documents being incorrect, and credibility of the state. DOJCDR1 believes that the credibility of the state is at risk, caused by damaged trust as a result of irregularities, whether proven or not. DOJCDR20 fears for their jobs as she advocates that they are left to find a balance between compliance to policies and service delivery. The respondent mentioned that if one prioritizes service delivery, overlooking some flaws in the process, the process is converted to irregular, whereas if one prioritizes policy compliance, one is still faulted with poor performance. Once more, the back-and-forth document exchange, due to their being incorrect, poses a major risk to overall service delivery in this space.

6.3.2 Section F: Remedial or resilience measures to cope and/or overcome procurement risks.

This section discusses the study's findings on the mechanisms that could be adopted to aid public sector supply chains to overcome or cope with risks as discussed in section 6.4 earlier. This is to answer the third research question aimed at ascertaining what measures could be put in place to cope or overcome procurement risks. Question 3 of part B1 and question 2 of part B2 as stated in the interview schedule (see Appendix A9), were used to identify mechanisms that could be adopted by the public sector to reduce its vulnerability and thereby overcome or cope with procurement-related risks. The findings in relation to this research question are depicted in Figures 6.6, 6.7 and 6.8.

Figure 6.6: Mechanisms to cope or overcome respondent's risks

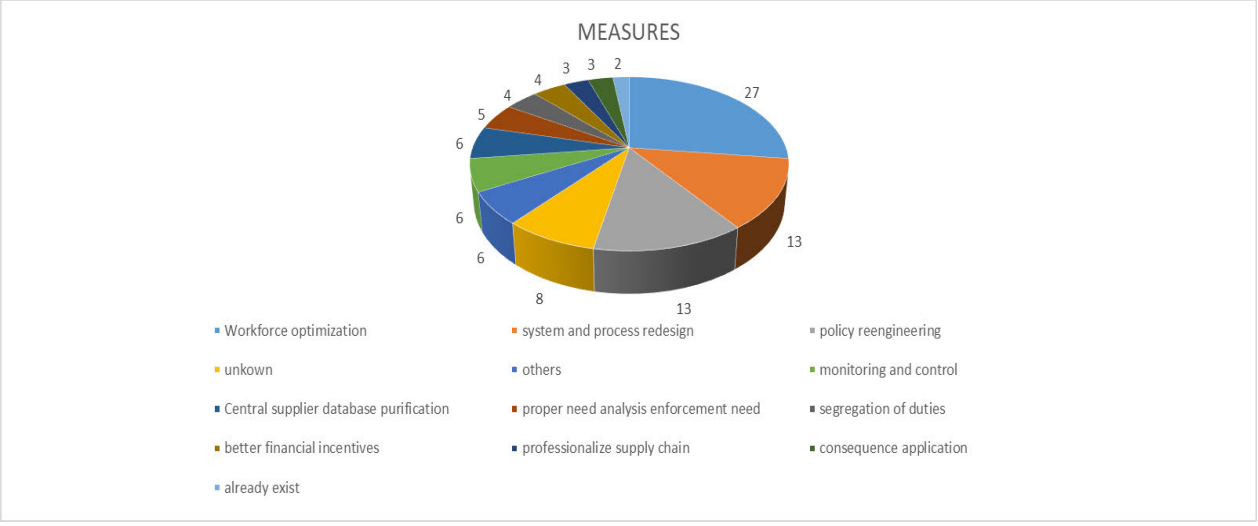


Figure 6.6 above reflects mechanisms that were identified as crucial in reducing the state's vulnerability to eleven risks as identified by respondents. The same further shows how many times each mechanism was identified by respondents. Then Figure 6.7 below reflects mechanisms that were identified as remedial measures for the risks identified in the literature. Numbers shown represent counts of number of times mentioned in different instances. The same can be regarded as an emphasis on the importance of such a measure to reduce risks.

Figure 6.7: Mechanisms to cope or overcome literature's risks

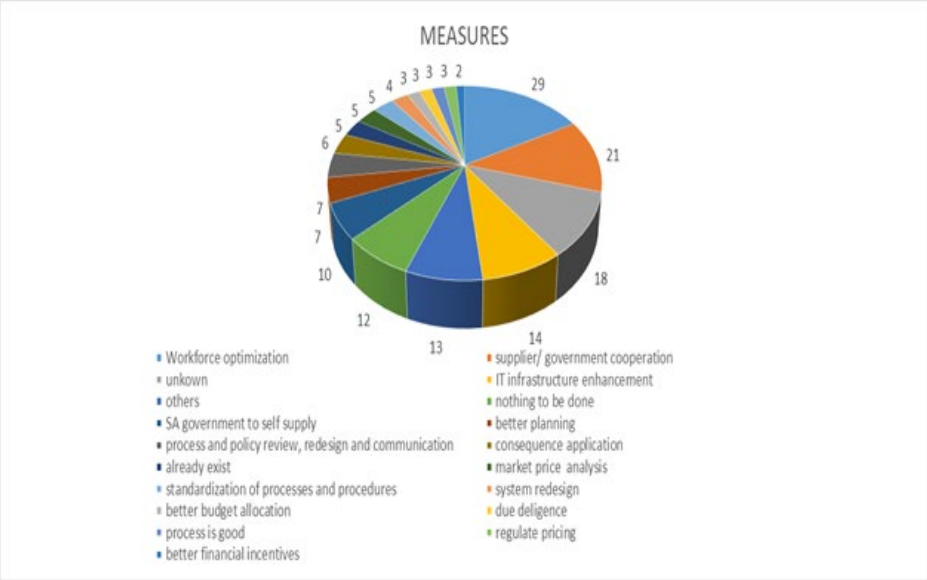


Figure 6.7 above show mechanisms to cope with or overcome the seven risks that were identified from the literature, then Figure 6.8 below gives an overview of all measures combined, as identified in this study, as well as the number of times mentioned, emphasising the dire need for such activity to be performed. Overall this study identified twenty mechanisms to enable the state to become resilient to risks, thereby reducing their impact. Two of those measures require the state to do nothing, because if it said that measures to reduce risks already exist and where practitioners submit "no knowledge" of what can be done, then nothing is to be done. Overall mechanisms to cope or overcome risks are shown in Figure 6.8.

Figure 6.8: Overall mechanisms to cope or overcome risks

Rating	Mechanism to cope or overcome risks	No. of times mentioned
1	Workforce optimization	56
2	Unkown	26
3	System & process redesign	22
4	Nothing to be done and or measures already exist	22
5	Supplier & government cooperation	21
6	Policy redesign & reengineering	21
7	Others	19
8	IT infrastructure enhancement & rethinking	14
9	SA government to self supply	10
10	Monitoring and control	10
11	Consequence application	9
12	Better planning	7
13	Central supplier database purification	6
14	Better financial incentives	6
15	Proper need analysis	5
16	Market price analysis	5
17	Segregation of duties	4
18	Professionalize supply chain	3
19	Regulate pricing	3
20	Better budget allocation	3

Figure 6.8 above gives an overview of all measures, combined, as identified in this study, as well as the number of times mentioned. Figure 6.6, Figure 6.7 and Figure 6.8 reflect on measures indicated by respondents that, if put in place, the public sector will be better positioned to overcome and/or cope with procurement risks. These measures are discussed in detail below.

6.3.2.1 Workforce optimization

Figure 6.8 reveals a strong view for the urgent need of workforce optimization so that the public sector could overcome and/or cope with procurement risks. Data gathered suggests that this should begin with rethinking the supply chain structure, which, according to DOJCDR17, must comprise fully skilled and professional personnel so as to enable successful implementation of SCM. Other respondents such as DOJCDR15 and DOJCDR11 advocate for the general appointment of more staff to complement the supply chain; also so that when key personnel exit the organization, there will be other persons knowledgeable enough to carry the business objective forward. Some respondents are specific in their view on what appointments must be

done. For instance, DOJCDR2 suggested that a market analysis unit must be established so that supply chains can be 'saved' from awarding works against exorbitantly priced quotations. Supporting the above, DOJCDR20 held a strong view that government "MUST" translate "POLICY" directives to "REALITY". In other words, a proper supply chain structure must be implemented. This respondent identified the need for a demand management unit to be created to conduct market analysis and advise end-users accordingly on available solutions in the market. The same is clearly stated by the respondents below:

DOJCDR17: "…*appropriate structure with fully skilled and professional personnel is key for success in SCM implementation."*

DOJCDR11 and DOJCDR15: *"...hire more staff."*

DOJCDR11: "…*hire people, if people leave, you mustn't say we don't have money because there were monies available for such posts."*

DOJCDR2: "…*departments must appoint market analysis unit so that we can tell whether or not prices are acceptable."*

DOJCDR20: "…*supply chain structure implementation, firstly government should commit in implementing real supply chain – not this current "chance" works – where supply chain in only on paper but exists nowhere in reality. Demand management component, if this unit can exist would really curb the buying of wrong items as they would do market analysis and advise end-users accordingly on the solutions available in the market."*

Surprisingly, demand management is one of the activities that the SCM system of state organizations must provide for (South Africa, National Treasury, 2005: 49). However, as highlighted by the preceding respondents, so far it is all on paper but not in reality. This is rather disappointing because one of the roles of the National Treasury is that it "must enforce PFMA and any prescribed norms and standards, including any prescribed standards of generally recognised accounting practice and uniform classification systems, in national departments" (South Africa, National Treasury, 1999: 14).

Other views depict the "type" of people to be appointed. People with integrity, who are honest, ethical, adaptive, hardworking, eager to learn, competent, having relevant experience and qualifications are strongly recommended for appointment in supply chains. However, issues of integrity are reported to be very challenging to achieve, simply because of salaries that supply chain practitioners earn versus financial values they handle; they are exposed to severe temptations that they easily fall into. Interestingly, DOJCDR12 is singled out, making an assertion that the resilience of supply chains is not dependent on "people being qualified"; it demands certain personality characteristics such as hard work and willingness to learn. This view is consistent with the assumed position of the state of the RSA, since supply chain practitioners at entry levels are appointed with no qualification. These are captured below.

DOJCDR19: "*…hire correct persons with high level of integrity."*

DOJCDR3: "*…I think only qualified people who went through the necessary training qualifications should be appointed to work in supply chain."*

Furthermore, they are to be checked prior to appointment. This is captured aptly below.

DOJCDR19: *"…do proper screening and vetting before hiring."*

DOJCDR12: *"…do honesty or integrity test before appointment and monitor this throughout employ duration. It also goes with personality, even if you are not qualified, if you are a hard worker, and willing to learn, you can easily adapt."*

DOJCDR3: *"…human resources to have integrity but also issues of salary levels, it's not easy to give somebody a purchase order of R500 000 whilst you earn R5 000 per month. Temptation is very easy."*

Moreover, a strong view is identified advocating capacity building, skills transfer, skills development and talent management through proper training as required by Treasury regulations (DOJCDR8), which should be continuous (DOJCDR12), more than once a year (DOJCDR10), as well as through teambuilding (DOJCDR3). DOJCDR17 and DOJCDR20 place the training role with National Treasury. These trainings can be achieved through on-the-job training (DOJCDR7), and by "train the trainer" (DOJCDR20). However, the public sector

shall "avoid self-training" (DOJCDR14); and this will in turn reduce frustrations (DOJCDR20). Below are the views quoted from respondents. Table 6.18 above depicts some of the views of respondents with regard to workforce optimization.

Table 6.18: Summary of participant's responses on workforce optimization

Respondents' responses	Source
Human resource appointed be ……trained as required by Treasury regulation.	DOJCDR8
I think they must constantly do team building trainings such as for fraud and corruption, all those things and risks must be highlighted, which indicates that if you commit this it would result to this.	DOJCDR3
On the job training.	DOJCDR7
Have training programme for new officials – establish train a trainer programmes.	DOJCDR5
If we can receive training, we can work much better and with less frustrations of back and forth.	DOJCDR20
Morale repairs, regeneration	DOJCDR18

6.3.2.2 Unknown

Many of the respondents have also shown some confusion on how procurement risks in the public sector supply chains can be overcome. Respondents such as DOJCDR18 are not sure what can be done to remedy issues of risk coming from suppliers who are not reliable, take forever to deliver and/or deliver poor quality goods and/or services. In the same view, DOJCDR13 portrays no solution as she indicates that although stringent policies can be put in place, people always find ways. DOJCDR3 proposes no solutions, and instead believes that mechanisms to overcome risks are already in place, just that there are always loopholes and the same goes with personality. DOJCDR18, though having similar view of not knowing what is to be done, contends that government must do something. The views of DOJCDR3 support the earlier assertions of the specific traits of persons to be appointed in supply chains as one other solution to the risks. Some of the respondents' views are captured below.

DOJCDR13: "…*It is very difficult – though you can make policies strict, people always find ways."*

DOJCDR18: *"…Government have to do something; I don't know what."*

6.3.2.3 System and process redesign

One of the noted ways to mitigate against technical failures, human errors, and political and social demands includes system and process redesign as identified from the views of the respondents. These views identify that, firstly, *the procurement system should be common across all state organizations* (DOJCDR16). *It must bear minimal human input but consist of a "click button" system which will eliminate human errors* (DOJCDR9). Implicit in the participants' responses is the point that it is actually processes and/or procedures within the system that should be redesigned to avoid mishaps like human error and noncompliance due to complexity. DOJCDR12 *says processes and procedures must be decided upon, put together as one, standardized and simplified by the public sector*.

This standardization, according to DOJCDR1, *should include even standardization of pricing to guard against exorbitant charges by suppliers.* Supporting his view, this participant made reference to what government did in 2020 where maximum sale prices for a number of Covid-19 response goods were regulated. This participant indicated that government could build on that and introduce "kept prices" for items it is felt the state is most vulnerable on. Other views are on modernization. For instance, in DOJCDR4's opinion, the procurement system should be modernized such that departmental websites should be used to advertise quotations and tenders. Departments should do away with the procedure of having procurement officials sending emails to a "selected few" service providers they obtained from the CSD. This will also guard against the risk of officials selecting the names of the suppliers they know or even the names of suppliers they want to receive quotes from. On the other hand, DOJCDR2 says rather capacitate the CSD to self-rotate suppliers so as to eliminate human intervention. DOJCDR10 takes this view a step further by proposing a paperless system wherein requests for quotation can be automated to go to prospective suppliers on a rotational basis; with quotes also receipted in the same way up until the purchase order is issued and the invoice received and paid, and after goods and/or services have been received. Supporting the earlier view of DOJCDR12, DOJCDR18 argues further and challenges the three quotation requirements for procurement threshold up to R30 000. This participant raised the distress they often find themselves in just

to comply with the three-quotation requirement, mentioning how potential suppliers are non-responsive, which delays service delivery. Other thoughts include testing the financial power and work experience of a supplier before works can be awarded (DOJCDR12) as well as introducing procurement committees as early as the threshold values of R600 000.00 (DOJCDR9). Some of these views are captured below.

DOJCDR9: "…*system redesign, minimum entries by persons instead encourage 'selection or click method' to input – i.e., delivery to Richmond KZN or Northern Cape, human must enter as little as possible."*

DOJCDR4: "…*government should modernize procurement system, when we want to procure, we must have the invitation placed on that internet so that everybody willing may see it without being sent an email or phoned by procurement staff, department must have that website where we put our quotations or tenders, if it is a quotation, it must be out under quotations, if it's a tender it must be put under tenders."*

DOJCDR4: "*…by having standardized procurement process whereby everyone will know what is expected from him or her when starting a procurement process will avoid human errors."*

DOJCDR18: "…*a three-quotation process for cases below R30 000 is maybe immaterial – we go back and forth trying to secure three quotes with irresponsible suppliers who aren't bothered to quote. Look an amount of R30 000 to me wouldn't enrich anyone – we could adopt a single quotation approach up to R30 000 and just make sure we comply to rotation."*

Taking from the above, it becomes evident that there exists a need to rethink, restructure and or re-engineer procurement procedures and processes to eliminate the vulnerability of supply chain system to risks. The idea of automation is in line with SmartProcurement (2019: 5) wherein it is suggested that organizations should adopt automated technology to significantly save time and increase the output of a procurement function. SmartProcurement (2019) warns of these being costly but asserts that this is a necessary expense since it drastically eliminates mundane administrative tasks. Supporting this view, Naude, Ambe and Kling (2013: 4) specify that it is actually appropriate LIS that are needed to navigate pathways between order placement and order processing. In addition, Gourdin (2006: 168) indicates a growing need for organizations to integrate their LIS with those of its partners in a supply chain, similar to the

views of DOJCDR10. This, according to Dumase (2018:61), can be made possible by EFT, EDI and VANs.

6.3.2.4 Nothing to be done and/or measures already exist

Interestingly, the same number of respondents alluded to the fact that mechanisms **already exist** to minimise risks such as those of technical failure and process complexity. This includes issuing of acceptance letters in instances of system downtime, reduction of paper work, declaration on SBD forms (DOJCDR7), and the use of blind copy when sending out RFQs (DOJCDR5).

DOJCDR7: "*…measures are in place, people have been held accountable, suppliers declare on SBD forms."*

DOJCDR9: "*…what they've done this year 'they heard my cry' removal of SBD 8, 6,1 and 9 makes work much quicker, process moves fast, time spent one requisition is now reduced, though we don't know for how long."*

While this was a much applauded move by the state, part of it was only interim as per justice circular 31 of 2022 titled "interim procurement policy on procurement of goods and services above R30 000", just for business continuity until clarity is received by National Treasury on Constitutional Court Judgment Regarding Preferential Procurement Regulations, 2017 (South Africa, DOJ and CD, 2022: 1). This is rather very sad, because practitioners had reached a "CRY" stage of hopelessness with processes not being in favour of fast service delivery. Notwithstanding, SBD 6.1, SBD 6.2, with its supporting requirement of annexures C, D and E, returned. This was as per South Africa, Department National Treasury (2022: 1) indicating "the 2017 Regulations in their entirety are still valid". As such, with the exception of SBD8 and SBD 9 which remained consolidated into a new SBD 4 titled as "bidder's disclosure", all other documents as discussed in chapter two of this study remained valid.

6.3.2.5 Supplier and government cooperation

A call for supplier and government cooperation has been expressed through the views of a reasonable number of respondents. A group of respondents suggested there exists a need for drastic change of the supplier's perspective. One is to cease the assumption that as soon as one registers on the CSD, they ought to be awarded with works (DOJCDR2). Further, suppliers

should not quote for goods that they have no stock for (DOJCDR6). On the other hand, DOJCDR7 voiced major concerns about suppliers not quoting, thus causing a challenge in meeting the current outsourcing requirements of three or more quotations for procurement exceeding the value of R2000.00. Moreover, DOJCDR20 pleaded for realistic quoting by suppliers. In addition, government is identified as having a huge role to play pertaining to suppliers with whom supply chains do business with. This should begin by limiting commodities that which suppliers can list themselves on CSD for (DOJCDR7) of which they can be developed on and become experts (DOJCDR2).

It can be argued that the same will somewhat curb the problem of "no quoting" and/or "no delivery" as identified earlier since suppliers would have registered only for commodities, they specialize in. DOJCDR7 suggests a maximum of five commodities per supplier. Moreover, DOJCDR8 advocates for supplier empowerment, wherein government and SITA meet its suppliers and educate them on the dos and don'ts of this business. This, according to the participant, will enable suppliers to grow. This is also in line with Christopher and Peck (2004: 7) who contend that through exchange of information, collaboration is achieved and must take centre stage so as to achieve supply chain intelligence. Supporting this view, Zhang, Jia, and You (2021: 9) regard collaboration amongst partners as influential towards increased supply chain resilience.

Another view is that government must provide financial power to suppliers through subsidies (DOJCDR6), funding (DOJCDR15), and payment of suppliers in advance, at least half, to enable on-time delivery (DOJCDR11). In conclusion, DOJCDR10 proposes that suppliers must be held accountable by cancelling purchase orders where deliveries are not effected on the promised dates; however, on condition that the process allows practitioners to simply award the next preferred supplier without restarting the procurement process afresh. Some of these views are captured below:

DOJCDR7: "*…there is a bundle of suppliers, there should not be a problem, but the only problem is that some suppliers have a tendency not to respond to government anymore because they don't win the bid, you have to phone and still some of them are reluctant still."*

DOJCDR20: "*…these small suppliers must understand 'one purchase order' does not mean they have made it in life – be realistic in quoting.*

DOJCDR7: "…*we should actually minimize supplier commodities that each supplier may register for to five per supplier, so that suppliers can do their core functions."*

DOJCDR2: "…*service providers to be encouraged to have their speciality items, which they can be able to develop and be experts."*

DOJCDR8: "…*meet with suppliers even though not all of them, give them tools, tell them what we expect, raise our concerns and ask them how we can help them grow."*

DOJCDR6: "…*government and SITA to fund suppliers or SITA to train suppliers on how to get funding."*

6.3.2.6 Policy redesign and/or re-engineering

The study's findings show an urgent need for policy redesign. Amongst others, there are views that policies need to be redesigned to harness a balance between controls and service delivery (DOJCDR19), to allow monitoring and evaluation for sound governance and accountability and to cater for all areas including those in small towns and rural areas (DOJCDR13). These participants are quoted: "*I think policies should be designed with a balance between controls and service delivery objective"* (DOJCDR19). DOJCDR13 states, "*prescripts be revised to cater for all areas – to indicate what must happen in small towns or rural areas."* Another view is of policy cuts and consolidation of all applicable policy requirements into a single policy (DOJCDR12). Agreeing with this, DOJCDR11 suggests this one policy must in fact come from National Treasury, with the government discontinuing departmental policies. Moreover, a strong of view concerning review of the procedural setup of processes was expressed. This includes raising petty cash limits as well as single quotation requirements to values of R5000 each so as to save time (DOJCDR14 and DOJCDR9). Conversely, DOJCDR15 suggested that single quotation requirements should be discontinued as it exposes government to vulnerability to risks. On the other hand, DOJCDR3 suggests that the process allow direct procurement from well-known companies like Game stores. This participant states, *"it feels like everything was structured in Robben Island."* The suggestion was made to do away with policy directives that require cross functional teams because according to DOJCDR16, the "*reality is that where for instance, amongst the team, only one person is specialized in a particular service or works to be procured, like security. That knowledgeable person dominates the committee and all of us are actually rubber stamping whatever she or he*

says." Above all, there was a shared view that policies should be created by persons with practical experience in grassroots operations – so-called experts – with assistance by the legal team. This must be well-communicated so that supply chain practitioners know what they are doing (DOJCDR2). This call for process rethinking is in line with Governance Theory which focuses on improving internal processes, as recommended by NPM. Further, this is in line with Agrawal and Pringle (2020: 276) who assert that at this point in time, the supply chains need to be reconfigured, rearranged and redesigned to incorporate resilience.

6.3.2.7 Others

The findings of this study raise a number of "other" mechanisms that the state could look into to improve its resilience against risks. Cited from respondents, these include improving transparency (DOJCDR10), getting more with less monies, separating political from administrative powers (DOJCDR9), compressing SBDs into one (DOJCDR1), stock-piling (DOJCDR2), and stopping the unreasonable expectations placed on procurement officials, whereby they are made to perform every function that cannot be assigned to just anyone within an institution (DOJCDR11). Furthermore, some views pertain to supplier education by National Treasury as well as provision of facilities by government so that suppliers can administrate their company affairs, such as quoting (DOJCDR13), and government to incentivize banks to fund suppliers who have been awarded with works (DOJCDR9). One other striking view is quoted from DOJCDR18 who stated that "…*public sector must find ways to minimize official's exposure to temptations, again each official must build repellent measures towards temptations, what it is really, I don't know. It has to be an in-depth consultation amongst stakeholders involved."* The above raises a plethora of diverse measures for overcoming and/or coping with procurement-related risks. Whether any or all amongst these are practical, doable and/or realistic, it does not matter. One thing for sure is that something has to be done and maybe, as DOJCDR18 alluded, such mechanisms should come from all persons concerned.

6.3.2.8 IT Infrastructure upgrade

There was a general view that IT infrastructure calls for urgent attention by government. According to DOJCDR19, an urgent need exists for an infrastructure upgrade. This participant indicated, "*infrastructure upgrade is urgently needed, government to adopt new technology – government to move with the times."* Other participants such as DOJCDR1 are in agreement with DOJCDR19 and further note that BAS and JYP systems processing speeds must be

upgraded so as to support responsiveness. This participant suggests IT and National Treasury rescue this situation. Supporting the earlier assertion, DOJCDR17 advocates for easy-to-use technological software that leverages analytics and automation. On the other hand, DOJCDR5 proposes a major overhaul or improvement, not just on the network strength, but also on process inputs that result in the realization of a purchase order as an output. This participant feels there are so many immaterial steps that actually delay the realization of outputs that must be cut out in JYP. A three-phased order processing approach, according to this respondent, is enough.

DOJCDR18: "*…government to invest in infrastructure upgrade to cope with current times demands, at times government knows that fast internet isn't luxury but a MUST HAVE for better service delivery; this thing like Home Affairs' song of 'System is down' is really annoying to clients."*

DOJCDR5: "*…we need a big overhaul of our IT or improvement and also network strength at offices is very slow to give out result when you are searching; our JYP for example, to give out a purchase order is long process within JYP. I believe if a batch has been checked and approved, it shouldn't so long after that to give out a purchase order and the main issue is the system, still need to link, check this, still need to approve – system needs to be redone – sometimes JYP takes a long time to update. There is a lot of steps in JYP which can be skipped, which shouldn't be there, I don't want to use unnecessary, but I'll say they just cause a further delay for something already approved manually. Three steps should be enough for purchase order to come out – cut off some steps – summarize them."*

6.3.2.9 South African Government to self-supply

Responding to the risks associated with stock outs as a result non-availability of required items from suppliers, exorbitant price charged by suppliers as well as complexities in the outsourcing procedure, respondents identified "self- supply" as an option that government may adopt as a coping mechanism to this dilemma. Respondents feel that the public sector must be its own supplier, in that it must produce its own supplies. DOJCDR19 asserts the state must produce those things it needs the most. The same is supported by DOJCDR3 who asserts that the SA government must re-establish factories, such as those of sewing, woodwork and farms. Expanding on this, DOJCDR20 advocates that TVET colleges be capacitated to produce skills that are really required. Though this may eliminate risks as cited by the respondents, it would

hamper the realization of the mandate of the BBBEE Act which advocates, amongst others, cohesive socio-economic strategies such as increasing the number of black persons that own, manage and control the enterprises. Therefore, start-ups, small, medium and micro enterprises, cooperatives and black entrepreneurs may cease to exist.

DOJCDR3: "…*SA to establish companies like farms, sewing, woods work, factories, same as during apartheid government. Matric and go learn for six months at training college."*

6.3.2.10 Monitoring and control including due diligence.

Concerning solutions that the public sector can adopt to curb a number of risks such as ineffective contract management, human error as well as fraud and corruption, respondents identified monitoring and control. According to DOJCDR19, it should be done by everyone involved in the procurement process. Respondents assert that more diligence, expertise and supervision should be enforced in checking. DOJCDR17 identified regular assessment and evaluation whilst DOJCDR7 proposed surprise regular audits wherein people will be held accountable for wrongdoing.

DOJCDR14; "…*proper check and recheck and segregation of duties."*

DOJCDR19: *"…due diligence and care must be taken by everyone involved in the procurement process."*

6.3.2.11 Consequence application

Responding to the question of what can be done to cope or remedy risks such as those from suppliers, criminality, as well as non-compliance, a small group of participants cited consequence application. DOJCDR20 asserted that penalties such as restriction from future use must be imposed on those found in contravention of the law, whereas DOJCDR19 said to expose them. Further, law and justice must act decisively and urgently on reported cases to set an example (DOJCDR20). DOJCDR4 differing opinion on consequences is that all unfulfilled deliveries must be cancelled on expiry of such a purchase order. DOJCDR4 supports this view but adds that such terms and conditions must be clearly specified in a purchase order because this is the only document that binds the department and the supplier. The same is captured as follows:

DOJCDR4: "…*we need to ensure consequence application by cancellation of purchase order, but clearly specify the delivery period on the purchase order because purchase order is the only document that binds the department and the supplier, so every information that binds the supplier must be clearly stated on that purchase order like the delivery period so that if the supplier doesn't deliver within that period, so there will be no need to write or remind the supplier, we just cancel the contract."*

6.3.2.12 Better planning

In order to curb risks such as those of outsourcing process complexities and loss of key personnel, respondents identified better planning as a solution. Parties involved must plan timely for people, goods and services' acquisition. For instance, DOJCDR19 asserted that the outsourcing process itself isn't posing any risk, if it is followed correctly and with timely planning. DOJCDR5 advocates for upfront replacement of officials three months prior to departure for hand over, and thus business continuity purposes. The same is depicted below:

DOJCDR5: "…*supervisor to be familiar with what subordinates do – better handing over – appoint a replacement three months in in advance."*

DOJCDR19: "…*If followed correctly with timely planning – it wouldn't be a problem – enforce planning and procedure compliance."*

6.3.2.13 Central supplier database purification

Responding to the issues of fraud and corruption and that of supplier's database and supplier selection disorder, respondents raised the point of central supplier database purification. For instance, DOJCDR3 said that suppliers must be vetted so as to avoid fronting for BBBEE scores. DOJCDR14 adds that due diligence must be done for suppliers registering on the CSD. This includes minimizing the number of locations each supplier can register for. According to DOJCDR4, suppliers must register for where they are located and for items that they specialize in. This is in line with the recommendation of Mpehle and Mudogwa (2020: 7) who stated that *"CSD should also have a limit in terms of the number of commodities that each company can register. This will enable the emerging small and medium enterprises to focus on their core business activities."*

6.3.2.14 Better financial incentives

One other suggested measure to overcome and/or cope with risks such as criminal acts and mismanagement of funds includes better financial incentives. Respondents such as DOJCDR1 and DOJCDR3 asserted that financial incentives of supply chain staff must be upgraded. According to DOJCDR1, it must be 'comforting'. DOJCDR12 further stated that the state must learn from the private sector in that pay must be comparable to work being performed, risk exposure, as well as finances being handled by a person**.** Supporting this, DOJCDR16 said, *"I also believe entry level 5 in this field is really unfair."*

DOJCDR3: "…*They should really look at upgrading salaries of people working at SCM, I'm not sure how it helps but the challenge is money. Once you don't have it and somebody offers you, you can't say no to money."*

DOJCDR1: "…*You are talking people seeing billions of rands being signed to external companies, also being offered cash incentives by external people. Though it may be a costly one and may not be easy seeing government already trying to cut wage bill. Seeing matter of abuse of systems vanishing like that in the eyes of the public, people not being held accountable, there is a lack and a serious in that. So, it then gives the impression that I can also do that without consequences. That's the culture it promotes which is very wrong as it only adds to the deteriorating environment. So, look at SCM practitioners' incentives and holding people alleged or that have been found guilty of certain crimes accountable and that will help in cultivating a new culture altogether."*

6.3.2.15 Proper needs analysis

Proper needs and market analysis are identified as measures that would assist supply chains to overcome and/or cope with risks. Alluding to this, DOJCDR4 stated that specifications are to be properly designed and understandable by end-users and supply chain officials. This, according to DOJCDR9, must match needs in terms of quality. These specifications, according to DOJCDR8, must be done with experts. The respondents are quoted below:

DOJCDR8: "…*in order to overcome the misstatement and interpretation of needs, specifications should be correctly done with experts."*

DOJCDR9: "…*specifications must be quality requisite to match needs."*

6.3.2.16 Market price analysis

So as to curb exorbitant price charges from suppliers and some criminality, respondents believe that market price analysis would be a solution. According to DOJCDR4, this entails prior fund availability checks. DOJCDR8 asserts that to know the price beforehand will actually assist, in that one would know the expected prices. All quotes received must then be scrutinized against this, per item.

DOJCDR4: "…*by ensuring that we have enough funds prior to procurement, we must first look at the market price at that time and then check our funds if they are too close to that and then start a procurement process."*

6.3.2.17 Segregation of duties

Of the solutions already discussed earlier, a few respondents suggest that segregation of duties could be remedial to the current risks in supply chains. DOJCDR5 indicated that segregation of duties be enforced. DOJCDR5 said there must be different persons for issuing of request for quotations, issuing of purchase orders and that of payments. This is in line with South Africa, DOJ and CD (2021: 9]) which directs the CFO to ensure the operation of an efficient and effective system of internal control, including appropriate segregation of duties.

6.3.2.18 Professionalize supply chain

The same number of respondents believe that professionalizing the supply chain is a remedy to the current dilemma of fraud and corruption. Respondents stated that only persons appointed for the supply chain, who must be licensed, paid accordingly must handle procurement affairs. This is tantamount to Occupational Specific Dispensation (OSD).

DOJCDR19: "…*introduce specialization in the supply chain field – disallow persons not appointed for supply chain to be delegated for procurement then continuously closely monitor supply chain officials so they may be reluctant to accept; if it happens, take away their license to work in this field for a set period –suppliers too – there is a need to strengthen restriction imposed to them in trading with government."*

6.3.2.19 Regulation of pricing

Responding to risks of the state being overcharged for goods and services, a few respondents assert that prices must be regulated. These respondents are quoted below:

DOJCDR9: "*…put ceiling amount for prices, i.e., indicate you may not charge me more than 6.50 price per square meter for decontamination – then you won't get overcharged."*

DOJCDR16: *"…regulate percentage allowable for suppliers to add to achieve value for money*."

It is believed that in this way the supply chain will be "saved" from paying exorbitant prices, thus resulting in cost savings that will actually enable government to achieve more with little available resources.

6.3.2.20 Better budget allocation

The last proposed solutions to the public sector dilemma of vulnerability to risk are better budget allocation and professionalization of the supply chain. Though the two were identified by a few respondents, those who identified it strongly believe it could really remedy situations such as those of fraud and corruption and that of lack of financial resources in government departments. For instance, DOJCDR19 believes that when the budget is better allocated and prioritized, the risk of financial lack will be somewhat overcome. Some of these views are captured below:

DOJCDR18: *"…government must avail monies for us to procure goods needed for service delivery."*

DOJCDR19: "*…better allocation, prioritization of budget."*

Despite this mechanism being identified by the minority, it could be a matter that the state puts into consideration. This is somewhat comparable to the idea of Zhang et al. (2021: 8), of revenue sharing amongst the supply chain partners.

6.4 CONCLUSION

This chapter constitutes the last phase of the application of a qualitative and quantitative research methods assessing the vulnerability of supply chains to risk, through risk profiling, rating its implication on service delivery, thereafter exploring what can be employed to overcome and/or cope with such risks. The chapter began with an illustration of the rate of

participation, then provided a demographic profile of the respondents. It proceeded to provide a descriptive analysis of the findings for research question one, three and two, followed by the reliability test results, including regression analysis, ANOVA, Coefficients, KMO and Bartlett's test. The results found, broadly, eleven risks from respondents in addition to seven that were identified from the literature. These risks were also found to be influential on service delivery. Lastly, twenty measures to overcome and/or cope with risks were explored.

CHAPTER SEVEN

SUMMARY, RECOMMENDATIONS AND CONCLUSION

"If the challenges exist, so must the solution" (Rona Mlnarik, 2016).

7.1 INTRODUCTION

This chapter presents the conclusions and recommendations based on the findings and discussions of the study on vulnerability of supply chains to risks. The study has an agenda to capacitate the state by developing a framework for reducing supply chain vulnerability to risks. The conclusions of this study are based on the objectives of the study: objective one is to identify risks related to procurement of goods and services in supply chains; objective two is to ascertain what implications procurement risks have in service delivery; and objective three is to propose remedial or resilience measures to cope with and/or overcome procurement risks. It also present hypothesis tested. These conclusions are also linked to the discussions from the literature, reviewed in various chapters of this research study. The limitations of the study are analyzed with the aim of improving recommendations for future research. Finally, the chapter reveals recommendations to assist the state to reduce its vulnerability to risks.

It should also be highlighted that although the study utilized the DOJ and CD as a population of study, questions asked were not specific to the DOJ and CD but rather to the person's experience in supply chain throughout his or her stay within government. Consequently, the findings and recommendations can be generalized to the entire public sector in SA.

7.2 OVERALL CONCLUSION OF THE STUDY

The study's main purpose was to develop a framework to capacitate the state in reducing its vulnerability to procurement risks. This was to be achieved through identification of procurement risks, both from literature and from the empirical study. The study then ascertained implications of these risks in service delivery, and thereafter proposed mechanisms to overcome and or cope with such risks. The study was motivated by the fact that according to Bailey (2015: 54), far too little attention has been placed on measuring the vulnerability of supply chains to disruption. However, measuring SCV to disturbances is viewed as being a superior and a necessary act in order to assist managers and public policy makers to identify areas where mitigation strategies are required (Wagner and Neshat, 2012: 2878). This study

focussed on government's supply chains – that are forever being criticized in media and by the AGSA – and identified and assessed procurement risks in the quest to assist the state in reducing its vulnerability to procurement risks. In line with the study's goal presented here, the study worked toward answering the research questions below, in the quest to realize the objectives stated in Figure 7.1 and as discussed in **chapter one**.

Table 7.1: The research questions and research objectives

No	Research questions	Research objectives
1	To identify risks related to procurement of goods and services in supply chains.	What are procurement-related risks in supply chains?
2	To analyse the implications that procurement risks have on service delivery.	What implications do procurement risks have on service delivery?
3	To explore remedial or resilience measures to cope and/or overcome procurement risks.	What measures could be put in place to cope with or overcome procurement risks?
4	To propose the framework to capacitate the state to reduce its vulnerability to risks.	What conceptual framework can be implemented by the state to reduce its vulnerability to risk?

Source: Researcher's own compilation

Chapter two presented the legislative background under which a procurement function is carried out in SA. This chapter established the strong foundations of public procurement in SA which highly advocates the principles of fairness, equity, transparency, accountability, competitiveness and cost effectiveness when procuring. This chapter further provided sound guidelines in respect of management of expenditure, amongst others, by detailing the duties of all stakeholders in this space, including the National Treasury (NT), AO, CFO and officials. It is worth mentioning that the AO is tasked with the responsibility to, firstly, establish and implement an effective and efficient SCM system in his or her organization and then to ensure that systems of risk management and internal control are in place, effective, efficient and transparent (South Africa, National Treasury, 2005: 49). Furthermore, legislation discussed in this chapter encourages the award of bids to be targeted to advance or protect persons or groups of persons disadvantaged by unfair discrimination in the past. These are QSEs, EMEs, all black persons, including particularly, women, workers, youth, persons living with disabilities, and those living in rural areas, to achieve economic empowerment. In addition, the legislation

advocates for support of start-ups such as SMMEs and black entrepreneurs, including those in an informal business sector, by giving them access to finance. It highlighted the highest ethical standards, namely, fairness, reasonableness, integrity, mutual trust and respect that officials and role players in SCM must abide by. Lastly, it highlighted other stakeholders such as SITA, the Competition Commission, and Competition Tribunal that play a pivotal role in the procurement space.

Chapter three theorized the subject of risks, vulnerability and resilience. Dialoguing with the theoretical background and literature, the chapter strongly established that there exist risks in supply chains. According to Normative Accident Theory, risks are expected to occur. Sadly, risks possess the danger of harm, damage, loss, liability or any other occurrences. However, these occur as a result of internal or external vulnerabilities of a supply chain (Mhelembe and Mafini, 2019: 2). Although Yan (2017: 8) asserts that risks may be linked with positive outcomes, many authors such as Ghadge et al. (2012), cited in De Oliveira et al. (2017: 617), link risks to disorder, resulting in negative consequences. It is noted that the inability of the influenced organization to resist risks in fact aggravates disorder; this is defined in the literature as vulnerability. Such vulnerability, according to Wagner and Neshat (2012: 2878), is motivated and/or demotivated by certain characteristics, design variables, and the environment in which the supply chain is embedded. The lower the SCVI, the better the performance, whilst the higher SCVI, the poorer the performance of an organization. It is important to note that risks are part of daily life, and given that, the onus lies with each "body" to build and sustain sound security and/or resilience within so as to adequately resist risks. Resilience, according to Ponomarov and Holcomb (2009) in Zhang, Jia, and You (2021: 3), should enable an organization to, firstly, be prepared for any unexpected event; secondly, respond to it; and lastly to recover from it. So resilience is rather a coping mechanism that reduces widespread negative effects of risks. This is in line with prospect theory that believes that decision makers will encounter various alternatives but must select that which is most favourable to an organization.

Chapter four looked at the background of the countries SA**,** Mauritius, Namibia and Somalia in terms of location, population, land space and its governance. It was necessary to provide a background for SA as the country of interest whose procurement risks are being studied. Equally so it was necessary for the procurement processes of the DOJ and CD to be explored as the population of study. Procurement processes adopted by Mauritius, Namibia and Somalia were explored solely because, of 54 countries in Africa, Mauritius has been ranked in the first

place of the Africa's Best Governed Countries for ten consecutive years since 2010. Namibia ranks in the range of SA, being position seven, following SA's ranking of six, whilst Somalia ranks the least "best governed" country in Africa. For one to improve performance, it is vital to learn from the leaders in the space, to assess where you are so as to identify areas of improvement, and also ascertain what worse could happen by looking at the worst performers. It is of particular interest that the best performing country, Mauritius, has a policy office responsible for policy making, policy monitoring, facilitation of the implementation and recommending actions and measures to improve a procurement system (Mauritius, Department of Finance, Economic planning and Development, 2008:2). This office consults every role-player affected, including the business community, seeks and analyses experiences and best practices from other countries, and reports to the Minister annually.

Public institutions have up to a certain threshold they can handle, whilst every bid exceeding such is handled by a central procurement board. Equally interesting was the method of needs fulfilment called "departmental execution" wherein a public body opts to perform services itself for a number of reasons. A procurement policy and central procurement board was similarly found in existence in Namibia, though Namibia also has a procurement committee whose role is to oversee procurement processes conducted by public entities. Similar to the SA supply chain management unit, Namibia has a procurement management unit responsible for the bid advertisement to the award of contract. Lastly, Somalia was found to have a Public Procurement Authority as an oversight body in procurement, policy formulation, capacity building and as an information sharing body about the Procurement Act, while an Independent Procurement Review Panel reviews complaints and appeals made by bidders.

Chapter five highlighted the methodology used to collect and analyse data on procurement risks, their impact on service delivery as well as on mechanisms that can be adopted to either cope with or overcome such risks. Adopting a pragmatism paradigm, this study is founded on the view that the world will be better known if researchers speak, interpret and understand meanings of subjects under study (Kivunja and Kuyini, 2017: 33). It employs qualitative and quantitative research approaches to find real life settings of the subject matter. The study's sampling techniques, a probability sampling method known as simple random sampling, was also critically analyzed. Moreover, the chapter spelt out the various analytical tools for the data collected and justified the adoption of the same. In conclusion, the chapter reflected on ethical considerations as well as limitations of the research.

Chapter six contained six sections. Section A analyzed the response rate, being over 87 per cent. Section B discussed the biographical data of respondents. This section showed that the state of RSA is well-positioned in terms of knowledge, as the majority of its supply chain practitioners, represented by respondents, possess ten years and more of experience, at 60 per cent. Findings portrayed the state as having a vibrant class of persons aged between thirty to thirty-nine at forty per cent, and the same for middle managers at an assistant director and deputy director level. Section C highlighted procurement risks and discussed its implications for service delivery. It was revealed that all risks identified impact adversely on service delivery, except for inefficient contract management and environmental issues; these were rated moderately at 5.00 and 5.70 respectively. However, overall, all risks combined were tested in section D and confirmed as having a significant relationship with supply chain vulnerabilities; namely, when risks increase, vulnerability increases, they are therefore having negative implications for service delivery. These findings confirm the study's hypothesis that said risks exposure has a negative effect on service delivery. Then section E presented and discussed in detail the risks that are reported to exist in the procurement space. In this section, the researcher examined the perceptions of the respondents on the nature of the risks and how worrying these risks are. This was synthesized with the literature, followed by a presentation of risks that were found in the literature. Lastly, section F gathered and revealed coping mechanisms that, if adopted, would better position the state to overcome the negative effects of risks discussed in section E.

Chapter seven, as the last chapter of this study, serves as a synopsis of the overall results and research findings against the earlier set objectives. In order to present a holistic view of the same, the chapter highlights the four questions and objectives of the study, sums up the findings and makes conclusions on these items. Then it proceeds to present the proposed conceptual framework that can be implemented by the state to reduce its vulnerability to procurement risks. The major sections include a presentation of the highlights of the work, a description of the contributions the study makes to the field, and recommendations to practitioners and policy makers. Thereafter implications of this research and suggestions for further research are made.

7.3 THE MAIN RESEARCH FINDINGS AND CONCLUSIONS

The empirical work and scholarly literature review conducted shows that although provisions are made in the PFMA for the AO to ensure that risk management and internal control mechanisms are in place and these are effective, efficient and transparent, there are varied risks

that are not effectively controlled since they currently “hit” adversely and militate against the attainment of the desired procurement goals and outcomes. These include risks such as fraud and corruption, policy and process dilemmas, supplier's database and supplier selection disorder, human capita disorder, budget lack and/or mismanagement, collusion, monitoring and control deficiencies, management overrule, inefficient contract management, technical failures, stock levels, environmental issues and others. Drawing from the major aims and objectives of the study, in terms of the prevailing risks and their implications, one arrives at the conclusion that the state requires urgent transformation in the manner that it perceives and handles its risks. From the empirical point of view, the state needs urgent workforce optimization, system and process redesign, policy re-engineering, central supplier database purification as well as monitoring and control enhancement.

The section below discusses the research findings. The study consists of three research questions and objectives which aimed to unpack and understand risks, their implications and mechanisms to cope with them. Through the use of a literature review, document analysis, research methods as well as theoretical frameworks, each individual finding and conclusion of the research questions is followed by overarching recommendations. These are highlighted in the upcoming sections.

7.3.1 Research question and objective one: procurement related risks in supply chains

The first research objective was to find out the nature of risks that currently exist in the procurement arena in the public sector. During interviews it was observed that there is an assortment of risks associated with procurement. These risks, as identified from respondents and from the literature respectively, were grouped into eleven and seven key themes. Eleven key themes that emerged from respondents include fraud and corruption, policy and process dilemma, supplier's database and supplier selection disorder, human capita disorder, budget lack and/or mismanagement, monitoring and control deficiencies, management overrule, inefficient contract management, improper demand management, collusion and others. The seven risks emerging from the literature include criminality, financial, human resources related, technical failures, stock levels, environmental issues and procedures. The results of external risks such as those of criminality, collusion, environment, fraud and corruption may not be surprising since, according to Yan (2017: 20), these are uncontrollable from within. Contrary to expectations are internal risks such as policy and process dilemmas, supplier's database and supplier selection disorder, human capita disorder, budget lack and/or mismanagement,

monitoring and control deficiencies, management overrule, inefficient contract management and improper demand management, which, according to Abdel-Basset et al. (2019: 490), are manageable from within an organization. That the presence of these risks, such as human capita disorder, have been repetitively identified in the past is rather disappointing and tantamount to self-neglect of the state, by the state. It also casts doubt on whether the state would ever be positioned to deal with other prevailing risks such as fraud and corruption that mainly stem from, and/or is aggravated by, external forces.

Conclusion

Through evaluation of current risks, this study has shown that there are genuinely serious issues in the procurement space that expose the state of RSA. This study has shown that aside from fraud and corruption being the highest risk in procurement – caused by factors such as unethical conduct from the supplier's side and that of practitioners, and pressures from low salary levels – there are prevailing risks of policy and process dilemmas wherein policies and processes open up loopholes for continuously delayed service delivery and wrongdoing. These are unclear and untaught; there are too many policies and at times they are conflicting, thus being the originator of the pandemonium. In fact, no one reaches out to policy and process implementers to acquaint them with the expected protocols. Instead new initiatives such as the CSD are introduced, not monitored for their effectiveness, and whoever is present is expected then to "carry out" the functions, regardless of the fact that the status of human capita under the office of the CFO is in shambles. Notwithstanding, the findings reported here shed new light on SA's procurement challenges, being risks that motivate disorder in procurement, as widely reported. A key priority should, therefore, be to rethink the procurement administration function, perhaps to adopt a stakeholder collaborative approach in setting up and implementing structures, processes, procedures and policies. Ambiguity should be eliminated in all policy and procedural directives, thereby allowing easy understanding. Furthermore, there should be a deliberate effort to not only standardize this sector's structures, policies and procedures but also to get rid of undesirable elements and practices that hinder the successful realization of a procurement goal.

7.3.2 Research question and objective two: implications of procurement risks on service delivery

The second research objective was to ascertain what implications public sector procurement risks as identified in the literature and by respondents have on service delivery. Utilising the

scale of rating for each risk, the analysis concludes that human capita disorder, budget lack and/or mismanagement, collusion, technical failures, fraud and corruption and financial (in ascending order) are the top worrisome issues that deter the realization of the supply chain goals. Values range from a high scale of 8.70 to 7.50. Criminality, management overrule, monitoring and control deficiencies follow, also at a high of 7.40 to 7.00 rating; this means they have high implications. That means supply chains in the public sector are weak, and they lack resilience (Zsidisin and Ritchie, 2009: 53), particularly against these risks, as they could barely achieve normality in the presence of these risks. Sadly, it is this power (resilience) which they need to survive damaging events (Briano, Caballibi and Revetria, 2009: 192). Other risks include policy and process dilemmas, supplier's database and supplier selection disorder, stock level, human resources, improper demand management, procedures and other risks whose implication has been ranked between 6.90 and 6.00. Lastly, environmental and inefficient contract management were also noted but ranked as with least implications on service delivery with a scale of 5.70 and 5.00 respectively. These ratings are shown in Table 7.2. Over and above the desired findings – the ranking of severity of risks in hindering service delivery – it was interesting to note and analyse the volume of respondents who recognized a particular risk, as shown in Table 7.3. For instance, findings show fraud and corruption as a prevalent risk, securing first position with a high percentage of 22 ahead of policy and process dilemma. This risk, fraud and corruption, is however found at position five in terms of having implications on service delivery, at a tie with financial issues as shown in Table 7.3. Human capita disorder, which is at position one in implication ranking, took fourth position in terms of its recognition by respondents. In light of this, the findings of this study have shed light on what risks are likely to “hit” supply chains and, most importantly, the severity of chaos it would cause if mechanisms are not in place or effective to protect such a supply chain.

Table 7.2: Summary of risks implication ranking

Nature of risk	Ranking	Effect scoring
Human capita disorder	1	8.70
Budget lack and or mismanagement	2	8.30
Collussion	3	8.00
Technical failures	4	7.60
Fraud and corruption	5	7.50
Financial	5	7.50
Criminality	6	7.40
Management overule	7	7.30
Monitoring and control deficiencies	8	7.00
Policy and process dillema	9	6.90
Supplier's databade and supplier Selection disorder	9	6.90
Stock level	9	6.90
Human resources	10	6.70
Improper demand management	11	6.60
Procedures	12	6.20
Others	13	6.00
Environmental	14	5.70
Inefficient contract management	15	5.00

Table 7.2 above depicts a summary of risks that have been found to prevail in procurement in the public sector to date. Their adverse effects are reflected together with the ranking.

Table 7.3: Summary of risk recognition and ranking

Nature of risk	Ranking	% Scoring
Fraud and corruption	1	22
Policy and process dillema	2	16
Supplier's databade and supplier Selection disorder	3	15
Human capita disorder	4	14
Budget lack and or mismanagement	5	10
Collussion	6	6
Improper demand management	7	5
Monitoring and control deficiencies	8	4
Management overule	9	3
Inefficient contract management	10	3
Others	11	3

Table 7.3 shows a summary of risks and their importance shown by percentage of recognition by respondents.

Conclusion

The study contributes to our knowledge of SA's public sector crisis of risk effects in procurement as it was established that there are risks that are likely, or that occur every fifth time of buying. As a result, service delivery is most likely to be hampered to a point of almost no delivery at all. This study has provided deeper insight into the real procurement issues, their severity and the extent to which they have implications on service offerings, thereby directing the way forward. Drawing from perceived risk theory, the state of RSA, utilising an inclusive system of governance, should with urgency, align itself to be geared not just to respond to risks but to have proactive approaches to guard against converse risk factors.

7.3.3 Research question and objective three: measures that could be put in place to cope with or overcome procurement risks

The aim of the present research was to explore what measures could be employed in the procurement space in order to reduce its vulnerability to risks. The study's findings identified twenty key mechanisms that if employed, it is believed that the state's susceptibility to risks will be reduced to acceptable levels. Securing the top ten positions (in an ascending order of importance) is workforce optimization, unknown, system and process redesign, nothing to be done and/or measures already exist, supplier and government cooperation, policy redesign & re-engineering, others, IT infrastructure enhancement and rethinking, SA government to self-supply, and monitoring and control. What is particularly striking amongst these mechanisms is that workforce optimization has been repeatedly identified by more than "just" a quarter of respondents, that is, the structure, nature and size of human capita to complete the supply chain unit, namely procurement. This is extremely urgent since, according to Zsidisin and Ritchie (2009: 53), human resources is one of the properties of the supply chain system that when it weakens, it limits the ability of an organization to endure threats and/or survive. Further, it is interesting yet surprising to learn that nothing is to be done because measures already exist to curb risks from adversely affecting service delivery. This is currently achieved through getting suppliers to declare on SBDs, some persons were held accountable for their actions, and blind copy is used when requesting quotations in order to curb issues such as collusion. Once again consequence application, better planning, central supplier database purification, better financial incentives, proper needs analysis, market price analysis, segregation of duties, professionalize supply chain, regulate pricing and better budget allocation represent the bottom ten measures useable to cope with risks. Supporting the earlier assertion of workforce optimization, a minority, being 6 percent, advocate for professionalization of supply chains, which will in turn

enforce selective appointment into supply chains. The same is backed up by 12 percent of respondents who assert that risks such as collusion, fraud and corruption will be reduced if procurement practitioners are better incentivized. This finding is in line with Gudono (2016: 109) who reported that members of an organization will contribute if they see that their contributions will be rewarded greatly.

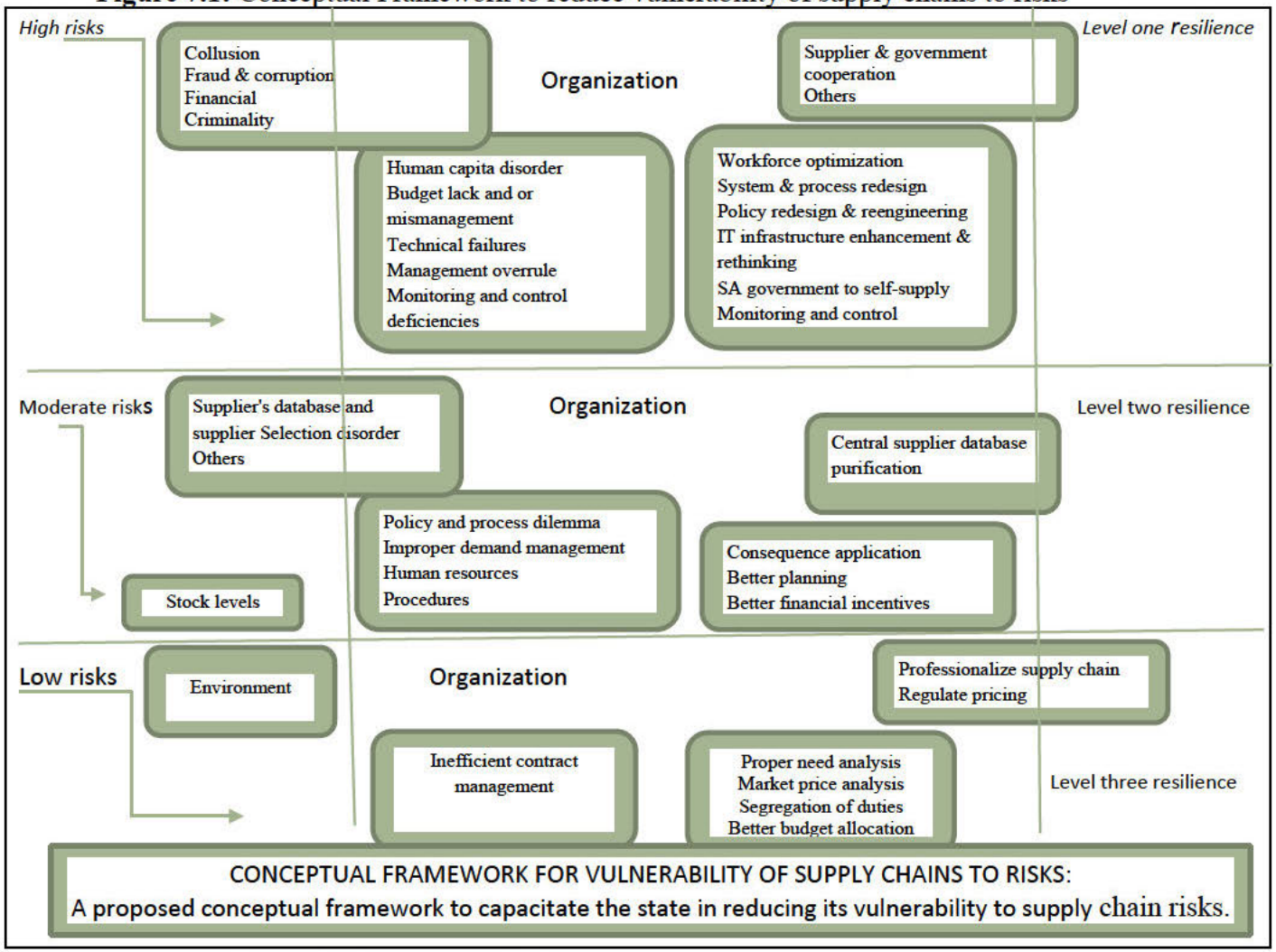
Conclusion

This thesis has provided deeper insight into mechanisms that SA's government can adopt to reduce its exposure to risks in procurement. Aside from those who do not know and those who believe mechanisms already exist and therefore nothing needs to be done, this work brings to light valuable inputs geared toward assisting the state of RSA to overcome and/or cope with procurement risks that to date have resulted in a great deal of outcry across the country. It can be concluded that the general feeling amongst practitioners is that there exists a need to redefine the goal of procurement, restructure its support systems, redesign protocols and thereafter implement with constant monitoring. By such, all stakeholders shall be reasonably satisfied and therefore should act towards a common goal.

7.3.4 Research question and objective four: conceptual framework that can be implemented by the state to reduce its vulnerability to risks

This study was able to succinctly establish that although it is well acknowledged that a wide array of risks exists in supply chains, particularly in the function of procurement of goods and services, currently there is no legal framework and/or step-by-step plan or guide to reduce a supply chain's predisposition to such risks. What could be picked up is that somewhat "piecemeal" mechanisms exist or are proposed for adoption, simply to manage risks. Given the importance of the procurement function as the sole source by which government renders its goods and services, as well as the uproar of media and the adverse Auditor General's report on this function as not being in order, one would have expected that by now there would be a sound detailed plan created in consultation with all stakeholders to reduce the vulnerability of supply chains to risk. However, the situation on the ground tells a different story since supply chain practitioners feels alone and helpless amidst this quandary. Based on the conclusions discussed earlier and the empirical findings, the proposed conceptual framework that can be implemented by the state to reduce its vulnerability to supply chain risks is reflected in Figure 7.1.

Figure 7.1: Conceptual Framework to reduce vulnerability of supply chains to risks



Source: Researcher's own compilation

Based on the findings of this study, the study proposes the adoption of the conceptual framework as depicted in Figure 7.1. This framework offers a more holistic view of key items that ensure the reduction of vulnerability to risks. As shown in Figure 7.1, this framework possesses a three-stage approach to reducing supply chains' vulnerability to risks. First, this framework acknowledges risk forces that exist at each level of operations, from risks that are too close, or those with high implications on operational performance, to those that are moderate and those that are low, thus having least implications on operations. Moreover, it further shows where these risks occur; such as those that are purely internal, those that are external, and those that that emanate from both internal and external factors (double-barrel). First level risks that have high implications on service offering and are internal include human capita disorder, budget lack and/or mismanagement, technical failures, management overrule and monitoring and control deficiencies. Then there are double-barrel risks in this level; these include collusion, fraud and corruption, financial and criminality. Second level risks which moderately affect operations, and are internal, include policy and process dilemma, human resources, improper demand management and procedures. The double-barrel risks at this level are supplier's database and supplier selection disorder as well as others, whilst stock level is an external risk. Third level risks, which have very low implications on operations, include environmental in the external environment, and inefficient contract management in the internal environment.

To build resilience against risks identified at level one, two and three, the framework suggests a step-by-step approach that the state must adopt so as to overcome and cope with the risks identified. In order of what is most critical, the framework suggests that at level one, immediate steps should be taken for workforce optimization. Through powers vested in him or her, the AOs of state organizations must establish *proper* SCM units. A proper structure, according to this framework, is that which possesses adequate persons to complete it, it must have fully skilled and professional personnel with personal traits such as high level of integrity, honest, ethical, adaptive, hardworking, eager to learn, competent, and having relevant experience and qualifications. Further, abolish the *"may"* policy for the National Treasury in terms of training practitioners in state departments; instead the National Treasury, being the custodian of supply chain policies, *"must"* be responsible to train public officials on policy implementation, like it is done by a policy office under the Department of Finance, Economic Planning and Development in Mauritius. Moreover, state departments of RSA should put sound effort into continuous skilling and building teams amongst practitioners. Innovations such as on-the-job

training, train the trainer and formal training could go a long way in reducing the state's vulnerability. Of course, system and process redesign, supplier and government cooperation, policy redesign and reengineering, IT infrastructure enhancement and rethinking, SA government to self-supply, and monitoring and control could not be excluded. They form part of the top 10 mechanisms that would curb the currently existing pandemonium of risks. Furthermore, this framework advocates for standardization and modernization of systems and processes. It says that across the state there should be one system. This system should be of a modern type, more of a "click button" to minimize human efforts, intervention and/or errors. The frameworks call for, amongst others, self-automation where suppliers rotation is system generated. Furthermore, simple and uniform processes across the state must be decided upon and implemented. Related to this is also an urgent need for policy redesign and/or re-engineering. To direct process flow, there should be a "renewed" single policy that is reasonable, realistic, implementable, and that prioritizes both compliance and service delivery under all circumstances. Similar to logistical information systems, this system must be "one" and must apply across all state institutions. In addition, a level one defence approach brings to the fore cooperation between suppliers and government, where suppliers respond to RFQs only with offers that they can supply, whilst government on the other hand, supports suppliers through developmental programmes and financial empowerment, such as through subsidies and upfront partial payments; or government produces its own goods for its use. Lastly, the model calls for IT infrastructure enhancement and rethinking as well as monitoring and control. If all the above is put in place by state organizations, this model proposes such an organization will be free from high risks and its performance shall be brought to stability. Nevertheless, this model proposes that the following mechanisms be put in place as a second level phase to further strengthen the organization's resilience. This includes application of consequence management whenever something goes wrong, better planning in terms of buying and operations, incentivising supply chain practitioners well financially and otherwise as internal measures, and then purification of the central supplier database, which should be done in consultation with all role-players involved.

Lastly, on the third level, the state organization should re-look at strengthening its needs analysis, market price analysis, segregation of duties, professionalization of supply chains, as well as regulating prices that could be charged by potential suppliers. In fact, professionalization of supply chains can even be blended with and taken care of within

workforce optimization. Similar to segregation of duties, as soon as a proper adequately resourced structure is in place, this mechanism will be catered for.

In brief, it is this study's view that where resilience measures as depicted on the right side in Figure 7.1 are adopted by a state institution, such an institution will be better positioned to not be negatively affected by supply chain risks as discussed in the preceding chapter, and shown on the left side of Figure 7.1. As such, performance of that institution will remain high.

7.4 CONTRIBUTION OF THE STUDY

The contribution of this study is in light of the empirical findings and the present challenging situation of supply chains with their ever growing anarchy associated with procurement risks disturbing service delivery in SA and across other nations. Given the scarcity of research projects that seek to measure the public sector's vulnerability to disturbing events such as risks, their implications and how best organizations can deal with them, this study therefore contributes immensely to assist the public sector, firstly, in formulating a base, a source of reference for events that are troublesome in their procurement space. Most importantly this study seeks to assist and present deeper insights and understanding into the occurrence of these events in its diverse various forms, their complexity, depth and effect on service delivery. Empirically categorizing specific risks into high, medium and low risks is a massive benefit that this study brings to supply chain as a field of study. Lastly, presenting a three-phased approach to mitigating the problems at hand concludes it all. The fact that the study warns of damaging events and immediately suggests actions to be taken by supply chain practitioners, supply chain managers as well as government policy-makers to exempt their organization from such damaging events, is a double benefit that the state of RSA should capitalize on to commence with and build on its resilience approach to this dilemma. Then it shall soon come to realize its enhanced service delivery mandate.

7.5 RECOMMENDATIONS FOR FUTURE RESEARCH

Owing to the unavailability and non-implementation of any framework in the public sector in the past related to reducing vulnerability of risks in supply chains, it is highly recommended that the framework presented earlier be standardised and used for supply chains within state organizations.

For a correct standardization of structure, a process and a policy, thorough engagement will be required between all spheres of government, with National Treasury being the champion of the same.

Further engagements with external stakeholders, such as private sector business, will also be of utmost importance.

Comparative research can be conducted to determine the mechanisms adopted by some of the other countries in Africa.

7.6 LIMITATIONS OF THE STUDY

Conducting research on the framework of reducing the vulnerability of supply chains to risks was a much needed and long overdue useful approach for the public sector. The following limitations, however, were encountered during the course of the study:

- The literature relating specifically to vulnerability assessments and/or reduction was limited.
- The use of TEAMS proved to be very problematic, especially for practitioners below middle management, in that it relied on the organization's network, which either did not connect or connected with glitches, thus causing multiple postponements with many participants.
- Some of the respondents preferred to speak and respond in their mother tongue language, which required translation of the responses into English and took a considerable amount of the researcher's time.

7.7 CONCLUSION

The aim of this chapter was to provide a summary, recommendations and conclusions based on the findings of the study and to suggest recommendations for further research. The objectives of this study as outlined in chapter one were fulfilled and conclusions were presented based on the findings. To conclude, this chapter argues that there is a significant correlation between risks and vulnerability of supply chains. The increase in risks results in an increase in supply chain vulnerability and so results in negative consequences in the outcomes. Nevertheless, risk exposure and/or vulnerability as well as its impact varies as documented in detail in chapter six. These findings gave rise to the development of the conceptual framework

that could be used by the public sector to reduce vulnerability of its supply chains to risks, thereby reducing its negative impact on service delivery – a key objective of the South African public sector.

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APPENDIX A1: SCHEDULE 2 AND 3 PUBLIC ENTITIES

Schedule 2	
MAJOR PUBLIC ENTITIES	
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 16. South African Forestry Company Limited 17. South African Nuclear Energy Corporation Limited 18. South African Post Office Limited 19. Telkom SA Limited 20. Trans-Caledon Tunnel Authority 21. Transnet Limited All subsidiaries of the above major public entities
Schedule 3	
OTHER PUBLIC ENTITIES	
Part A: National Public Entities	**Part B: National Government Business Enterprises**
1. Accounting Standards Board 2. Africa Institute of South Africa 3. African Renaissance and International Cooperation Fund 4. Agricultural Research Council 5. Agricultural Sector Education and Training Authority 6. Artscape 7. Banking Sector Education and Training Authority 8. Boxing South Africa 9. Breede River Catchment Management Agency 10. Castle Control Board 11. Chemical Industries Education and Training Authority 12. Clothing, Textiles, Footwear and Leather Sector Education and Training Authority 13. Commission for Conciliation Mediation & Arbitration 14. Compensation Fund, including Reserve Fund	1. Albany Coast Water Board 2. Amatola Water Board 3. Bloem Water 4. Botshelo Water 5. Bushbuckridge Water Board 6. Council for Mineral Technology 7. Council for Scientific and Industrial Research 8. Export Credit Insurance Corporation of South Africa Limited 9. Ikangala Water 10. Inala Farms (Pty) Ltd 11. Khula Enterprises Finance Limited 12. Lepelle Northern Water 13. Magalies Water 14. Mhlathuze Water 15. Namaqua Water Board 16. Ncera Farms (Pty) Ltd 17. Onderstepoort Biological Products Limited 18. Overberg Water 19. Passenger Rail Agency of South Africa 20. Pelladrift Water Board 21. Public Investment Corporation Limited 22. Rand Water

15. Competition Commission 16. Competition Tribunal 17. Construction Education and Training Authority 18. Construction Industry Development Board 19. Council for Geoscience 20. Council for Medical Schemes 21. Council for the Built Environment 22. Council on Higher Education 23. Cross-Border Road Transport Agency 24. Die Afrikaanse Taal Museum 25. EDI Holdings (Pty) Ltd 26. Education Labour Relations Council 27. Education, Training and Development Practices Sector Education and Training Authority 28. Electronic Communications Security (Pty) Ltd 29. Energy Sector Education and Training Authority 30. Estate Agency Affairs Board 31. Film and Publication Board 32. Financial Intelligence Centre 33. Financial Services Board 34. Food and Beverages Manufacturing Industry Sector Education and Training Authority 35. Forest Industries Sector Education and Training Authority 36. Freedom Park Trust 37. Health and Welfare Sector Education and Training Authority 38. Housing Development Agency 39. Human Sciences Research Council 40. Independent Regulatory Board for Auditors 41. Information Systems, Electronics and Telecommunications Technologies Training Authority 42. Ingonyama Trust Board 43. Inkomati Catchment Management Agency 44. Insurance Sector Education and Training Authority 45. International Marketing Council 46. International Trade Administration Commission 47. iSimangaliso Wetland Park 48. Iziko Museums of Cape Town 49. Legal Aid Board 50. Local Government, Water and Other Related Services Sector Education and Training Authority	23. SA Bureau of Standards 24. SA Special Risk Insurance Association Limited 25. Sedibeng Water 26. Sentech Limited 27. State Diamond Trader 28. Umgeni Water 29. Umsobomvu Youth Fund All subsidiaries of the above national government business enterprises

51. Luthuli Museum 52. Manufacturing, Engineering and Related Services Sector Education and Training Authority 53. Marine Living Resources Fund 54. Market Theatre Foundation 55. Media Development Diversity Agency 56. Media, Advertising, Publishing, Printing and Packaging Sector Education and Training Authority 57. Medical Research Council of South Africa 58. Mine Health and Safety Council 59. Mining Qualifications Authority 60. Municipal Infrastructure Investment Unit 61. Natal Museum 62. National Agricultural Marketing Council 63. National Arts Council of South Africa 64. National Consumer Commission 65. National Consumer Tribunal 66. National Credit Regulator 67. National Development Agency 68. National Economic Development and Labour Council 69. National Electronic Media Institute of South Africa 70. National Empowerment Fund 71. National Energy Regulator of South Africa 72. National Film and Video Foundation of South Africa 73. National Gambling Board of South Africa 74. National Health Laboratory Service 75. National Heritage Council of South Africa 76. National Home Builders Registration Council 77. National Housing Finance Corporation Limited 78. National Library of South Africa 79. National Lotteries Board 80. National Metrology Institute of South Africa 81. National Museum, Bloemfontein 82. National Nuclear Regulator 83. National Regulator for Compulsory Specifications 84. National Research Foundation 85. National Student Financial Aid Scheme 86. National Urban Reconstruction and Housing Agency 87. National Youth Commission 88. National Youth Development Agency 89. Nelson Mandela National Museum 90. Northern Flagship Institution	

91. Office of the Ombud for Financial Service Providers 92. Office of the Pension Funds Adjudicator 93. Performing Arts Council of the Free State 94. Perishable Products Export Control Board 95. Ports Regulator of South Africa 96. Private Security Industry Regulatory Authority 97. Productivity SA 98. Public Sector Education and Training Authority 99. Railway Safety Regulator 100. Road Accident Fund 101. Road Traffic Management Corporation 102. Robben Island Museum 103. Rural Housing Loan Fund 104. Safety and Security Sector Education and Training 105. Servcon Housing Solutions (Pty) Ltd 106. Services Sector Education and Training Authority 107. SETA for Finance, Accounting, Management Consulting and Other Financial Services 108. Small Enterprise Development Agency 109. Social Housing Foundation 110. South African Civil Aviation Authority 111. South African Council for Educators 112. South African Diamond and Precious Metals Regulator 113. South African Heritage Resources Agency 114. South African Library for the Blind 115. South African Local Government Association 116. South African Maritime Safety Authority 117. South African National Accreditation System 118. South African National Biodiversity Institute 119. South African National Parks 120. South African National Space Agency 121. South African Qualifications Authority 122. South African Revenue Service 123. South African Social Security Agency 124. South African Tourism 125. South African Weather Service 126. Special Investigation Unit 127. State Information Technology Agency 128. Technology Innovation Agency 129. The Co-Operatives Banks Development Agency	

130. The National English Literary Museum 131. The Playhouse Company 132. The South African Institute for Drug-free Sport 133. The South African National Roads Agency Limited 134. The South African State Theatre 135. Thubelisha Homes 136. Tourism, Hospitality & Sport Education and Training Authority 137. Transport Education and Training Authority 138. uMalusi Council for Quality Assurance in General and Further Education and Training 139. Unemployment Insurance Fund 140. Universal Service and Access Agency of South Africa 141. Universal Service and Access Fund 142. Urban Transport Fund 143. Voortrekker Museum 144. War Museum of the Boer Republics 145. Water Research Commission 146. Wholesale and Retail Sector Education and Training Authority 147. William Humphreys Art Gallery 148. Windybrow Theatre All subsidiaries of the above national public entities	
Part C: Provincial Public Entities	
LIMPOPO	**EASTERN CAPE**
1. Limpopo Appeal Tribunals 2. Limpopo Development Enterprise 3. Limpopo Development Tribunals 4. Limpopo Gambling Board 5. Limpopo Housing Board 6. Limpopo Liquor Board 7. Limpopo Local Business Centres 8. Limpopo Panel of Mediators 9. Limpopo Planning Commission 10. Limpopo Roads Agency 11. Limpopo Tourism and Parks Board 12. Trade and Investment Limpopo	1. Eastern Cape Appropriate Technology Unit 2. Eastern Cape Arts Council 3. Eastern Cape Gambling and Betting Board 4. Eastern Cape Liquor Board 5. Eastern Cape Parks Board 6. Eastern Cape Rural Finance Corporation Limited 7. Eastern Cape Socio-Economic Consultative Council 8. Eastern Cape Tourism Board 9. Eastern Cape Youth Commission
MPUMALANGA	**FREE STATE**
1. Mpumalanga Gambling Board 2. Mpumalanga Regional Training Trust 3. Mpumalanga Tourism and Parks Board	1. Free State Gambling and Racing Board 2. Free State Investment Promotion Agency 3. Free State Tourism Authority 4. Phakisa Major Sport and Development Corporation

NORTHERN CAPE	**GAUTENG**
1. Northern Cape Tourism Authority 2. Northern Cape Gambling Board	1. Blue IQ Investment Holdings (Pty) Ltd 2. Gauteng Economic Development Agency 3. Gauteng Enterprise Propeller 4. Gauteng Gambling Board 5. Gauteng Partnership Fund 6. Gauteng Tourism Authority 7. Gautrain Management Agency 8. XHASA ATC Agency
NORTH WEST	**KWA-ZULU NATAL**
1. Invest North West 2. Mmabana Arts, Culture and Sport Foundation 3. North West Eastern Region Entrepreneurial Support Centre	1. Amafa AkwaZulu Natali 2. Ezemvelo KwaZulu-Natal Wildlife 3. KwaZulu-Natal Agricultural Development Trust 4. KwaZulu-Natal Gambling Board 5. KwaZulu-Natal House of Traditional Leaders 6. KwaZulu-Natal Provincial Planning and Development Commission 7. KwaZulu-Natal Tourism Authority 8. Natal Sharks Board 9. uMsekeli Municipal Support Services
Part D: Provincial Government Business Enterprises	
EASTERN CAPE	**KWAZULU NATAL**
1. East London Industrial Zone Corporation	Cowslip Invetsments PTY LTD
2. Eastern Cape Development Cooperation	Ithala Development Finance Cooporation
3. Mayibuye Transport Cooperation	Mjindi Farming PTY LTD
	Mpendele-Ntambanana Agricultural Company PTY LTD
FREE STATE	**LIMPOPO**
Free State Development cooperation	1. Gateway Airport Authority Limited 2. Limpopo Development Corporation
MPUMALANGA	**NORTH WEST**
1. Mpumalanga Agricultural Development Corporation 2. Mpumalanga Economic Growth Agency 3. Mpumalanga Housing Finance Company	1. North West Development Corporation 2. Mafikeng Industrial Development Zone (Pty) Ltd
WESTERN CAPE	
1. Casidra (Pty) Ltd All subsidiaries of any of the above provincial government enterprises	

Adopted from, South Africa, National Treasury (1999: 71-79)

APPENDIX A2: GATEKEEPER'S LETTER

the doj & cd
Department:
Justice and Constitutional Development
REPUBLIC OF SOUTH AFRICA

NATIONAL OFFICE
PRIVATE BAG X81, PRETORIA, 0001. Momentum Centre, 329 Pretorius Street
PRETORIA Tel (012) 315 4840,

Ref: HRD/02/2020(1)
Enq: (012) 315 1068
E-mail: ktsolo@justice.gov.za

TO WHOM IT MAY CONCERN

This serves to confirm that the Department of Justice and Constitutional Development has granted Ms S'lindile Nkwanyana permission to conduct Academic Research in the Department.

Ms Nkwanyane's research topic is: "Vulnerability **of supply chain to risks : An agenda to capacitate the state in South Africa ".**

Ms S Nkwanyana's approval is on condition that:

(a) She only collects information that is relevant to her academic research.
(b) She shares the information obtained from the Department for academic purpose only.
(c) She maintains, upholds and sticks to strict confidentiality on all information obtained from the Department.
(d) She should not publicly publish the findings and recommendations of the research without prior approval of the Department. The publishing should only be limited to the Academic Institution's requirements.
(e) She must share her findings and recommendations of her research with the Department.

Warm Regards.

10/09/2020

K TSOLO
ACTING DIRECTOR: HUMAN RESOURCE DEVELOPMENT

DATE

APPENDIX A3: LETTER OF INFORMATION

LETTER OF INFORMATION

Title of the Research Study: Vulnerability of supply chains to risks: an agenda to capacitate the state in South Africa.

Principal Investigator/s/researcher: Ms Nontuthuko S'lindile Nkwanyana: Masters

Co-Investigator/s/supervisor/s: Professor AT Agbenyegah: PHD

Brief Introduction and Purpose of the Study: Since inception, Supply Chains are recognized as primary vehicles for organization's competitiveness. In fact, they inform organization's overall performance. Yet growing literature suggests that SC's are faced with risks. Given the above, this study aims to develop a framework to assist public sector supply chains understand, face and handle their vulnerability towards SC risks with the main aim to increase supply chain's resilience.

Greeting: Greetings

Introduce yourself to the participant I am a currently doing Doctor of Philosophy qualification at DUT in Public Administration.

Invitation to the potential participant I would like to invite you to participate in the research.

What is Research: Research is a systematic search or enquiry for generalized new knowledge, as such this research is to find out new knowledge on risks present within SCM in the public sector as well how exposed this sector is to such risks so as to increase supply chain resilience to risks. You are welcome to discuss this research with family, friend and or lawyer as you are under no obligation to participate at this stage. You may ask any questions and as many as you feel necessary.

Outline of the Procedures: In order to gain insights of your views related to supply chain risks and service sector's exposure, the researcher will require 20 minutes of your time which will be held via TEAMS at your suited time and space. Expected from you and other participants will be audible cellphone or desktop or laptop connected to a network or data to enable researcher to communicate with you.

Risks or Discomforts to the Participant: You will not be asked to perform any acts or make statements which might be expected to cause discomfort, compromise, diminish self-esteem or cause them to experience embarrassment or regret. There are no foreseeable adverse reactions.

Explain to the participant the reasons he/she may be withdraw from the Study: Participation is voluntary, and you may withdraw from the study for your own personal reasons, like a lack of time to be interviewed. There will be no adverse consequences to you should you choose to withdraw.

Benefits: The benefits of the research include the following:

- The findings of the study have the potential to benefit yourself and your department through insightful thoughts and explanations of how exposed the SC's are.

- It is envisaged that the research results will be presented at a local or international conference, and the findings will be published in accredited journal(s).
- No benefits envisaged during study, since the participation will be purely voluntary and without any pay.

Remuneration: No monetary or other types of remuneration will be given.

Costs of the Study: No costs will be paid either by yourself or to yourself.

Confidentiality: The data collection process will not involve access to confidential personal data. You are assured that your responses will be treated anonymously and confidentially. The creation and use of a "Doj respondent" Gmail account, where your name will not be identified but instead being addressed as "Respondent 1,2,3 etc" during interview is sure to protect your identity. This data will thereafter will be stored at a researcher's home in her private gadgets for a period of five years, and will be disposed accordingly thereafter.

Results: Final outcome of research will be shared vial email amongst all of you (participants) as well as your institution and will also be published at DUT institutional repository.

Research-related Injury: There is no anticipated injury to you as a participant, as you will not perform any physical acts

Storage of all electronic and hard copies including tape recordings: Voice recorded interviews will be kept in a private safe at the residential place of the researcher for a period of 5 years and will be destroyed thereafter.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher (071 280 4536.), my supervisor (072 3139423.) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or researchdirector@dut.ac.za.

APPENDIX A4: CONSENT LETTER

CONSENT

Full Title of the Study: Vulnerability of supply chains to risks: an agenda to capacitate the state in South Africa.

Names of Researcher/s: Ms Nontuthuko S'lindile Nkwanyana

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Ms NS Nkwanyana about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**

I, Ms NS Nkwanyana herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Ms NS Nkwanyana	09/03/2022	_____
Full Name of Researcher	**Date**	**Signature**

_____	_____	_____
Full Name of Witness (If applicable)	**Date**	**Signature**

_____	_____	_____
Full Name of Legal Guardian (If applicable)	**Date**	**Signature**

APPENDIX A5: PROCUREMENT THRESHOLDS PERMISSIBLE FOR A PUBLIC BODY IN MAURITIUS

Public Body	Type of contract	Prescribed amount
Local Authorities	All Contracts	Rs 25 million
Mauritius Qualifications Authority	All Contracts	Rs 15 million
Rodrigues Regional Assembly	All Contracts	Rs 25 million
Other parastatal bodies not specified in Parts II, III, IV and V	All Contracts	Rs 15 million
Ministries/Government Departments	All Contracts	Rs 50 million
Beach Authority Economic Development Board Financial Services Commission Food and Agricultural Research and Extension Institute – Gambling Regulatory Authority Higher Education Commission Irrigation Authority Mahatma Gandhi Institute Mauritius College of the Air Mauritius Educational Development Company Ltd Mauritius Film Development Corporation Mauritius Institute of Health Mauritius Institute of Training and Development Mauritius Meat Authority Mauritius Oceanography Institute Mauritius Standards Bureau Mauritius Tourism Promotion Authority National Computer Board Open University of Mauritius – Added by [Act No. 2 of 2010] Polytechnics Mauritius Ltd – Private Secondary Schools Authority Public Officers' Welfare Council Quality Assurance Authority – Rodrigues Educational Development Company Ltd Sir Seewoosagur Ramgoolam Botanical Garden Trust		

Sugar Industry Labour Welfare Fund Tourism Authority Université des Mascareignes University of Mauritius University of Technology, Mauritius		
Airports of Mauritius Ltd Cargo Handling Corporation Ltd Central Water Authority Development Bank of Mauritius Ltd Information and Communication Technologies Authority Mauritius Cane Industry Authority - Added by [Act No. 40 of 2011] Mauritius Housing Company Ltd Mauritius Ports Authority Mauritius Revenue Authority Mauritius Shipping Corporation Ltd National Housing Development Company Ltd National Transport Corporation Road Development Authority State Informatics Ltd State Investment Corporation Limited State Property Development Company Waste Water Management Authority	All Contracts	Rs100 million
Agricultural Marketing Board Mauritius Examinations Syndicate Mauritius Institute of Training and Development Outer Islands Development Corporation	Goods, Civil Engineering Works & Capital Goods Other Services	Rs 50 million Rs 50 million
Central Electricity Board Mauritius Broadcasting Corporation State Trading Corporation	Goods, Civil Engineering Works & Capital Goods Other Services	Rs 100 million Rs 100 million

Source: researcher's own compilation

APPENDIX A6: PUBLIC ENTITIES THRESHOLDS PER CONTRACT TYPE: REPUBLIC OF NAMIBIA

Public entities	Types of procurement contract		
Categories of public entities	Goods	Works	Non-consultancy services
Category 1	Estimated value of procurement not exceeding N$25 Million	Estimated value of procurement not exceeding N$35 Million	Estimated value of procurement not exceeding N$15 Million
1. Offices, Ministries and Agencies as defined in section 1 of the Public Service Act, 1995 (Act No. 13 of 1995) 2. National Assembly 3. National Council 4. Electoral Commission of Namibia 5. All municipalities listed under Part I of Schedule 1 to the Local Authorities Act, 1992 (Act No. 23 of 1992) 6. Namibian Ports Authority 7. Namibia Power Corporation 8. Namibia Water Corporation 9. Namibia Student Financial Assistant Fund 10. National Housing Enterprise 11. National Petroleum Corporation of Namibia 12. Namibia Airports Company 13. TransNamib Holdings 14. Air Namibia			
Category 2	Estimated value of procurement not exceeding N$20 Million	Estimated value of procurement not exceeding N$30 Million	Estimated value of procurement not exceeding N$10 Million
1. All municipalities listed under Part II of Schedule 1 to the Local Authorities Act, 1992 (Act No. 23 of 1992) 2. All regional councils as defined in section 1 of the Regional Councils Act, 1992 (Act No. 22 of 1992) 3. Agricultural Business			

Development Agency 4. Polytechnic of Namibia 5. University of Namibia 6. Mineral Development Fund 7. Namibia Tourism Board 8. Namibia Wildlife Resorts Company 9. Windhoek Country Club 10. Agricultural Bank of Namibia 11. Development Bank of Namibia 12. Motor Vehicle Accident Fund 13. Namibia Financial Institutions Supervisory Authority 14. Namibia Institute of Pathology 15. Namibia Broadcasting Corporation 16. Telecom 17. Electricity Control Board 18. Epangelo Mining Company 19. SME Bank of Namibia 20. Roads Authority 21. Roads Contractor Company 22. Namibia Sports Commission 23. National Youth Council 24. National Youth Service 25. Namibia Statistics Agency 26. Namibia Institute of Public Service & Management			
Category 3	Estimated value of procurement not exceeding N$15 Million	Estimated value of procurement not exceeding N$20 Million	Estimated value of procurement not exceeding N$5 Million
1. All towns listed under Schedule 2 to the Local Authorities Act, 1992 (Act No. 23 of 1992) 2. All villages listed under Schedule 3 to the Local Authorities Act, 1992 (Act No. 23 of 1992) 3. Karakul Board of Namibia 4. Meat Board of Namibia 5. Meat Corporation of			

Namibia 6. Namibian Agronomic Board 7. Namibia College of Open Learning 8. Namibia Qualifications Authority 9. Namibia Training Authority 10. Namibia Institute for Mining Technology 11. National Council for Higher Education 12. Environmental Investment Fund of Namibia 13. Namibia National Reinsurance Corporation 14. Namibia Fish Consumption Promotion Trust 15. Namibia Film Commission 16. S 17. Communications Regulatory Authority of Namibia 18. Namibia Post & Telecommunications Ltd 19. Namibia Post & Telecoms Holdings 20. New Era Publications 21. Minerals Development Fund of Namibia 22. Namibia Standards Institution 23. Namibian Competition Commission 24. Namibia Development Corporation 25. National Commission on Research, Science & Technology 26. Offshore Development Company 27. Roads Fund Administration 28. Sat-Com Company (Pty) Ltd 29. Agro-Tour Company 30. Game Products Trust Fund 31. Namibia Special Risk Insurance Association 32. Zambezi Waterfront (Proprietary) Limited 33. Luderitz Waterfront Company (Proprietary) Limited 34. Financial Intelligence			

Centre 35. Fishery Observers Agency 36. Namibia Maritime Fisheries Institute 37. National Fishing Corporation of Namibia (under Seaflower company) 38. National Disability Council Social Security Commission 39. Namibia Press Agency 40. NamZim 41. Trust Fund For Regional Development & Equity Provisions 42. Diamond Board of Namibia 43. Security Enterprises & Security Officers Regulation Board 44. Accreditation Board of Namibia 45. Namibia Estates Agents Board 46. Business and Intellectual Property Authority 47. National Heritage Council 48. National Art Gallery of Namibia 49. National Theatre of Namibia			

Source: adopted from Namibia, Ministry of Finance (2017: 31-35)

APPENDIX A7: PROCUREMENT THRESHOLDS PER PROCUREMENT METHODS IN NAMIBIA

Choice of procurement method	Type of procurement contract		
	Goods	Works	Non-consultancy services
Open international bidding	Estimated value of procurement exceeds N$25 Million	Estimated value of procurement exceeds N$40 Million	Not applicable
Restricted bidding	Estimated value of procurement not exceeding N$3 Million	Estimated value of procurement not exceeding N$3 Million	Estimated value of procurement not exceeding N$2 Million
Request for sealed quotations	Estimated value of procurement not exceeding N$2 Million	estimated value of procurement not exceeding N$2 Million	estimated value of procurement not exceeding N$2 Million
Small value procurement	Estimated value of procurement not exceeding N$15 000	Estimated value of procurement not exceeding N$15 000	Estimated value of procurement not exceeding N

Source: adopted from Namibia, Ministry of Finance (2017: 36)

APPENDIX A8: PROCUREMENT THRESHOLDS BASED ON THE TYPE OF PROCUREMENT AS WELL AS THE APPROVING AUTHORITY: FEDERAL REPUBLIC OF SOMALIA

APPROVING AUTHORITY	NATURE OF ITEMS APPLICABLE FOR APPROVAL	AMOUNT
Head of the Procuring Entity	Contracts for the procurement of goods	less than US$10,000
	Contracts for the procurement OF services	less than US$10,000
	Contracts for the procurement of works	less thanUS$40,000
Procurement Committee	Contracts for the procurement of goods	less than US$1,000,000
	Contracts for the procurement OF services	less than US$1,000,000
	Contracts for the procurement of works	less than US$2,000,000
Contracts Committee	Contracts for the procurement of goods	at or above US$1,000,000
	Contracts for the procurement OF services	at or above US$1,000,000
	Contracts for the procurement of works	at or above US$2,000,000
National Competitive Bidding	Contracts for the procurement of goods	below US$100,000
	Contracts for the procurement OF services	below US$100,000
	Contracts for the procurement of works	below US$200,000
International Competitive Bidding	Contracts for the procurement of goods	exceeds US$100,000
	Contracts for the procurement OF services	exceeds US$100,000
	Contracts for the procurement of works	exceeds US$200,000
Limited or restricted competitive bidding	Contracts for the procurement of goods	exceeds US$100,000
	Contracts for the procurement OF services	exceeds US$40,000
	Contracts for the procurement of works	exceeds US$200,000
Shopping Procedures	Contracts for the procurement of goods	below US$50,000
	Contracts for the procurement OF services	below US$50,000
	Contracts for the procurement of works	below US$50,000
Direct contracting or sole sourcing	Contracts for the procurement of goods	exceeds US$100,000
	Contracts for the procurement OF services	exceeds US$40,000

Source: researcher own compilation

APPENDIX A9: INTERVIEW SCHEDULE

LIST OF QUESTIONS

Part A: Demographics information

The personal information is required for statistical analysis of data of respondents. All your responses will be treated with paramount confidence they deserve. The researcher appreciates your participation in providing this important information.

Mark the applicable block with a cross (X). Complete the applicable information.

		(1)	(2)	(3)	(4)	(5)
A1	**Please indicate in which age group are you?**	less than 30 years	30-39	40-49	50-59	60 years or more

A2	**What level of position are you in your organization**		
	Middle management		(1)
	Supervisor		(2)
	Below supervisory (junior)		(3)

A3	**From the year groups below, please state total work experience within government in Supply Chain Management**		
	5 years and below		(1)
	6-10 years		(2)
	more than 10 years		(3)

Part B: SUPPLY CHAIN RISKS, VULNERABILITY AND RESILIENCE OF SUPPLY CHAINS THEREOF

Supply Chain Risks are defined as possible losses in a SC in relations to its targeted values of efficiency and effectiveness caused by undefined developments in the SC characteristics. Meanwhile Supply Chain Vulnerability may be defined as a weakness of the SC to succumb to disruptive events that impedes successful achievement of it goals.

B.1 In relation to the above, mention any five risks associated with procurement activity within supply chain in the public sector organizations, in the scale of 1 to 10, rate the implications it has on attainment of supply chain goals (customer service etc) in the public sector organizations and thereafter discuss how this sector can overcome or cope with it.

NB: Think of any risks related to policies, processes, supply chain structure and the environment (internal/external) under which procurement operates.

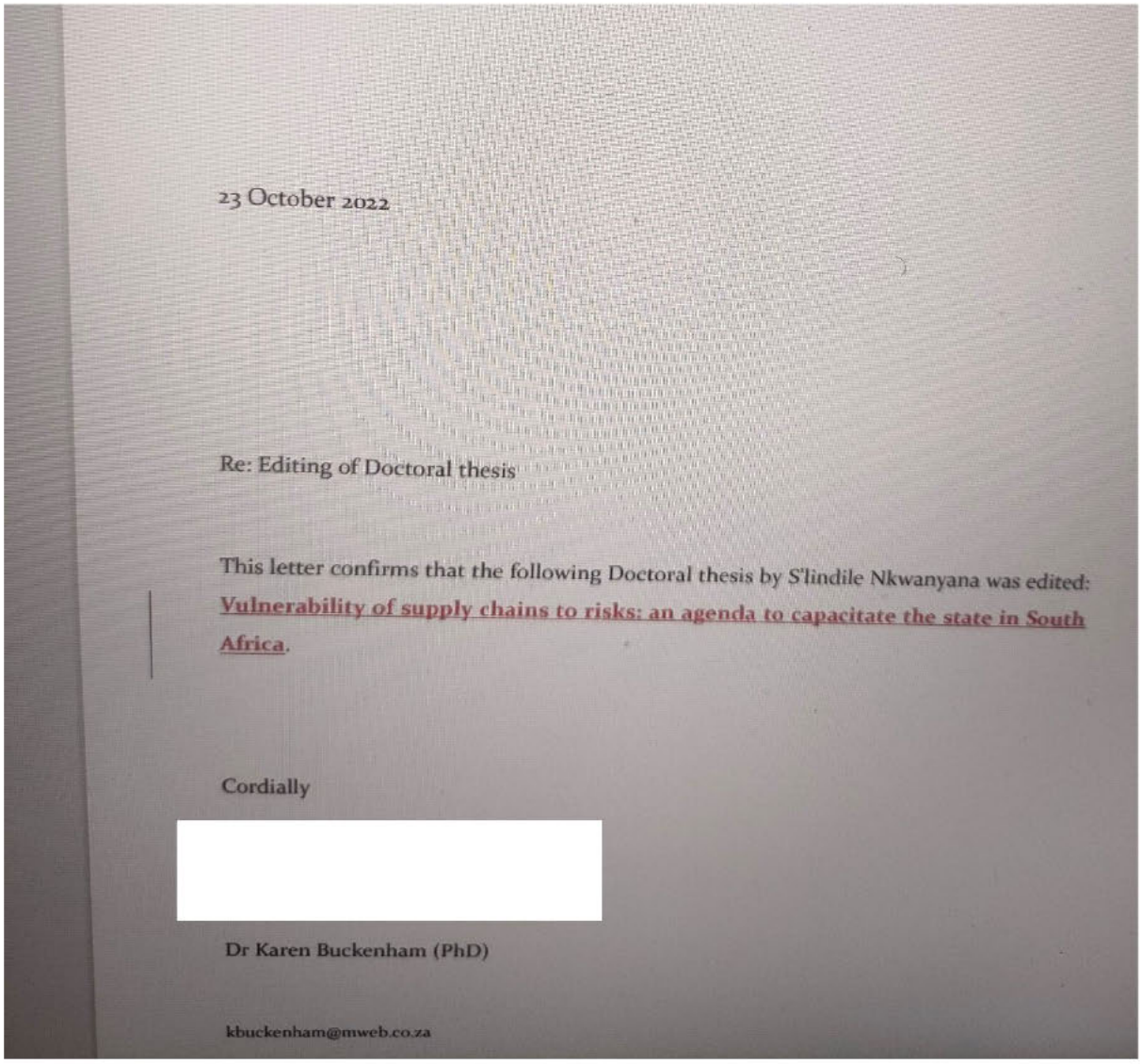
	Low implication							High implication			
Describe nature of risk	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Discuss how the public sector can overcome or cope with it.**

B2 If not already discussed above, rate the implications of the below risks has on attainment of supply chain goals (customer service etc.) through procurement activity in the public sector thereafter discuss how this sector can overcome or cope with it.

No	Nature of risk	Low implication							High implication			How government can overcome or cope with exposure to this risk.
B2.1	Risks from suppliers, CSD/QSE/EME/WOMEN (reliability, lead times, delivery problems reliability)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
B2.2	Outsourcing procedure- (supply complexity & compliance to government policies.											
B2.3	Process efficiency (single quote & 3 quote Flexibility & user friendly)											
B2.4	Criminal acts (collusion between suppliers, collusion between officials and suppliers).											
B2.5	Technical failures (Logistical Information Systems planned and unexpected downtime)											
B2.6	Human errors											
B2.7	Loss of key personnel (service termination)											
B2.8	Environment (political, social expectations)											
B2.9	Finances (economy, limited budget and exorbitant price charges,)											
B2.10	Reduced stock levels (internally and stock out from suppliers)											

Signature student: Signature supervisor:

APPENDIX A10: ENGLISH LANGUAGE EDITING



23 October 2022

Re: Editing of Doctoral thesis

This letter confirms that the following Doctoral thesis by S'lindile Nkwanyana was edited: **Vulnerability of supply chains to risks: an agenda to capacitate the state in South Africa**.

Cordially

Dr Karen Buckenham (PhD)

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