

**DRIVERS OF PROCUREMENT PERFORMANCE IN THE PUBLIC HEALTH
INDUSTRY IN THE GAUTENG PROVINCE**

by

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DEDICATION

This dissertation is dedicated to each and every scholar out there, but most importantly, an African child. Your dreams are valid never ever limit yourself. Finally , to my parents Mr and Mrs. Masemola, my family and siblings who believed in my aptitudes throughout my educational journey.

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ABSTRACT

The purpose of this study was to investigate the relationship between supplier selection practices, supplier risk management, supplier commitment and procurement performance in the public health industry in Gauteng province. Many studies have been conducted on the specific subject of procurement performance within the public health care sector. However, there is very little evidence that any such studies have been carried out that have precisely been narrowed down to the specific subject of the dimensional relationships and linkages between Supplier selection, supplier risk management, supplier commitment and procurement performance in the public health industry in South Africa. This study, therefore, was conducted to fill this gap.

To measure the study constructs, the survey material was designed in the form of a structured questionnaire. Participants were asked to complete four test instruments namely: supplier selection questionnaire, supplier risk management questionnaire, supplier commitment and procurement performance questionnaire. A total number of 200 questionnaires was distributed to the identified sample of public health industries of which 187 responded and finally, 150 questionnaires were usable and used for data analysis. The collected quantitative data were analysed using the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure. The actual data analysis techniques applied included descriptive statistics and inferential statistics using structural equation modelling. Also, the latter used a SMART-PLS 3 to test the psychometric properties of measurement scales and the testing of the six hypotheses using the path analyses technique.

The results of the study showed positive and significant relationships amongst all variables except for one. Specifically, supplier selection and supplier risk management exerted a moderate and significant influence on supplier commitment. Moreover, supplier commitment had a strong positive and significant relationship with procurement performance while supplier risk management had a weak and insignificant relationship with the same factor. More results provided from the analysis confirmed the existence of a very strong and significant relationship between supplier selection and procurement performance. Besides, the study takes note of its contributions to highlighting its merits. From a theoretical perspective, it provides an in-depth examination of some driving factors to supplier selection, supplier risk management, supplier commitment and procurement performance within Public health entities. Given that a study of this nature has not been performed before amongst South African public health care sectors,

the results are an essential addition to the existing body of literature within the area of procurement performance within public health industries in developing countries such as South Africa. The study concludes by suggesting recommendations for limiting the impact of the identified challenges on procurement performance.

Keywords

Supplier selection; supplier commitment; supplier risk management; procurement

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CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

Globally, public procurement occupies a key role in the service delivery and performance of government departments and public entities (Duke&Naude2015:1). The public sector consists of government departments and public entities such as roads and transport services, communication systems and health services. These entities provide goods or services to the public (Dube & Danescu 2011:3) and are provided through public procurement (Uyarra & Flanagan 2009:6).

Procurement is explained as the business management function that ensures identification, sourcing, access and management of the external resources that an organisation needs or may need to fulfil its strategic objectives (Chartered Institute of Purchasing & Supply 2014:2). Procurement is crucial as it helps meet partners' expectations as well as their primary needs; it also assists both vendors and customers to perform on a higher level in the long run (Chief Procurement 2016:1). Procurement encompasses the whole process of acquiring products and/or services. It begins when an agency has identified a need and decided on its procurement requirement (Amemba, Nyaboke, Osoro & Mburu 2013:42). Then, it continues through the processes of risk assessment, seeking suppliers and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services and where relevant, the ongoing management of a contract and consideration of options related to the contract (CIPS 2013:17).

Supplier selection, a sub-function of procurement, has become one of the elementary roles of procurement managers since it virtually affects any industry's competitiveness (Li & Zabinsky 2011:344). Therefore, selecting the right suppliers not only brings substantial benefits to industries but also increases customer satisfaction (Lin, Chen & Ting 2011:1760). The performance of the supplier is a crucial factor for the success or failure of any company. As such, rational and effective decision making in terms of the supplier selection process can help the organisation to optimise cost and quality functions (De Felice, Mostafa, Deldoost, Faizollahi & Petrillo 2015:1). Failure to undertake the right process in selecting the best possible supplier will result in supplier risks that may disrupt the industry's operations.

Supplier risk is the probability of an incident associated with inbound supply from individual supplier failures in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety (Ellis, Henry & Shockley 2010:43). Public health industries across the globe have started to pay attention to supplier risk management and as such, industries should ensure they minimise their suppliers' risks to maximise effective procurement performance. Supplier risk management is a coordinated process among supply chain members, which reduces the likelihood of risky events and lessens the negative consequences on business after the occurrence of risky events (Kleindorfer & Saad 2005:55). The supplier risk management process may be viewed as a business continuity plan and it also entails the generic steps of risk management processes such as risk identification, risk assessment, risk mitigation plans and continuous monitoring (Tummala & Schonehherr 2011:474). Besides, supplier commitment plays a vital role in procurement performance. Morgan and Hunt (2013:345) state that commitment is a central aspect for the relationship for the supply relationship success. This implies that when commitment is present, efficiency, productivity and effectiveness are promoted. In this regard, supplier commitment brings a confident stable relationship between the buyer and the supplier; it also enhances both parties to make short-term sacrifices to maintain the relationship, which in turn improves the procurement performance (Jouali & Chakor 2013:57).

1.2 PROBLEM STATEMENT

For decades, procurement performance has been attracting great attention from practitioners, academia and researchers due to poor performance resulting from non-adherence to proper procurement processes and policies (Magutu, Njihia & Mose 2013:378; Kakwezi & Nyeko 2014:01). Most health industries in developing countries have been known for their poor performance and corruption, resulting from poor resource utilisation, poor personnel management and training and delayed payment and benefits (Abdallat, Nimer & Al-Weshah 2013:43). However, in South Africa, most of the procurement departments within the health sector are faced with the problem of not having enough information about the procurement procedure, its inputs, outputs, resource consumption and results (Kiage 2013:54). With this, procurement departments within the health sector are unable to determine their efficiency and effectiveness. According to Thiruchelvam and Tookey (2011:437) and Price Waterhouse Coopers (2013:6), companies have become gradually more dependent on suppliers to supply goods and to deliver services, which were formerly provided in house, to specialise and

concentrate on their core competence. Thiruchelvam and Tookey(2011:437) state that supplier selection is regarded as a strategic decision when the purchasing organisation attempts to establish a long-term and win-win business relationship with its supplier.

Although historically, supplier selection was supposedly a straightforward matter, the process was shadowed by some difficulties such as a growing number of potential suppliers, a growing number of attributes and difficulty in identifying and defining supplier selection parameters (Altinoz, Kilduff & Winchester 2010:129). Due to difficulties imposed by supplier selection, connecting with capable, reliable and trustworthy suppliers is the only key factor to a successful procurement practice in public health industries in South Africa (Matook, Lasc & Tamaschke 2009: 242).

Many studies (Ayieko & Kinoti 2018:10; Hussein 2014:8; Kanyoma & Khomba 2013:26; Kumar, Ozdamar & Peng 2005:152) have been conducted on the specific subject of procurement performance within public health care. However, there is very little evidence that any such studies have been carried out that have precisely been narrowed down to the specific subject of the dimensional relationships and linkages between supplier selection, supplier risk management, supplier commitment and procurement performance in the public health industry in South Africa. Cristea and Cristea (2017:2) state that the above subjects received a lot of attention recently and suggest that there is a need for more research on such subjects within the scope of African government organisations.

Therefore, using the recurring unsatisfactory procurement performance in most South African public health care sectors as a nominal anchor, this research was a ground-breaking study as it sought to address the existing research gaps. It has compromised an important source of knowledge and information on issues about the influence of supplier selection, supplier risk management and supplier commitment on the procurement performance of public health care sectors. The fact that very little previous research has been carried out on this topic in a South African context, provides a vital momentum and motivation for carrying out this research.

1.3 OBJECTIVES OF THE STUDY

Research objectives are divided into primary objectives, theoretical objectives and empirical objectives.

1.3.1 Primary objectives

The main purpose of this study was to determine the relationship between supplier selection practices, supplier risk management, supplier commitment and procurement performance in the public health industry in the Gauteng province.

1.3.2 Theoretical objectives

To achieve the primary objective, the following theoretical objectives were formulated for the study:

- To conduct a literature review on the committed-trust theory
- To appraise the literature on supplier selection practices
- To conduct a review of the literature on the supplier risk management
- To provide an overview of the literature on supplier commitment
- To carry out a literature study on procurement performance.

1.3.3 Empirical objectives

Empirical objectives are based on the relationships between researches variables that this study sought to measure. The following empirical objectives were set for the study:

- To investigate the influence of supplier selection practices in supplier commitment on the procurement performance
- To determine the influence of supplier risk management in supplier commitment on the procurement performance
- To investigate the supplier selection in supplier risk management on the procurement performance
- To identify the influence of supplier selection on the procurement performance

To establish the relationship of supplier risk management on the procurement performance.

1.4 CONCEPTUAL FRAMEWORK

For this study, the research framework is illustrated in Figure 1. The framework is made up of three constructs. Supplier selection and supplier risk management are seen as predictors and one mediator, which is supplier commitment and one outcome variable that is procurement performance. The predictors, mediator and outcome proposed that relationships exist among the variables, which is supported by the presence of the six hypotheses that build up the model.

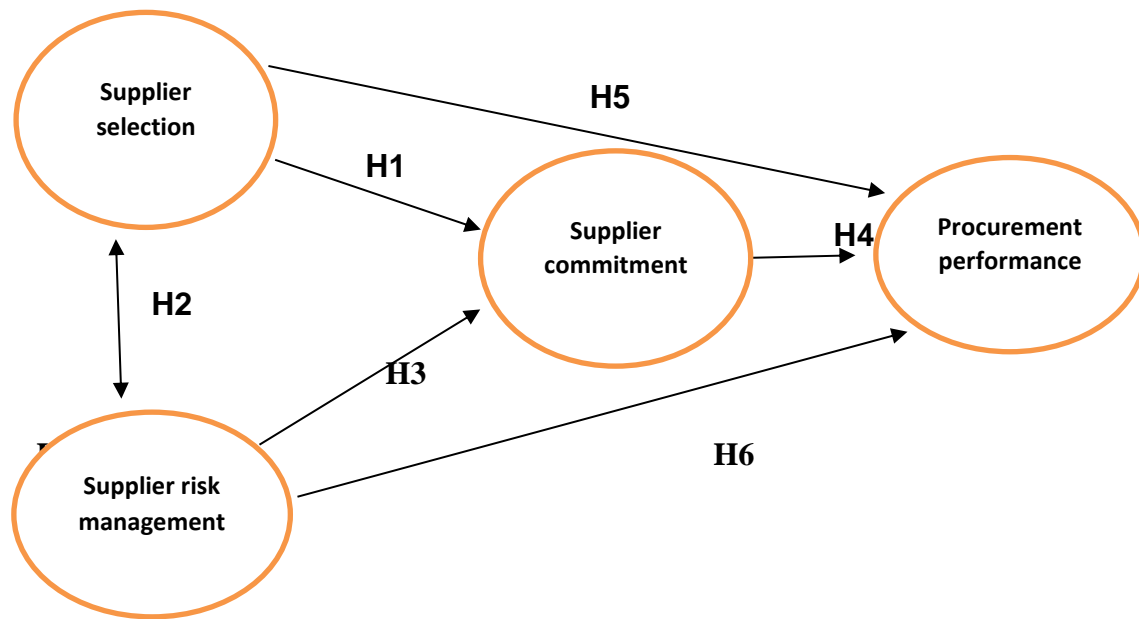


Figure 1: A proposed conceptual model

1.4.1 Hypothesis statements

Based on the conceptual model above, the following hypothesis statements have been proposed.

H1: There is a positive relationship between supplier selection practices and supplier commitment.

H2: There is a positive relationship between supplier selection practices and supplier risk management.

H3: There is a positive relationship between supplier risk management and supplier commitment.

H4: There is a positive relationship between supplier commitment and procurement performance.

H5: There is a relationship between positive supplier selection practices and procurement performance.

H6: There is a negative relationship between supplier risk management and procurement performance.

1.5 THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Commitment-trust theory

To obtain a suitable contextual and a broader understanding of this study, the commitment-trust theory of Morgan and Hunt (1994:20) was a well-established framework to observe the relationship between supplier selection practices, supplier risk management and supplier commitment in procurement performance. The commitment-trust theory suggests that trust and commitment are the two fundamentals, which must exist for a relationship to be successful in an organisation (Mack 2018:1). For an effective procurement performance to progress, there should be coordination and compliance between all partners involved. Hashima and Tan (2015:146) suggest that the committed-trust theory can be of great help in terms of ensuring and designing an effective and efficient procurement performance.

Morgan and Hunt (2004:13) see the commitment-trust theory as an essential tool when dealing with supplier and buyer problems especially when there are conflicting objectives. The application of the theory will provide the foundations of a solid relationship between the supplier and buyer that can lead to customer retention and enhance both parties to express long-term commitment towards the relationship (Morgan & Hunt 1994:33; Veloutsou, Saren & Tzokas 2002:437; Bricci, Bragata & Antunes 2015:10).

1.5.1 Supplier selection

Supplier selection occupies an important position in supply chain management and is a research area that continually receives a relatively large amount of attention in the literature, from both practitioners and academics (Kamann & Bakker 2004:55; Li 2014:1; Cristea & Cristea 2017:1). According to Cristea and Cristea (2017:1), supplier selection is the process by which companies identify, evaluate and choose a supplier to become part of their supply chain process.

The main objectives of the supplier selection process are to maximise overall value to the purchaser, reduce acquisition risk and build close and long-term relationships between buyers and suppliers (Chen, Lin & Huang 2006:290). Selecting the best suitable supplier considerably decreases purchasing costs, improves competitiveness in the market, enhances supply chain performance and improves end-user satisfaction (Sanayei *et al.* 2010:240). Besides, Bruno, Esposito and Genovese (2016:272) further stress that the selection of the right suppliers is essential for enhancing the enterprises' competitiveness and to react promptly to market requirements and the innovation process.

1.5.2 Supplier commitment

Commitment is regarded as essential because it leads directly to co-operative performances that are vital for the long-term and mutually beneficial relationships (Frow 2007:246). It has been viewed as a crucial and important factor that contributes to strengthening buyer-supplier relationships (Kim, Park, Ryoo & Park 2010:865). Wong, Lai, Lun and Cheng (2012:7) define commitment as the belief and intention to continue with a relationship that one may see as valuable. Further, Salam (2011:360-361) states that commitment is the desire from both parties to maintain and strengthen their respective relationships.

For commitment to be achieved in supply chain relationships, suppliers should stabilise and collaborate in a buyer-supplier relationship so that joint goals could be reached amongst them (Botes, Niemann & Kotzé 2017:186; Vaidya & Hudnurkar 2013:293). Also, suppliers should have a holistic view of what is expected of them to enhance commitment between them and their buyers through pre-communication rather than being focused on their internal goals in supply chains (Bae & Ha 2014:127).

1.5.3 Supplier risk management

According to Matook, Lasch & Tamaschke (2009:243), organisations face many risks along the supply chain and the purchasing environment has become one of the most important components for generating added value, profitability and even ensuring survival. Purchasing departments focus on acquiring parts of the right quality, in the right quantity, at the right time and price and from the right suppliers, which then assess supplier risk important (Matook *et al* 2009:243; Toppari 2009:13). The assessment of supplier risks is particularly important when the supplier is new and the firm has not sourced from it before or when evaluating suppliers that deliver critical inbound supplies (Matook *et al.*, 2009:244). As defined by Bour (2016:4), supplier risks are the risks that the company is subjected to by the relation that it maintains with the suppliers.

Considering a comprehensive set of supplier risks, an organisation needs to undertake the right activities to manage supplier risks (Ritchie & Brindley 2007:310). According to Coelho (2017:2), supplier risk management is a systematic approach to identify, assess and mitigate risk in the organisation. Supplier development is one of the management responses a firm could adopt. As defined by the CIPS (2013:1), supplier development is the “process of working with certain suppliers on a one-to-one basis to improve their performance for the benefit of the buying organisation”. Supplier development practices are important components of supply chain management; these practices play a vital role in bringing improvement in buyer-supplier performance (Rajput & Bakar 2012:11186).

1.5.4 Procurement performance

According to the Public Procurement and Asset Disposal Act (33 of 2015:11), procurement is the “acquisition by purchase, rental, lease, hire purchase, license, tenancy, franchise or by any other contractual means of any type of works, assets, services or goods including livestock or any combination and includes advisory, planning and processing in the supply chain system”. As explained by Van Weele (2002:256), procurement performance is a measure of identifying the extent to which the procurement function can reach the objectives and goals with minimum cost. Additionally, he notes that there are two main aspects of the procurement performance namely effectiveness and efficiency. An effective procurement procedure allows suppliers to provide satisfactory quality, service and price within a timely delivery schedule (World Health Organisation 2011:10; Trillium Lakelands 2016:2). The basic tenet of procurement is described as the five rights: the right product or service of the right quality and right price and the right quantity, at the right place and time (Abouzeid 2018:1). Furthermore, procurement may involve questions of accountability, integrity and value, with effects far beyond the actual buyer and seller transactions at its centre (WHO 2011:10).

Procurement is regarded as an important strategic business management function to manage the entire process from an assessment of need, identification of a product, forecasting, sourcing, logistics, risks management, value engineering, supplier relationship management and regulatory compliance efficiently and effectively (Mazibuko & Fourie 2017:109). Poor practices in the arena of procurement and the manifestation of unethical procurement practices lead to a substandard provision of goods and also impede the achievement of an effective procurement performance (Mazibuko & Fourie 2017:109).

1.6 RESEARCH METHODOLOGY AND DESIGN

Research methodology may be defined as a systematic way to solve a problem, a science of studying how research is to be carried out or the study of methods by which knowledge is gained (Rajaseka, Philominathan & Chinnathambi 2013:6). Therefore, methodology assists in the understanding of the process of the research, thus, giving it scientific merit. The methodology used in this research is based on previous studies in the field. Three types of research strategies can be used namely quantitative, qualitative and mixed method. A quantitative study uses methods that are focused on the derivation of conclusions from existing data using proven statistical or general quantitative methods (Mundar, Matotek & Jakus 2012:78). On the other hand, qualitative studies use methods that are focused on collecting data and information and

interpretations of the data (Mundar *et al.* 2012:78). However, mixed methods may be defined as research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches and methods in a single study (Tashakkori & Creswell 2007:4).

This study will use a quantitative method of data collection and analysis. Quantitative research follows a scientific method, usually descriptive and helps the researcher determine causal relationships between variables and the data can be interpreted using statistical analysis (Berndt & Petzer 2011:348). Also, this study follows a descriptive analysis since the underlying relationships of variables surrounding the problem are known (Cant, Gerber-Nel, Nel & Kotze 2003:33-37). A Quantitative research method was selected because it is relatively inexpensive and takes up little time to conduct and can be used to estimate the prevalence of outcome of interest because the sample is usually taken from the whole population (Locke, Silverman & Spirduso 2010:33). Besides, the study uses a quantitative method of data collection and analysis because it is the type of methodology that suits the type of questionnaire structure designed to collect data for the study. In this study, the research design will be divided into two phases namely a review of the literature and an empirical study.

1.6.1 Literature review

The review of the literature will constitute the theoretical part of this research and will consist of the use of the available literature namely journals, books, newspapers, legislations and electronic databases on existing approaches and other techniques.

1.6.2 Empirical study

The empirical study will focus on the sampling design, data collection methods, statistical analysis, reliability, validity and ethical considerations.

1.7 SAMPLING DESIGN

Sampling design can be seen as a provision of a plan for a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population (Creswell 2009:145). Moreover, sampling design includes target population, sampling size, sampling frame and sample method.

1.7.1 Target population

The target population is commonly related to the number of people living in a particular country, a defined group of a research subject that is sampled and it does not just relate to individuals in

research and it largely depends on your research questions and the context where the study will take place (Taherdoost 2016:19). In this study, the target population consisted of employees in the procurement department in public health industries located in the Gauteng province.

1.7.2 Sampling size

The sample size is almost always a matter of judgement as well as calculation, where it involves statistical analyses that will determine the threshold of a sample size of individual categories and it will also be determined by the size of the total population from which your sample is being drawn (Taherdoost 2016:20). The determination of the sample size is a scientific judgment made by the researcher, based on past studies (Zikmund 2013:519). In this study, a historical sampling approach was used to determine the sample size. Previous studies conducted by several scholars, for example, Budak and Rajh (2014:12) and Field (2013:156) have examined the procurement performance in public health care sectors using sample sizes ranging between 300 and 400 elements. Accordingly, a sample size for SEM of between 300 and 400 respondents is recommended (Tabachnick & Fidell 2007:718). Therefore, the sample size for this study was pegged at 350 respondents.

1.7.3 Sample frame

According to Statistics (2018:1), a sampling frame is a list of all the items in a population. It is a complete list of everyone or everything you want to study. It is necessary to rely upon a sampling frame to represent all of the elements of the population of interest because a researcher rarely has direct access to the entire population of interest (Malhotra 2010:373). The sample frame for this study was collected from the National Health Research Database (NHRD) of South Africa.

1.7.4 Sample method

Sampling, as defined by Berndt and Petzer (2011:349), is the process of selecting a sample so that by selecting some of the elements of the population, the researcher can draw certain conclusions about the population. There are two types of sampling approaches namely probability and non-probability sampling (Taherdoost 2016:20). For this study, non-probability sampling using convenience sampling was used. Convenience sampling is a type of nonprobability where members of the target population that meet certain practical criteria are included in a study (Etikan, Musa & Alkassim 2015:02). This study used convenience sampling because it is inexpensive and easy.

1.8 MEASUREMENT INSTRUMENT AND DATA COLLECTION METHOD

Data collection was accomplished using a structured questionnaire, which was hand-delivered to all the participants. The purpose of hand-delivered questionnaires was to ensure that participants get them on time and complete them in their own free time. Personally, the researcher delivered and collected the questionnaires. The questionnaire consisted of five sections. Section A solicited participants' background information. Section B comprised questions on supplier selection practices. The questions used in this section were adapted from Tawfik, Tarek and Mady (2014:426). Section C comprised questions on supplier risk management. The questions used in this section were adapted from Satyendra and Anil (2014:1039). Section D comprised questions on supplier commitment. Questions in this section were adapted from studies conducted by Abdul-Muhmin (2005:627). Section E comprised questions on procurement performance. The questions used in this section were adapted from Tawfik *et al.* (2014:426). Section A consisted of dichotomous and multiple-choice questions. Sections B to E consisted of five-point Likert scale questions, anchored with 1=strongly disagree to 5=strongly agree. Five-point Likert scaled questions are useful because they are easy to construct and administer and participants find it easier to use (Bradley 2010:111; Blanche, Durrheim & Painter 2006:488).

1.9 DATA ANALYSIS APPROACH

After completion of the fieldwork, the researcher coded the data in an Excel spreadsheet and the data was then be imported to the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure. This software allowed the researcher to apply statistics or logical techniques systematically to describe and illustrate, condense, recap and evaluate data (Jandagh & Matin 2010:67).

1.10 RELIABILITY AND VALIDITY OF MEASUREMENT SCALES

According to Bryman and Bell (2011:41), reliability is established to answer the question of whether the results and outcomes of the studies can be repeated by a later researcher who employs the same techniques. The Cronbach alpha coefficients were used to enhance the reliability of survey instruments. Cronbach's alpha is expressed as a number between zero and one. By using Cronbach's alpha, the internal consistency will be checked. Tavakol and Dennick (2011:53) describe internal consistency as the extent to which all items in a test measure the same concept or construct.

Validity is concerned with the integrity of the conclusions that are generated from a piece of research (Bryman *et al.*, 2011:42). Convergent validity will be examined by item loadings, which will include standardised regression weights and item-total correlation and average variance extracted (AVE). Thus, discriminant validity will be established through inter-correlation between the research constructs and by comparing the AVE and shared variance.

1.11 THE SMART-PARTIAL LEAST SQUARES (SMART-PLS 3)

The SMART-partial least squares (SMART-PLS 3) is one of the prominent software applications for Partial Least Squares Structural Equation Modeling (Wong 2013:1), which deals specifically with measurement models; that is, the relationships between observed measures or indicators (Brown & Moore 2013:2). The Smart- partial least squares would also provide evidence that all items are properly aligned with the correct latent variables within the general construct being measured (Holtzman 2014:1651).

In this study, Smart- PLS 3 was used to obtain standard regression weights, through that, different fit statistics will be applied to determine that the model adequate fit for the data. The indicators were cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE), factor loading and Intem- total correlation.

1.12 ETHICAL CONSIDERATIONS

Ethics are principles and guidelines that clarify the conditions under which the research was conducted (Oates, Kwiatkowski & Coulthard 2010:4). According to Bryman and Bell (2011:128), there are four main areas where issues may arise when performing research namely harm to participants, lack of informed consent, invasion of privacy and deception. Efforts will be made to ensure that the research will be conducted ethically. Participants' right to anonymity, confidentiality and non-participation will be respected.

1.13 OUTLINE OF THE STUDY

This study consists of five chapters with the contents as mentioned below:

Chapter 1: Introduction and background of the study. The chapter will cover the introduction and background of the study including the problem statement and purpose of the study, research

model, research objectives, the scope of the study and ethical considerations together with an outline of the study/research.

Chapter 2: Overview of procurement. The focus of this chapter is on the review of the relevant literature, which provides an overview of the concept of procurement.

Chapter 3: Literature review. This chapter will consist of the literature review, which covers understanding the purposes of conducting a critical literature review, demonstrating and understanding the theoretical literature review, demonstrating the empirical literature review and examining the key sources of the literature review as well as recognising the different search engines available for a critical literature review.

Chapter 4: Research design and methodology. The chapter will discuss the research methodology and research design. The method of sampling and the method of collecting data will also be discussed. The method of data analysis and the statistical techniques will be outlined.

Chapter 5: Data analysis and interpretation. The chapter will deal with analysis, interpretation and evaluation of the research findings.

Chapter 6: Conclusions and recommendations. The chapter will present the conclusions drawn from the research findings and the research objectives. Implications of the findings, recommendations, limitations and future research directions will be discussed in this chapter.

CHAPTER 2

OVERVIEW OF PROCUREMENT IN THE PUBLIC HEALTH SECTOR IN SOUTH AFRICA

2.1 INTRODUCTION

Background of the research namely the supplier selection practices, supplier risk management, supplier commitment and procurement performance in the public health industry in Gauteng province was provided in the previous chapter. Besides, an outline was provided on the research methodology and design of the research. Chapter two elongates the theoretical review to gain an in-depth understanding of procurement performance, the categories of procurement are discussed in detail and also the procurement process as well as the procurement challenges which are encountered in the public health care industry. The supplier selection and procurement processes differ greatly amongst the public healthcare and private healthcare sector in the South African healthcare environment (Kruger 2016:2). The private healthcare industry, which covers approximately eight million people who make use of private insurance (medical schemes), uses the Webster and Wind model for supplier selection, of which, nine steps in the equipment purchasing process are followed (Li 2008:5). By contrast, the South African public sector is responsible to provide health care services to approximately 42 million occupants who do not make use of or have access to private insurances (Kruger 2016:2). Procurement in the public healthcare sector is done by local tenders of which the contracts are renewed every after 24 months. Besides, there is usually one contacted supplier of each product in the public health industry, unless the tender was awarded to two different suppliers. In the eventuality of a shortage, the options for attaining substitute supplies may not be available. Additionally, the ability to procure substitute supplies is restricted by the capacity required to meet the needs of the public health sector (Gray 2014:209). The sections that follow discuss the nature of South Africa's public procurement.

2.2 THE NATURE OF PUBLIC PROCUREMENT

Public procurement is responsible for the provision of goods and infrastructure, for example, roads and harbours and services and also education and health care to the inhabitants of a specific geographic region, city or town or country (Odhiambo & Kamau 2003:10; Ambe & Badenhorst-Weiss 2012:242). As explained by Arrowsmith (2010:1), public procurement refers to the government activity of buying the products and services needed to perform its functions. Further, the Arizona Procurement code (2004) states that public procurement “includes all functions that pertain to obtaining any material, services, construction or construction services including a description of requirements, selection and solicitation of sources, preparation and award of contract and all phases of contract administration”. Moreover, Komakech (2016:20) claims that public procurement entails the purchasing of valuable things and contracting of construction services and work if such acquisition is affected by resources from governments budgets, local authority budgets, government foundation funds, domestic loans or foreign loans guaranteed by the government, foreign aid and revenue received from the economic activity of the government. Contrastingly, the state of Arkansas’ Procurement Law and Regulations (2003:7) define public procurement to include property disposal as follows: (i) “Procurement” means the purchasing, buying, leasing renting or otherwise obtaining of any valuable items or services. (ii) It also entails all functions relating to the acquisition of any public procurement including a description of requirements, selection and solicitation of sources, preparation and awarding of contract/tender, disposal of valuable items and all steps of contract administration. Progressively, public procurement is acknowledged as a field that plays an essential role in ensuring the success of the management of public resources. Numerous organisations have become aware of procurement and its vulnerability to corruption and mismanagement of funds and have since then made an effort to combine procurement into a more strategic view of the state's efforts (Ambe & Badenhorst-Weiss 2012:245). Also, most countries have resorted to using their annual procurement plans as a problem solver and have then adopted this as a long-term and strategic view of procurement needs (Mahmood 2010:103). The next section focuses on the different categories of procurement.

2.3 DIFFERENT CATEGORIES OF PROCUREMENT

Depending on the value of the transaction, procurement takes place at different levels in the public health care sector. Firstly, there are day-to-day buying, which are cleaning materials,

incidental stationery and other consumables such as staff refreshments and of which all of these have a few specific procurement rules (Mantzaris 2014:69). Purchasing of higher value items ranks as the second level of procurement. This involves competitive bidding which includes obtaining quotations from different suppliers before awarding the tender to the best suitable supplier (Mantzaris 2014:6; Standard Operation Procedure 2008:5). Ultimately, there are extremely higher-value purchases that have very strict rules which are referred to competitive tendering. In all three levels of procurement, corruption has been reported (Steyn 2012:33). As defined by Dong (2011:1), corruption is the misuse of public resources for public gain. Tenders do not need to be invited to the first-level purchases as the purchases are below R100 000. Such transactions depend on a more pattern requisitioning, receiving, ordering and payment processes, which may involve stores, accounts sections and line officials. If ever strict rules and regulations are not adhered to at this level, then, corruption can occur (Woods & Mantzaris 2012:113–114).

In South Africa, since 2009, the middle-value tenders are subjected to purchase items of the value of R500 000 or more and transactions may include further regulations, for instance, four quotations must be obtained from four different competing suppliers and the final choice will be made based on the best suitable supplier (National treasury 2008:2). Middle-level purchases are regarded as regularly of a capital nature, for example, computer equipment or office furniture, meaning that the items purchased are subject to the controls of asset registering and related accounting practice (Woods & Mantzaris 2012:118). Competitive tendering is the higher value purchase. According to Murray (2011:1) and Mantzaris (2014:70), competitive tendering is a procurement method used within private sector organisations and government agencies and the idea behind competitive tendering is that an organisation invites offers for the supply of products and services and then awards the contract to the best suitable supplier taking in account the predetermined standard, without negotiation.

The advantage of competitive bidding is that it is considered to encourage competition, provide clear intentions and also allows the best suitable suppliers to win. However, the ultimate bottleneck of it is that the process can take longer for an organisation to choose a successful bidder (Murray 2011:1). The next section focuses on the procurement process in the public health care sector.

2.4 PROCUREMENT PROCESS IN THE PUBLIC HEALTH CARE SECTOR

According to Public Procurement Act (2004:245), procurement means “buying, purchasing, renting, leasing, acquiring any goods, works or services by a procuring entity and includes all functions that pertain to the obtaining of any goods, works or services including a description of requirements, selection and invitation of tenderers preparation and award of contracts”. The International Training Centre of the International Labour Organisation (2012:2) and Kuhn & Sherman (2014:6) define procurement as the “process of acquisition by government and public entities of goods, works and services that are necessary to fulfil their mandate in the provision of services and facilities to the public”. However, Ambe and Badenhorst-Weiss (2012:339) define public procurement as a “function whereby public-sector organisations acquire goods, services, development and construction projects from suppliers in the local and international market”.

There are different ways of categorising procurement procedures, for instance: distinguishing between types of procedures with or without public notice, procedures with one or several stages or procedures with or without negotiations. The South African public sector uses all of the procedures namely open procedure or competitive, restricted procedure, competitive dialogue and negotiated/solicited procedure. However, the open or competitive bidding procedure is mainly used (Mazibuko 2018:116).

In the Public Health care industry, a tender procedure is followed as their procurement process. Greatly, the public health care sector relies on the tender procedure as regulated by numerous legal and legislation fundamentals to obtain contracts for the procurement of products and services needed to sustain, nourish, advance and upgrade public assets (Smit 2015:2). As defined by the University of Pretoria Procurement procedures (2015:2), a tender is a written offer that is issued out to the supplier to launch into a contract in response to an invitation by the organisation for the supplying of products and services.

According to Ngobeni (2011:18-25), the tender procedure in South Africa consists of six stages namely 1) preparing the request for an invitation to tender, 2) the calling of tender, 3) submission and receiving of tenders, 4) opening of tenders, 5) assessing of tenders and 6) awarding of tenders.

2.4.1 Preparing of the request for an invitation to tender

A tender procedure is inclusive of compilations and bid documents. The user department and purchasing department are responsible for compiling and issuing bid specifications in a manner that will promote fair and equitable considerations from qualified suppliers (Ngobeni 2011:18). To ensure accuracy in compiling bid documents, the purchasing department is required to follow the appropriate Standard Bidding Documents (SBDs) and General Conditions of Contract (GCC) which both are issued by the National Treasury. After the specifications for goods or services are drafted, the procurement department of the health sector must submit requests to the tender assembly for the invitation of tenders. These requests must be per the prescribed format, contain full details of the information required by the office and enabling it to compile an appropriate tender advertisement. The prescribed standard tender forms must be prepared in compliance with the directives issued by the Department of Trade and Industry in terms of the National Industrial Participation Programme and must be printed in at least English. The documents must indicate the requirements for certificates, samples or compulsory attendance at site inspections, accurate quantities and explanatory meetings and must form part of the tender circumstances (Visser & Erasmus 2007:159).

2.4.2 The calling of tender

The calling for tenders for the provision of products and services is regarded as a standard process in the national government (Gildenhuys 2002:603). Regulations compel any public health care sector to call for tenders before provisioning any services or products. To ensure the smooth delivery of services to people successfully nowadays, national departments are required to manage the tender procedure effectively and also get involved in the way its suppliers do business. Public tenders are usually invited within the borders of the Republic of South Africa and advertised in the Government Tender Bulletin (GTB) unless the board decides otherwise (Visser & Erasmus 2007:160)

Into the bargain, Visser and Erasmus (2007:160) stipulate that all identifications and specifications are fundamentals of the tender invitation. Besides accounting, publicising and advertising, tender documents are also sent to identify possible tenderers and the departments are required to provide the office with their particulars. The time of closure, closing date, validity period and address where the tenders must be posted must be stipulated.

After all, specifications have been drafted down, the tender is then published by the purchasing department in the government Tender Bulletin. This invites potential vendors to submit their

offers by finalising the available tender documents (Pauw, Woods, Van Der Linde, Fourie & Visser 2002:236). This second stage incorporates the sale of tender documents, advertising of tenders and attendance of compulsory briefing sessions by potential bidders.

Upon calling of tenders, managers of the procurement departments must ensure that all the necessary funds required to conclude a tender are accessible, as a result, budgeting is vital to public tendering.

The actual tendering procedure commences once a budget funding for a given capital asset or capital project has been confirmed (Moeti, Khalo, Mafunisa, Nsingo & Makondo 2007:123).

2.4.3 Submission and receiving of tenders

Tenders usually close at 11:00 on the specified date and for all potential suppliers to be considered, they must ensure that they submit in time (Visser & Erasmus 2007:160). Tenders, where supplies are expected to be stocked in the Republic are different in this case. They close at least four weeks after the date of issuing and in all other cases, five weeks after the date of announcement (Ngobani 2011:20)

It is by the departments' choice to dictate how tenders should be submitted (Kovacs (2008:184). Further, Kovacs (2008:184) states that tenders' documents can be submitted electronically or get sent by an envelope to a certain address. Envelopes should be sealed for the sake of confidentiality and further, more when a competitive tendering procedure is applied; the opening of sealed bids should be in front of the attending people (Standard Operation Procedure 2008:5).

2.4.4 Opening of tenders

The opening of tenders should be done in a public space and the presence of all competing vendors (Ngobeni 2011:20). Also, particulars of each tender should be announced in public and captured in an official tender register, which will be kept safe and as proof for auditing motives. To fight shy of the unfair tender bid selection, all tenders received on time must be opened and reviewed in public and specifics of each tender must be made public and such vital information should be captured into an official tender register, to be kept for auditing motives (Moeti *et al.* 2007 124; Standard Operation Procedure 2008:5).

Late tenders are prohibited and must return to the tenderer unopened. Additionally, tenders received by telex, facsimile, telegram or related media are prohibited and each tender must be given a mark of legality and authenticity as proof of receipt before closure. Then, a list of tenders

received before the closing time must be drawn up and recorded. On request, the prices of civil, mechanical, electrical and building work tenders are disclosed at the time of opening, while only the name of the tenderer is revealed in other types (Visser & Erasmus 2007:159).

2.4.5 Assessing of tenders

Appointees who are responsible to evaluate the tenders and eventually chooses the winner must be suitably competent. The particular officials must take into account the suitability, price, quality and abilities of the bidder when they select the suitable supplier. According to Pauw *et al* (2002: 237), the appointees must also take into consideration the financial standing and supply prominence of the numerous vendors involved. Biddings must be evaluated according to the criteria outlined in the bidding documents (van Bon 2005:20).

Moeti *et al* (2007:124) state that a well-qualified and committed internal tender selection committee is responsible to compare tenders, against one another as well as against well-established predetermined criteria. Then, the tender committee should make its selection and prepare a contract for the successful bidder. According to Gildenhuis (2002:605), the purchasing department is not obliged to take the lowest tender, the reason being that the lowest tender might be unable to deliver exceptional results.

2.4.6 Awarding the tender

The successful tenderer is notified through letters of acceptance. The public health industry approves acceptance on behalf of the relevant public institution. These letters are regarded as the administration of contracts and settlement of disputes and the basis for placements of orders. The successful tenderers from provincial departments are announced in the GTB. Then, a formal contract is signed by the appointee on behalf of a public institution. The reason for the non-consideration of lower tenders can be given to persons making written requests. However, such vital information may only be given after a letter of acceptance is issued. The actual tender document may not be made available for perusal to any interested party or the general public (Visser & Erasmus 2007:160).

Pauw *et al* (2002:238) state that the tender committee should announce the winners of the tender publicly. A written contract should be entered into between the government and successful tenderer after the announcement of the winner (Gildenhuis, 2002:605). Besides, Pauw *et al* (2002:238) state that there should be a penalty clause in the contract in case there is any possible failure on the part of the successful bidder to meet the terms of the tender occurs.

2.5 CHALLENGES OF PROCUREMENT IN PUBLIC HEALTH CARE SECTOR.

It is very crucial to note that supply chain management is a fundamental part of procurement in South African's public sector. Hence, it is used as a vital tool for the management of public procurement procedures. However, despite the employment of supply chain management as a strategic tool, public procurement in the South Africa health care sector still faces enormous predicaments (Ambe & Badenhorst-Weiss 2012: 249).

Procurement challenges in the South African public sector have gained a great deal of attention from researchers (Mazibuko: 2018:5). Numerous scholars identified the following key problems in the public procurement system: (i) Non-compliance of procurement legislation, policies and processes, (ii) a lack of accountability and transparency, (iii) a lack of procurement knowledge and skill, (iv) embedded ethical practices, fraud and corruption (Ameyaw, Mensah & Osei-Tutu 2012:59; Ambe & Badenhorst-Weiss 2012: 250).

2.5.1 Non- compliance with procurement legislation, policies and processes

In South Africa, despite the reform procedures in the public procurement and the employment of supply chain management as a strategic tool, problems recognised in the public procurement practices incorporate non-compliance with legislation and policies related to procurement and supply chain management as well as tender irregularities (Ambe & Badenhorst-Weiss 2012:242). Livhuwani (2012:44) has discovered that the supply chain management section in Gauteng has experienced problems of poor service delivery as a result of lack of experience, inadequate qualifications and insufficient training. This has then failed the purchasing employees to properly interpret policies, procedures, acts, rules and regulations that govern supply chain management and they tended to award contracts to unqualified service providers who bribed public appointers with money.

Further, Chimberengwa, Masuka, Gombe, Tshimanga and Bangure (2015:1) attribute poor service delivery in the South African public health care sector to problems in the procurement procedure. These problems are inclusive to shortages of vital goods and products such as medicines and also the impoverished quality of procured goods and are attributed to a lack of adequate procurement planning, cumbersome procurement processes and ignorance of procurement policies, legislation and procurement processes.

2.5.2 Lack of accountability and transparency

Efficiency in public procurement is crucial in ensuring that the best value for money is attained by public health care industries. On the subject of public procurement. Transparency refers to the ability of all involved participants to have an overview and understanding of the actual means and procedures by which contracts are awarded and managed. According to (Wittig 2012:3), transparency is a “central characteristic of a sound and efficient public procurement system and is characterised by well-defined regulations and procedures open to public scrutiny, clear standardised tender documents, bidding and tender documents containing complete information and equal opportunity for all in the bidding process”. In other words, transparency means the same rules apply to all bidders and that these rules are publicised as the basis for procurement decisions before their actual use.

Lack of accountability can negatively affect the condition of efficiency in the public health care sector (Abede 2012:1267). Furthermore, the lack of transparency in the public procurement procedures is the main source of unhealthy activities such as corruption, fraud, scandal and abuse of public resources (Shu, Othman, Omar, Abdul & Husna 2011: 576).

2.5.3 Ethical practices, Fraud and Corruption.

Ethics are regarded as theories, principles and guidelines that give an overview and understanding of conditions under which the research will be conducted (Oates, Kwiatkowski & Coulthard 2010:4). Ethical practice in procurement forbids breach of the people's trust by discouraging any internal employee from attempting to realise personal gain through conduct inconsistent with the proper discharge of the employee's duties (Public Procurement Practice 2012:1). In the Public health care sector, ethical issues are one of the most challenging matters to address given attaining efficiently procurement process. Ethical issues involve affecting procurement decisions in favour of a certain vendor (Ivambi 2016:15).

Moreover, many forms of fraud and corruption occur across all public health industries and it may be argued that fraud and corruption are possible in any department and every type of transaction. In public health entities, corruption is found in the sphere of procurement transactions as this is where the opportunities to engage in corrupt practices are greatest and where the rewards of corruption can be extremely high (Mantzaris 2014:67). Thornhill, Van Dijk and Ile (2015:303) define corruption as the situation where “person A provides person B in a position of power with something (called a gratification) to use that power, unlawfully and unfairly, to the advantage of B”.

Numerous situations leave an opening for corruption in the health sector. Such situations include poor transparency, weak systems, conflicts of interest, urgent tenders, seeking justification to bend the rules, weak accountability arrangements, weak internal controls and incompetent officials (Bartle & Korosec 2003:192; Woods & Mantzaris 2012:128). Further, Dza, Fischer and Gapp (2013:53) observed that political interference in the procurement process is regarded as one of the main problems to the successful implementation of public procurement in the health care sector in South Africa. In most cases, politicians influence the tender procedure, insisting that a particular contract should be awarded to tenderers of their choosing.

2.5.4 Lack of procurement knowledge and skill

A drawback in the South African public health care system that will hinder the procurement process is the lack of knowledge, capabilities and skills on the part of the procurement workforce.

Public health care sectors are experiencing high costs in provisioning their services due to weakness in the procurement department, where the personnel lacks motivation, skills, experience and commitment among the public servants in the execution of their duty has caused the sector to sustain high costs in providing its services. According to Bolton (2016:24), it is evident that there is a need for the procurement workforce to obtain theoretical and practical expertise and experience with regards to procurement and all the processes which result from it. Furthermore, he always suggests that the procurement workforce should receive urgent attention and training to ease and facilitate the procurement of public health care most efficiently and cost-effectively possible.

2.6 CONCLUSION

This chapter focused on the background of procurement performance in public health care in South Africa. Procurement as a representative of change and as the engine of economic growth, procurement personnel should continuously lookout for improvement such as being extra vigilant when choosing the best possible supplier, investing in supplier development and integration for the growth of the sector as well as contribute to the South African economy. Also, this chapter discussed procurement challenges that occur in the public health care sector and also outlined the process of it.

Inadequate procurement planning is regarded as one of the major stumbling blocks to the economic development of South Africa and it has been reported that they have not paid adequate

attention to the proper management of public resources (Munyawera, Mulyungi & Ismail 2018:709). An efficient public procurement system is vital to the advancement of African countries and is a concrete expression of the national commitment to making the best possible use of public assets (Kabaj 2003:344).

Poor procurement procedures in the public health care sector may lead to a lack of access to innovation and expertise, which may result in patient's dissatisfaction because of poor services and lack of product availability. The absence of knowledge and skills of procurement procedures may result in poor performance of the health care and fragmentation of interest of it. Public health care sectors that consider procurement to be a strategic factor tend to develop long-term performances that are both financial and organisational. On the other hand, if every public health care sector does not consider procurement to be a strategic tool, it tends to endure more costs due to lack of knowledge and planning. The next chapter will discuss the research theories, supplier selection, supplier risk management, supplier commitment and procurement performance.

CHAPTER THREE

THEORETICAL PERSPECTIVES AND RESEARCH VARIABLES

3.1 INTRODUCTION

The previous chapter discussed the background of procurement. Chapter 3 broadens the theoretical review to gain an in-depth understanding of the theories underpinning the procurement performance in the public health care sector. This study will consider theoretical frameworks relevant to supplier selection, supplier commitment, risk mitigation strategies and procurement performance. According to Kwakezi and Nyeko (2010:1) and Makabira and Waiganjo (2014:369), procurement has contributed significantly to the prosperity of any organisation. However, there are drivers, which play a key role in the success of the procurement performance in the public health care sector.

Due to the increasingly competitive worldwide markets, public health entities are currently experiencing severe pressure to try and find ways to minimise material and manufacturing costs to make it in the long run and uphold their competitive spot in their respective markets (Kambiz, Amin, Shabman, Elnaz & Mohammad 2012:119; Equbal & Ohbar 2016:6; Gamlankashi, Helmi & Hashemzahi 2016:93). According to Khalid, Chakraborty, Paul and Ayuby (2011:1), a qualified and dedicated supplier is regarded as a vital element for a buyer in the reduction of such costs, assessment and the selection of the potential suppliers has become a crucial element of supply chain management. Hence, the development of a rational and supplier selection process is a necessity (Priya, Iyakutti & Devi 2012:86). According to Mohammad (2013:1), organisations nowadays aspire to initiate a long-term working association with their suppliers; therefore, the main and crucial element in supply chain management is supplier selection. Supplier selection as defined by Chamodrakas, Batis and Martakos (2010:491) as a procedure of selecting the best possible supplier who will be able to deliver the right products, at the right place and at the right time. For public health care to have an effective procurement performance, there is a need to have effective communication, a win-to-win attitude, flexibility, understanding, commitment and mostly trust amongst the buyer and the supplier (Cruz & Liu 2011:39; Mohanty & Gahan

2012:321). This means that the success of the procurement performance does not only depend on individual organisation competence but the collaboration with their suppliers (Cao & Zhang 2011:164). The next section presents the theory underpinning this study.

3.2 THEORETICAL PERSPECTIVES UNDERPINNING SUPPLY CHAIN NETWORKS

The Commitment- Trust theory has been chosen to understand the supplier selection practices, risk mitigation strategies, supplier commitment and procurement performance in the public health industry in Gauteng province resolution. The theory is explained below.

3.2.1 The Commitment- Trust Theory

According to Kosgei and Gitau (2016:139), the commitment-trust theory states that two fundamental elements namely trust and commitment must co-exist for any business association to be successful. This supposition was developed and introduced by Morgan and Hunt (1994:230). Morgan and Hunt (1994:230) debated that commitment and trust are key factors in the exchange between supply chain participants, which crucially lead to building a comparative co-operation. According to Kosgei and Gitau (2016:139), relationship marketing includes creating and establishing a long-term- relationship with suppliers by meeting and accomplishing their needs and fulfilling commitments. Muriungi and Ragui (2018:1878) suggested that instead of focusing on attaining short-term gains and profits, organisations that follow the right principles and standard operating procedures of relationship marketing would likely establish a long-term relationship with their suppliers. As a result, mutual loyalty assists both parties in attaining their needs.

3.2.1.1 Trust

According to Karlsen, Grae and Massaoud (2008:3), the growth of any type of relationship has put trust as a mediator because of the belief that trust is crucial in initiating a co-operative relationship. As defined by Morgan and Hunt (1994:230), trust is a “generalised expectancy held by an individual that the word of another can be relied on”. Other critically acclaimed academic authors such as Blomqvist and Stahle (2011:3) defined trust as “actor’s expectation of the other party’s competence, goodwill and behaviour”. According to, Rousseau, Sitkin, Burt and Camerer (1998:395), “trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another”. Additionally, Coleman (2012:36) explains that trust is ‘the foundation of the social relationship that we call citizenship’.

According to Rousseau *et al.*, (1998:395), there are two important conditions for trust to arise namely risk and independence. Risk is seen as an incident that can lead to a predicament, either an economic loss or even the loss of life (Rousseau *et al.*, 1998:395; Iacob 2014:60). Risk creates a platform for trust to become a vital element in relational exchange if the buyer also holds a certain level of vulnerability (Griežytė 2015:18). The second condition of trust is considered to be interdependence. Authors suggest that when a buyer and a supplier rely on each other, they can achieve their interest. This study brings an argument that through social interaction built on efficient and effective communication, parties involved can revamp the quality of their goods and services and in turn will result in a long-term committed relationship amongst them.

Trust is regarded as the conviction that both parties involved will conduct business effectively and follow standard operating procedures that will benefit both businesses (Hung, Cheng & Chen 2012:667). Also, Hung *et al.*, (2012:667) stipulated that when trust is formulated amongst parties involved, there is better communication and willingness to commit, securing a long-term orientation towards the association. This indicates that being committed to a supplier is positively related to buyer trust (Chang *et al.*, 2012:942; Watkins & Hill 2009:994). Han and Hyun (2015:20) specify that the level of trust that a consumer has in an organisation will have a direct effect on its level of satisfaction expectation, which in turn, will affect its satisfaction experience. Taylor, Donovan and Ishida (2014:129), Kashif, Shukran, Rehman and Sarifuddin (2015:28) and Salleh (2016:184) concur by stating that trust is a critical element that adds and creates value to the consumer and also contributes greatly to consumer satisfaction.

In this study, trust is regarded as a factor that could benefit the procurement performance in the public health care sector. When trust is present in the relationship, it diminishes any uncertainties from occurring between the buyer and the supplier. The following section explains the second variable of the theory entitled ‘commitment’.

3.2.1.2 Commitment

Numerous authors have attempted to define commitment throughout the years. It is applicable to examine some of these definitions as they allow awareness and an overview of the convolution and the diverse attributes of commitment. In a prior study, Scanzoni (1979:87) recognised commitment as a crucial stage in relationship building and concluded that it consists of three measurable conditions namely inputs, consistency and durability. Durability refers to the association over time between the parties concerned, whilst consistency means the extent of inputs made to maintain the association and inputs consist of important resources being

exchanged. Dwyer, Schurr and Oh (1987:19) defined commitment as “an implicit or explicit pledge of relational continuity between exchange partners”. Morgan and Hunt (1994:23) defined commitment as “the belief of an exchange partner that the ongoing relationship with another is so important as to warrant maximum efforts at maintaining it.

According to Michael, Sebanz and Knoblich (2015:1), the phenomenon of commitment is a foundation of human social life. Commitments make individuals’ behaviour predictable in the face of fluctuations in their interests and desires, thereby facilitating the coordination and planning of joint actions involving multiple representatives (Michael & Pacherie 2014:12). Moreover, commitment facilitates collaboration by making individuals willing to contribute and partake in joint actions to which they would not be willing to contribute if they and others, were not committed to doing so (Michael *et al.*, 2015:1). Further, Bojei and Abu (2014:174) contend that the more committed a customer is to a supplier, the higher the level is of satisfaction expectations. Chang, Tsai, Chen Huang and Tseng (2015:868) concur that commitment is a vital indicator of the strength of a relationship with a supplier and is driven by previous experiences of satisfaction.

The successful relationship between buyer-supplier is built based on a mutual commitment amongst the two parties involved (Wahab 2011:242). Extending the notion of commitment to the context of public health care industries, commitment is a crucial element contributing to successful long-term relationships between customers and organisations. The following section explains one of the variables which is supplier selection.

3.3 SUPPLIER SELECTION

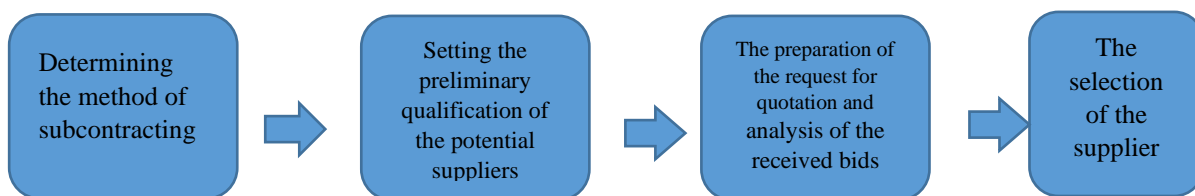
According to Jain, Sungaiah, Sakhuja, Thoduka and Aggarwal (2016:555), suppliers convey a crucial role in the manufacturing, service delivery of competitive quality of goods. For any manufacturing organisation, choosing the best possible supplier is a key factor that will remarkably reduce purchasing cost, increase customer satisfaction and improve competitive ability (Liao & Kao 2010:571). As defined by Beil (2009:1), supplier selection is a procedure in which organisations identify, evaluate and contract with suppliers. Supplier selection is regarded as one of the most crucial authorities of supply executives (Thiruchelvam & Tookey 2011:437). Nadeem, Xu, Nazim, Hashim and Javed (2014:205) view supplier selection as a decision-making process that involves trade-offs among multiple criteria, which may also be conflicting, in

selecting the most appropriate supplier. This study upholds the definition of supplier selection as offered by Beskese and Sakra (2010:810) as a strategic decision that organisations take as a result of which they identify and evaluate potential suppliers with the view of contracting with them offering products and services of high value. This definition is significant in the supplier selection context because it states that supplier selection is a strategic decision. Therefore, this indicates that supplier selection needs to be done thoroughly and effectively as the long-term relationship will be established between the buyer and supplier.

3.4 SUPPLIER SELECTION PROCESS

The supplier selection process is a procedure that involves several members of the given organisation and relationships with other organisations (Harji 2010:26). The supplier selection process utilises a massive amount of the organisation's financial resources (Taherdoost & Brard 2019:1024). According to Musau (2015:13), suppliers convey a vital role in achieving goals set by the organisation. The enormous change in trend is directly affecting the procurement primarily due to the need for purchasing team to ensure that costs are well managed (Navasiri, Kumar, Garza-Reyes, Lim & Kumari 2016:136). Thus, the supplier selection processes should be taken into account. The purchasing process is a crucial activity of every public health care industry. This is because South African public health depends on many suppliers for important components of their products. In this context, how to select the best suppliers is a crucial decision so that those selected meet the public health care needs (Creuza, Araújo, Alencar & Viana 2015:1215). The supplier selection process contains four steps as described below and shown in Figure 2

Figure 2: Supplier selection process



Taherdoost & Brard 2019:1027

Van Weele (2010:34-37) has divided the supplier selection process into four separate steps: determining the method of subcontracting, preliminary qualification of suppliers, preparation of RFQs and analysis of received quotation and selection of supplier. The first critical step of the

supplier selection process is determining the method of subcontracting. According to Ganiyu and Shash (2010:2), subcontracting is an agreement where a contractor gives authority to another firm to take part in a job that they have secured with the owner. A decision has to be made to either utilise a turnkey or partial subcontracting. In turnkey contracting, one supplier is authorised to be responsible for the entire scope of work while partial subcontracting is sharing the responsibility amongst numerous suppliers (Illikainen 2017:40; Taherdoost & Brard 2019:1027). Public health care has adopted the partial subcontract method as it gives specialist works to suppliers who are best competent to perform so that it focuses on its core competencies.

Subsequently, in stage two, the setting of preliminary qualification of the potential suppliers takes place. Prequalification is a technique whereby suppliers are assessed against pre-determined criteria and then only those suppliers who meet the prequalification criteria are invited to offer (Office of the chief advisor 2018:4). According to Van Welle (2010:36), the list of potential best possible suppliers can be formulated depending on the contracting method and specifications which were selected. It is very vital to identify new potential suppliers in addition to already existing suppliers. Further, he states that the most common practice is to select two to five suppliers, to whom a request for quotations (RFQs) is sent (van Weele 2010:36). At this stage, it is very crucial to have an understanding of the supply market intelligence and markets. Having an overview of markets assists in determining the number of suppliers in the market and where the dependence lies (Illikainen 2017:39). This knowledge comes in assistance when contemplating how to approach the supplier market and which contracting method should be used (Iloranta & Pajunen-Muhonen 2008:251).

The preparation of the request for quotation and analysis of the received bids takes place in the third stage. The first step after receiving suppliers' bids is to analyse if their scope of work is aligned to the specifications and comparable to other bids (Benton 2010:403). Once the bids are declared valid by the evaluation team, the actual point evaluation procedure can then begin (Procurement guidance 2016:13). Suppliers should be assessed following the evaluation methodology being utilised. (Australian government 2017:7). After the assessment, the procurement department then does a preliminary commercial and technical evaluation to weigh the quality, logistics, technical quality, financial and legal aspects (Khalili, Lin & Munawwar 2017:31).

The selection of the best possible supplier is the last step in the procurement procedure and a basis for many other activities (Taherdoost & Brard 2019:1027). According to Johnson *et al.*,

(2011:340), selecting the best possible supplier is regarded as the most critical decision that procurement officials make during the purchasing process. The final selection of the best suitable supplier is made considering all vital aspects -quality, logistic, technical, legal and financial (Van Weele 2010:36-37). After a supplier is selected, a contract comes into place. According to Benton (2010:527), a contract is a legally binding agreement between two companies. In a contract, parties involved reach an agreement on the transaction of buying and determines the terms and conditions that indicate the obligations and rights of both parties (Baily, Farmer, Crocker, Jessop & Jones 2008:201). From the buyer's perspective, a perfect contract would maximise the customer company's profit, eliminate and discourage information distortion and include incentives that will encourage the supplier to ameliorate its performance (Chopra & Meindl 2007:436).

According to Suraraksa and Shin (2019:4), a long-term partnership between suppliers and buyers is vital in supply chain operations. For such a relationship to be built, buyers should constantly monitor suppliers' performances across numerous variables and report for improvement (Cousins, Lawson& Squir 2008:242). Supplier monitoring is a process that comes after the selection process which is regarded as an independent yet interrelated process (Dey, Bhattacharya & Ho 2015:193). Furthermore, buyers should regularly monitor and measure the performance of suppliers concerning both tangible and intangible criteria to be able to provide timeless and crucial information to suppliers about buyers' expectations regarding efficiency and effectiveness. According to the Office of the Chief Advisor (2018:5), supplier performance monitoring offers the following opportunities: assists buying organisation to reduce and eliminate internal transaction costs associated with procurement, contributes to effective risk management, contribute towards the development of strategic relationships with suppliers, assist in developing supplier capability and also improve supplier and purchaser performance. The next section focuses on the criteria of supplier selection in the public health care sector.

3.4.1 Supplier selection criteria

The appropriate supplier selection methods and identification of decision-making criteria the main driving factors determining an organisation's growth and competitiveness, thus, criteria are crucial in supplier selection (Taherdoost & Brard 2019:1028). As defined by Liu (2017:15), criteria indicate and give an individual insight into what aspects of a supplier they should evaluate. According to Özfirat & Tasoglu & Memis (2014:292), supplier selection decision criteria can differ depending on the number of quantitative and qualitative components. Sagar and Singh (2012:35) further stipulate that supplier selection criteria change over time, depending

on the environmental, economic, social and political characteristics of the business. The first researcher of supplier selection criteria was Dickson (1966:28-41), who recognised 23 different criteria like capacity, delivery, price, quality and performance. Almost 30 decades later, Carter (1995:44-45) introduced the seven Cs of supplier selection criteria which are competency, capacity, commitment, control, cash, cost and consistency. The seven Cs of Carter (1995:44-45) are recognised as one of the main theories of supplier selection.

According to Beil and Ross (2009:2), poor supplier selection criteria can cost an organisation millions of rands of losses due to warranty costs, recalls and associated inventory adjustments and have inflicted untold destruction on their future sales potential and reputations. To circumvent such outcomes, it is extremely vital to have effective screening procedures that assist to identify top-level suppliers before awarding contracts (Katheo & Mwangangi 2018:107). Traditionally, the selections of suppliers are often based on the price/criteria criterion (Stević 2017:23; Mose, Ombui & Iravo 2018:1295). Unreliable suppliers are often chosen without taking into account additional costs that suppliers may introduce in the value chain of the purchasing organisation (Shil 2009:81). Thus, the costs associated with unreliable delivery, limited quality of goods supplied and poor communication are not included in the selection process (Gürler 2007:559; Katheo & Mwangangi 2018:107). Now, organisations are using the supplier selection criteria to build relationships that are more effective with suppliers and to strengthen the selection process. The selection of suitable criteria depends on the purchasing situation. Below are the criteria that public health care sectors scrutinise before they select the best potential supplier/tender.

Criteria	Authors	Definition
Quality	<ul style="list-style-type: none"> • Thanaraksakul & Phruksaphanrat (2009:2) 	<p>“The ability of the supplier to meet quality specifications consistently which include quality features (material, dimensions, design, durability), variety,</p>

	<ul style="list-style-type: none"> • Kwark,Chen& Raghunathan (2017:764 • Ustu & Demirtas (2006 :920) 	production quality (production lines, manufacturing techniques machinery), quality system and continuous improvement”.
Delivery	<ul style="list-style-type: none"> • Thanaraksakul & Phruksaphanrat (2009:2) • Sarkar & Mohapatra (2006:149) 	“The ability of the supplier to meet specified delivery schedules which include lead-time, on-time performance, fill rate, returns management, location, transportation, and incoterms”
Reliability	<ul style="list-style-type: none"> • Thanaraksakul & Phruksaphanrat (2009:2) • Jing-Rung Yu (2009:635) 	“The supplier’s quality of being trustworthy and dependable based on the references (buyers feedback), financial stability (capital, annual turnover), past and current business partners, company organisation and personnel, diversity of ownership, and cultural awareness”.

Price	<ul style="list-style-type: none"> • Thanaraksakul & Phruksaphanrat (2009:2) • Sarkar & Mohapatra (2006:149) 	“The price criteria include unit price, pricing terms, exchange rates, taxes and discounts”.
Supplier’s profile	<ul style="list-style-type: none"> • Chan & Kumar (2007:418) • Jharkharia & Shankar (2007:275) 	“The superiority and reputability of the supplier’s status, past performance, finance, certificates and references”.

Supplier selection is regarded as a crucial activity of the public health care procurement department, thus, the procurement department should convey a key role in the organisation’s efficiency and effectiveness because its purchasing decisions have a direct effect on cost reduction, profitability and flexibility of the company (Harju 2010:7). Aligned and vivid supplier selection criteria can help ensure transparency in supplier roles and predictability in outcomes and responses (Nair, Anand & Jayaram, Jayanth, Das & Ajay 2015:5). By participating in the strategic planning process, internal supplier integration practices enable purchasing to reduce its own and consequently suppliers’ ambiguous role.

3.4.2 Importance of supplier selection criteria

Determining the criteria of supplier selection is a major part of supplier selection. Procurement officials must decide on the supplier selection criteria before the supplier selection process can commence (Makhitha 2017:75). The most common supplier selection criteria are quality, delivery and cost (Alfredsson & Christenson 2014:8; Navasiri, Kumar, Garza-Reyes, Lim & Kumari 2016:138; Suraraksa & Shin 2019:3). However, as organisations strive to remain competitive, they adapt their selection criteria to match the changes taking place in the market (Makhitha 2017:75). This means that supplier selection criteria are not constant but change periodically. According to Ng (2010:150), a supplier can exceed a consumer’s expectations through delivery at the right place, by providing high-ranking sales support, dealing with customer complaints timeously and providing after-sales services such as repairs, maintenance,

training and spares. Hence, organisations can gain competitive advantages through choosing the best suitable supplier (Agarwal, Sahai, Mishra, Bag & Singh 2011:801). The following section entails supplier satisfaction, which Ambrose, Marshall and Lynch (2010:1289) view as an important factor to ensure improvement and success in an organisation's performance.

3.5 SUPPLIER SATISFACTION

According to Schiele, Calvi and Gibbert (2012:1178), previously, the relationship between supplier and buyer was viewed from the supplier's perspective; the supplier had to go all out for customers and satisfy them. This focus has now shifted to the buying organisations to try and attract the best suitable supplier to get the best goods and services (Schiele *et al.*, 2012: 1178; Vos, Schiele & Hüttinger 2016: 4613). Establishing a solid relationship between buyer and supplier is seen as an important factor for the success of supply chain management as it can improve an organisation's performance due to receiving preferential treatment, which allows the buyer to build a competitive advantage (Pulles, Veldman, Schiele & Sierksma 2014: 17; Pulles, Schiele, Veldman & Hüttinger 2016:129). In today's world, organisations are faced with a reduction of the best possible suppliers (Hüttinger, Schiele & Schröer 2014: 687) better yet, supplier scarcity (Vos *et al.*, 2016:4613). The organisations' dependency on suppliers has drastically increased due to the rising number of outsourced activities (Mol 2003:49; Nagati & Rebolledo, 2013:180; Vos *et al.*, 2016:4613). Consequently, the buying organisation should view the supplier as a key source of innovation and competing for advantage and try to achieve preferred customer satisfaction (Vos *et al.*, 2016:4613). With that being said, Vos *et al.*, (2016:4618) concur that supplier satisfaction has a positive impact on customer satisfaction. As defined by Schiele, Calvi & Gibbert (2012:1179), supplier satisfaction is the buyer's ability to live up to the expectations of the supplier. The following section discusses the importance of supplier satisfaction.

3.5.1 Importance and benefits of Supplier Satisfaction

Having satisfied suppliers plays an important part in today's competitive business environment. Krause, Handfield and Tyler (2007: 531) reported that the performance improvements by the buying organisation result if they commit and establish long-term relationships with their key suppliers. A close and long-term relationship starts with the satisfaction of both partners involved (Meena & Sarmah, 2012: 1238). Supplier satisfaction is described as "the buyer's ability to live up to the expectations of the supplier (Vos *et al.*, 2016:4613). One of the advantages of having a

satisfied supplier is the awarding of special status as suppliers are known to differentiate their customer relationships and select specific organisations as preferred customers (Ellis, Henke Jr & Kull 2010:1260). Supplier satisfaction is a necessary condition for achieving a preferred status (Vos *et al.*, 2016: 4614). With a preferred customer status, the buyer can get preferential resource and services allocation from their supplier (Steinle & Schiele 2008:11). According to Schiele *et al.*, (2015:133), suppliers mostly respond first to the needs of their preferred buyers, whereas less preferred buyers are compelled to wait in a line. In case of uncertainty, suppliers firstly attend to their strategically important preferred buyers.

3.5.2 Antecedents of supplier satisfaction

According to Benton and Maloni (2005:16), supplier satisfaction is highly impacted by the quality of the buyer-supplier relationship. Communication, trust and commitment are crucial for the quality of any relationship (Meena & Sarmah, 2012:1240; Nyaga, Whipple & Lynch, 2010:109-111). Based on Vos *et al.*, (2016:4619)'s research model of Hüttinger *et al.*, (2014: 697-721), they developed a new model of antecedents of supplier satisfaction into two-tier models. The first-tier antecedents have a direct impact on supplier satisfaction and are then influenced by the second-tier ones (Bockstette 2017:2). First-tier antecedents that have been identified are growth opportunity, relational behavior, operative excellence and profitability, which is a new component in Vos *et al.*, (2016:4619) new model. Second-tier antecedents include innovation potential, involvement, reliability, support and access to contacts. Growth opportunity as defined by Hüttinger *et al.*, (2014: 703) is the supplier's ability to grow together with the buying organisation and to create new potential business opportunities through the relationship

Growth opportunity is influenced by innovation potential that is viewed as the supplier's opportunity to create innovations in the exchange relationship due to the buying organisation's innovative capabilities and its contribution in joint innovation processes (Hüttinger *et al.*, 2014: 703). Innovation potential has a positive effect on a manufacturer's performance in cost, delivery, quality and product development (Kim & Chai 2017:42). It was found by Bryan Jean, Sinkovics and Kim (2017:121) that innovativeness enhances relationship performance that, in turn, also influences supplier satisfaction. Relational behaviour as the second antecedent refers to the buying organisation's behaviour towards the supplier with regards to the relational focus of exchange capturing multiple facets of the exchange behaviour such as mutuality, flexibility and solidarity (Hüttinger *et al.*, 2014:703). Relational behaviour is impacted by reliability, involvement and support. Reliability is defined by McDaniel and Gates (2013:215) as the

supplier's perception that the buying organisation acts reliably and consistently and fulfils its agreements and involvement describing the extent to which the supplier part-take directly in the customer's product development team and is entrusted with establishing product ideas. Support is defined as the buying firm's effort or assistance to increase a supplier's performance and/or capabilities (Vos & Schiele 2017:2). Further, Hüttinger *et al.*, (2014:703) described a customer's contact accessibility as the availability of an individual who initiates exchange processes and reflects the buying organisation's willingness to develop structural bonds with the supplier. As viewed by Vos *et al.*, (2016:4620), contact accessibility affects the operative excellence, which is the supplier's perception that the buying organisation's operations are handled effectively and efficiently, which runs the way of doing business for the supplier (Hüttinger *et al.*, 2014:703). In conclusion, the new factor entitled profitability was defined as the profitability of the relationship, which has a positive influence on supplier satisfaction (Vos *et al.*, 2016:4614). The following section entails the risk mitigation strategies.

3.6 SUPPLIER RISK MANAGEMENT

Due to the competitive business environment today, organisations have been compelled to enlarge their operations worldwide for cost-effectiveness (Colicchia, Dallari & Melacini 2010:680; Diabat, Kannan & Panikar 2011:2; Pettit, Croxton & Fiksel 2013:46). The worldwide dispersion of operations including suppliers, manufacturing plants, warehouses and customers has increased organisational risk vulnerability (Sachdeva, Kayis & Dana 2012:834).

This has led to increased supplier risk management to cope with complex supplier risks (Leat & Revoredo-Giha 2013:219; Scholten, Sharkey Scott & Fynes 2014:211; Wieland & Marcus, Wallenburg 2012:888; Wilding, Colicchia & Strozzi 2012:403). Risk management plays an important role in effectively operating supply chains in the presence of a variety of uncertainties (Ho, Zheng, Yildiz & Talluri 2015:1). According to Sollish and Semanik (2011:172), risk management is used to identify, evaluate and reduce or eliminate the factors that might harm the expected outcome. Wieland and Wallenburg (2012:890-891) define supplier risk management as the implementation of strategies to manage both everyday and exceptional supplier risks along the supply chain based on continuous risk assessment to reduce vulnerability and ensure continuity. Lavastre, Gunasekaran and Spalanzani (2012:830) explain supplier risk management as "the management of supplier risk that implies both strategic and operational horizons for long-

term and short-term assessment”. The following section entails risk mitigation strategies which public health entities can employ to manage their supplier risk in the organisation.

3.7 RISK MITIGATION STRATEGIES.

Due to the competitive business environment today, organisations have been compelled to enlarge their operations worldwide for cost-effectiveness (Colicchia, Dallari & Melacini 2010:680; Diabat, Kannan & Panikar 2011:2; Pettit, Croxton & Fiksel 2013:46). The worldwide dispersion of operations including suppliers, manufacturing plants, warehouses and customers has increased organisational risk vulnerability (Sachdeva, Kayis & Dana Karningsih 2012:834; Soni & Kodali 2013:25). According to Ahmed (2017:87), risk mitigation strategies are the conceptualised action plans and the processes of developing options to enhance opportunities. Further, he stipulates that it performs a thorough evaluation to reduce the likely threats, vulnerabilities or impairments that can distress a business operation, a project or any form of the undertaking. Liu, Li and Wu (2014:1203) state that risk mitigation strategies are strategies that reduce risk probability, impact or both. On the other hand, the compliance component (2006:1) states that risk mitigation strategies involve prioritising, evaluating, implementing and maintaining the appropriate risk-reducing controls (risk-reducing measures) recommended from the risk assessment process. This study upholds the definition of risk mitigation strategies as offered by Mamaia and Yinghua (2017:219), which views risk mitigation strategy as a concept that involves the handling and dealing of risk by setting the monitoring procedures which ensure that the impact of the risk is minimised. This definition is significant in the risk mitigation strategies context because it is vital to evaluate and monitor risks that occur in the organisation to have an effective procurement performance.

Procurement managers must select an appropriate mitigation strategy for risks that have occurred in the organisation (Liu *et al.*, 2014:1203; Sodhi *et al.*, 2012:6; Wagner & Neshat 2012:2888). Before selecting a risk mitigation strategy, the organisation must evaluate each risk facing the supply chain against the mitigation strategies (Simba, Niemann, Kotzé & Agigi 2017:5). According to Diehl and Spinler 2013:317 and Kumar, Sharma and Bhat (2014:1032), to select an appropriate mitigation strategy for any risk, a cost-benefit analysis has to be undertaken with risk appetite as a constraint. Mamaia and Yinghua (2017:222) stated that there are four mitigation strategies namely risk avoidance, risk acceptance, risk transfer and risk-sharing. This study has

adopted two strategies namely risk transfer and risk-sharing. These risk strategies are aligned with the study and are explained thoroughly below.

3.7.1 Risk Transfer

According to the Prevention Consortium (2018:1), a risk transfer is defined as shifting the burden or responsibility for disaster loss to another party through a contract, insurance, legislation or other means. It plays a vital role in assisting to manage natural hazard risk and mitigate or minimise disaster losses. Le Quesne, Tollmann, Range, Balogun, Zissener, Bohl, Souvignet, Schuster, Zwick, Phillips, Wehnert and Kreft (2017:14) define risk transfer as a form of ex-ante financing that necessitates shifting risk to a third party and in doing so minimises the financial exposure of individuals, enterprises and governments. On the other hand, Brockett, Golden and Betak (2019:1) define risk transfer as a control strategy that includes the contractual shifting of a pure risk from one party to the next. Risk transfer is a win/lose approach. One party wins only if the counterparty loses. According to Abdullah (2018:282), risk transfer rests on the supposition that it is morally acceptable to separate taking the risk from taking responsibility for the consequences of taking the risk. In other words, one party incurs the risk, while another becomes responsible if anything goes wrong. This study upholds the definition of risk transfer as offered by Mhetre, Konnur and Landage (2016:155) who define transferring risk as a process, which involves finding some other party who is willing to accept responsibility for its management and who will bear the liability of the risk, should it occur. This definition is significant in the risk transfer context because when an organisation transfers risks to the other party, it enables them to focus more on their core competencies, which in turn, will also enable them to improve and have an effective procurement performance.

According to Mhetre *et al.*, (2016:155), transferring a threat does not eradicate it; the threat still exists. However, it is managed and owned by another party. Wanyonyi (2015:26) contended that that risk can be transferred to parties who can manage it properly. According to him, risk can be transferred to various parties which include subcontractor, the client, contractor, designer and insurer depending on the attribute of risks. The main aim of risk transfer is to ensure that the risk is owned and managed by the best suitable party, which can deal with it accurately and effectively (Macharia & Caleb 2018:1817). This strategy is used when the cost of insuring risk is greater over time than total losses incurred (Mhetre *et al.*, 2016:155). According to Bekefi, Epstein and Yuthas (2008:28), there are two mechanisms for risk transfer namely insurance and contract, which both are increasingly on-demand. The following section discusses one of the mechanisms for risk transfer entitled Insurance.

3.7.1.1. Insurance

Risk transfer has been used for many years as a tool to control the risk of uncertain losses (Surminski & Oramas-Dorta 2011:4). The most basic and commonly used form of risk transfer is insurance. According to the Telesure Learning and Development (2015:4), insurance is a mechanism whereby an individual or organisation (the insured) transfers part of their risk to another party (the insurer) in return for a payment (the premium); if the insured experiences a loss or if a certain pre-defined event occurs, the insurer pays out a previously agreed amount. Dror and Piesse (2014:24) further describe insurance as a “concept involving a contract under which an insurer shall pay specific pre-defined compensation when financial damages are caused by pre-defined cost-generating events”. On the other hand, Sankar (2016:1) defines insurance as “the rational transfer of the risk of a loss from one individual to another, in a swap for a premium and it can be thought of as a certain small loss to prevent a large, possibly devastating loss”.

Insurance plays a crucial role in organisations and supplies chain continuity risk management. As well as in all other cases, insurance cannot directly safeguard organisations from accidents and subsequent disruptions but is the most vital fount of indemnification for losses when insured events materialise (Njegomir & Rihter 2015:53). Numerous classic insurance products are difficult to implement or not feasible at all in developing countries mainly due to lack of data, restrictive regulations, the nature of disaster risks, small scale of operations and potential hazard” (United Nations Framework Convention on Climate Change (UNFCCC2008: 6). The following sections entail different types of insurances, their benefits and limitations.

a) Micro-Level Insurance

According to Dror and Piesse (2014:28), micro-level insurance is insurance that is accessed by low-income population, provided by a variety of different organisations but run following generally accepted insurance practices which should include the insurance core principles. Specifically, micro-insurance is designed to protect low-income individuals and households directly against diverse risks in exchange for a regular small premium payment, where the sums insured are relatively small (Intergovernmental Panel on Climate Change (IPCC 2012:322; UNFCCC 2008:52). Meenakshi and Jerinabi (2015: 451) concluded that micro insurance is not only the mechanism for reducing vulnerability but also ensures economic and social security to the unprivileged. Low-income and poor people have different needs and priorities hence; this insurance protects rural households against risks that they are unable to protect themselves

through savings or credit and even informal mechanisms (Churchill 2007:402). According to Le Quesne *et al.*, (2017:17), micro-insurance schemes are very much diverse; one of the main purported benefits of meso-insurance is the potential to tailor insurance products to meet the needs of individuals including the unprivileged.

b) Meso-level insurance

Meso-level insurance operates through meso-level organisations including local authorities, regional associations, cooperatives and financial organisations (Le Quesne *et al.*, 2017:17). This insurance protects intermediaries such as microfinance institutions, credit unions or non-governmental organisations (NGOs) from losses that may occur if their personnel or clients experience losses from any predicament (Skees, Murphy, Collier, McCord & Roth 2007:9). According to UNFCCC (2008:59), meso-level intermediaries are generally smaller in size and larger individually in terms of assets. Hence, issuing insurance to meso-level intermediaries equals to lower administration costs and achieves greater reach (Hazell & Rahman 2014:234).

c) Macro-level insurance

Insurance has become a sanctuary for all economic sectors as it is considered a complementary sector for the production, financial and services sectors (Alomari 2019:2743). According to Le Quesne *et al.*, (2017:17), macro-level insurance is offered to governments either as sovereign entities or through a multinational risk pool. Insurance on the macro level has greater advantages especially in contrast to meso-level and micro-level insurance (Hermann, Köferl & Mairhöfer 2016:6). One of the main advantages of macro-level insurance is that it can outstretch to a vast number of people within a short period depending on the mechanism implemented for transferring the payout to the final beneficiaries and the quality of fiduciary management.

3.7.1.2 Contracts

Risk transfer can be accomplished through non-insurance agreements such as contracts. Organisations in both the public and private sectors are facing increasing pressure to reduce costs and improve financial and operational performance (CIPS 2019:2). Hence, a contract plays a vital role in organisations. According to Sarkar (2015:19), a contract is an agreement between two or more parties, which is intended to be implementable by law. The general condition of contract (GCC) (2014:3) defines a contract as a written agreement entered into between the supplier and the buyer as recorded in the contract form signed by both the parties including all appendices, attachments and all documents assimilating by reference therein. A contract can

either be verbal, written or even implied (Pillay 2015:2). According to Leanne Birkett (2018:9), effective contract management ensures councils can manage change and aim for continual development in an organisation. It assists in identifying and managing suppliers and their commercial risks within a collaborative and professional relationship. It helps to maximise savings and service quality.

3.7.1.3 Advantages of risk transfer

Transferring the entire risk or a portion to a third party, by selecting another stakeholder to manage the risk activities with a low probability of recurrence, yet with a large financial impact, is described as risk transference (Smit 2012:92; Banaitiene & Banaitis 2012: 434; Bhoola, Hiremath & Mallik 2014:167; Konior 2019:20). Examples of risk transfer include using sub-contractors, outsourcing activities to independent vendors and using insurance where the insurance company (Smit 2012:95) carries the cost of the loss when realised. According to Andersen and Terp (2006:41) and Young (2006:31-32), organisations using risk transfer as the selected option should take cognisance of possible residual risk exposure that may cause a possible loss to the organisation. Mouraviev and Kakabadse (2014:622) discussed risk transfer from the point of a public-private partnership of view (in short, PPP). They argue that even when the transference is smooth, the cost and time involved in such a process are often extensive and the governments' financial outlays are compromised. However, Armstrong and Paolucci (2010:522) debated that if risk transfer is a well-thought-after decision with mutual agreement from both parties, knowledge transfer and communication will improve efficiency. Risk transfer and delivery efficiency of the organisation to which risk has been transferred go hand in hand (Witt & Liias 2011:174). The following section adopted in this study is risk-sharing.

3.7.2 Risk Sharing

The fact that public health industries are surrounded by risk and uncertainty is undeniable as their procurement process itself is distinctive and is influenced by a large number of external and internal components (Ashmawi, Hadidi, Assaf, Tuffaha & Al-Ofi 2018:1). Risks are any exposure posing a threat to the existence of an organisation (Liu, Lin & Hayes 2010:224; Spiegler, Naim & Wikner 2012:6162). Risk-sharing is argued by numerous authors to be a key component for successful implementation of supply chain management (Norrmann 2008:246; Sabet, Yazdani, De Leeuw 2017:34; Hoejmosel, Roehrich & Grosvold 2014:82; Vermeulen, Nieman & Kotze 2016:6). Risk sharing, following Abdullah (2013:287), is a way of taking collective responsibility for the outcome of a given investment. Further, Fan and Stevenson (2014:13) state that risk-sharing involves another party sharing some or all risks. On the other

hand, Abdull (2018:53) defines risk sharing as an agreement between the parties to share the gains within pre-agreed limits, generally, when the cost of doing so is less than the cost plan. This study upholds the definition of Abdullah (2014:2) who states that risk sharing is sharing of risks amongst parties. He further conceded that sharing of risk minimises the chances of risks from occurring. This definition is significant in the risk-sharing context because sharing risks amongst parties assists in allocating resources more efficiently which in turn will enable an effective procurement performance.

Organisations select risk-sharing strategies in the hope to establish and maintain a long-term relationship with their reliable and capable suppliers for providing quality products (Kei 2012:112). Risk-sharing amongst partners involved in the business enterprise reduces the amount of risk faced by any one party. Hence, the greater the number of partners sharing the risk, the lower is the risk facing each partner. The following section entails factors, which affect sharing of risks amongst parties.

3.7.2.1 Factors affecting risk sharing

Researchers have identified various factors that affect individuals' inclination to share the risk, for example, group selection and commitment (Barr & Genicot 2008:1153), group size (Chaudhuri, Gangadharan, & Maitra 2010:2), risk preferences and social networks (Attanasio, Barr, Cardenas, Genicot & Meghir 2012:135) and reciprocity in repeated interactions (Charness & Genicot 2007:2). However, Ettolin and Tausch (2015:230) are the first to investigate how risk-sharing depends on whether individuals discern themselves and others to be responsible for the extent to which they are exposed to risk. According to Kei (2012:112), the lower the number of partners sharing the risk, the greater is the risk facing each partner and the greater the number of partners sharing the risk, the lower is the risk facing each partner. Social networks as explained by Attanasio *et al.*, (2012:135) assume two roles: allow information flow that reduces information asymmetries and supports mutual enforcement. A dyadic relationship made up of repeated interactions may be reciprocal as both parties have the same probability of directing a communication attempt to one another (Wang, Lizardo, Hachen, Strathman, Toroczka & Chawla 2013:31). Commitment is another factor affecting risk also plays a major role in risk-sharing. According to Read (2009:27), a buyer will only commit and share risks with a trustworthy supplier as commitment involves vulnerability and could expose the buyer to opportunism. The following section discusses benefits that are associated with the sharing of risks.

3.7.3 Benefits of risk-sharing contracts

Nowadays, organisations have resorted to globalisation and outsourcing as they seek to reduce costs and competitiveness. According to Amoo Durowoju, Kai Chan & Wang 2012:99 and Le, Arch-int, Nguyeni & Arch-int 2013:783, both globalisation and sourcing have led to increased connectivity and interdependency within an organisation. As a result, risk exposure has increased due to shorter stock life cycles, higher dependency on suppliers and other external players in their supply chain (Simba, Niemann, Kotzé & Agigi 2017:2). Due to the lack of visibility over future supply chain disturbance and disordering, risk-sharing contracts are one of the means of risk mitigation (Wakolbinger & Cruz 2011:2). A contract, following Piderit, Flowerday & Von Solms (2011:8), is an “agreement between supply chain partners in a specific market that specifies objectives, areas of decision domain, the level of information sharing, performance measures and transfer payments”. A contract is crucial among supply chain partners as it divulges the levels of information that each partner is obliged to share and reveal with the other partners involved (Hove 2015:55).

According to Ghadge. Dani, Ojha and Caldwell (2017:6); Chakravarty (2013:39); Punniyamoorthy, Thamaraiselvan & Manikandan (2013:80); Rajesh, Ravi and Venkata Rao (2014:246), unpredictability in pricing and demand, in particular, results in a predicament where both supplier and buyer face the risk of delays, shortages and financial losses. Further, Fang and Shou (2015:157) scrutinise how the level of supply uncertainty and competitive intensity affect the equilibrium decisions of order quantity and contract sharing. Given the difficulties of demand forecasting environments along with the problems of fluctuating prices of products in global markets, risk-sharing partnerships contracts can lead to substantial benefits such as the reduction of lead-time on projects as it enables parallel work, eradicates rework, synchronises deadlines and improves the communication between suppliers and buyers (Figueiredo, Silveira & Sbragia 2008:30). The following section discusses one of the variables entitled ‘supplier commitment’.

3.8 SUPPLIER COMMITMENT

Frequently, a successful buyer-supplier collaborative relationship is distinguished by a high level of trust, commitment, communication, cooperation, relationship bonds and dependence (Pooe, Mafini & Loury-Okoumba 2015:266; Musodza 2009:25). Buyers join forces with suppliers whom they perceive as having made idiosyncratic investments on their behalf (Mugarura 2010:16). Generally, it is the willingness to collaborate that demonstrates the supplier’s

commitment to sustain the relationship. As defined by Li and Feng (2015:1046), commitment refers to the willingness of partners to exert effort on the relationship and implies future orientation, which is the desire to build a continuous relationship and solve unanticipated problems. Wahab, Elias, Al-Momani and Noor (2011:242) state that commitment is a “psychological state generated by an individual’s perceptions, beliefs and emotions which provoke the willingness or intention of developing and maintaining a stable and durable relationship”. On the other hand, according to Van Rossenberg et al., (2018:154), commitment is defined as a power that ties an individual to a course of action of relevance to one or more targets. This study upholds the definition of commitment as offered by Lee (2016:328) who views supplier commitment as relation to supplier’s feelings towards the advancement or conservation of unwavering, long-term reciprocal connection with their buyers. This definition is significant in a supplier commitment context because when a supplier is committed to their duties, a long-term relationship will be established with their buyers, which in turn will also have a positive effect on the procurement performance. The following section entails and discusses the existing drivers of supplier commitment.

3.9 THE EXISTING DRIVERS OF SUPPLIER COMMITMENT

The source of supplier commitment can vary from person to person. According to Ariesty (2016:61), commitment is defined as “the confidence of one of the parties that fostering good relations with other parties is important and has an influence on the optimal benefit gained by both sides”. Commitment is a vital element for long-term success because supply chain partners are willing to invest resources and sacrifice short-term benefits for long-term success (Chen, Yen, Rajkumar & Tomochko 2011:263). Supplier commitment, as explained by Ariesty (2016:61) and Leker, Gelhard, Von Delft (2018:320) is a willingness from both sides, that is, the organisation and the supplier to strive to maintain long-term relationships. In this study, communication and trust are referred to as drivers of supplier commitment. Foremost, communication is discussed in the following section.

3.9.1 Communication

Communication is one of the most important levers of management that a company can implement for the formation of teams and achieving valuable performance (Bucăța & Rizescu 2017:49). According to Apolo, Báez, Pauker and Pasquel (2017:522), communication is “one of the pillars of collaborative work as it strengthened through the building of bonds, emotions and

experiences". González (2014:10) states that communication can be seen as an integrative methodology that generates results within social groups. According to Stephen (2011:33), communication is a critical element in mobilising and directing the workforce towards the accomplishment of the organisational objectives and goals. By creating understanding, it increases co-operation and promote effective performance in the organisation (Nebo, Nwankwo & Okonkwo 2015:132). According to Banihashemi (2011:15) and Abi, Foysol and Adnan (2017:1), communication is crucial to effective team performance and communication for any organisation; it is like blood flow in the human body. Communication ensures coordination of factors of production and most importantly, material and human elements of the organisation as an efficient network of change and advancement (Nwankwo & Okonkwo 2015:132). Thus, organisation needs to have an overview and understand the importance of communication in their organisational environment. In this study, the researcher stresses communication as an official effective and reciprocal interchange of information between the supplier and the buyer (John, Visinescu, Guynes & Prybutok 2016:219). The importance of communication in the buyer-supplier relationship is contextualised next.

3.9.2 The importance of communication

Effective communication is crucial at every level of an organisation (Agarwal & Garg 2012:41). It allows both buyer and supplier to share goals both inside and outside the public health entity (Markovic & Salamzadeh 2018:15). According to Kaynak and Sert (2012:221), communication assists to implement a successful relationship amongst buyer-supplier in public health entities; it also maximises satisfaction, which reduces partner's opportunistic behaviour and leads to long-term engagement. Remarkably, communication improves relationships by allowing partners to have an overview and understand their bonding factors, resolving business issues, provides the partners with the channels to uncover as well as integrate objectives and seek to produce value through cost reduction or improve investment returns (Morgan & Hunt 1994:25; Palmatier, Houston, Dant & Grewal 2013:20).

3.9.3 Communication methods in the public health care sector

There are many techniques or methods of communication depending on the level, nature and scope of technology and those of application of the information in the organisation. For example, in small scales business organisations such as sole proprietorship (sole trader or one-man business) like small scale dry-cleaning firms, most communications whether between the business owner and the workers or between him and his clients are done through face-to-face contacts (Markovic & Salamzadeh 2018:15). However, the nature of operations becomes more

complex as the business expands. Normally, there will be the need for more documentation, which necessitates written rather than simple oral communication. Additionally, most of the big organisations like public health entities make use of modern-day high technology (Prabavathi & Nagasubramani 2018:29; Markovic & Salamzadeh 2018:15). In public health care sectors, most communications are done using telephone, internet and computers (Raulea & Raulea 2014:693). Also, the nature of linkages between organisational systems will vary depending on the requirements of each subsystem. Below are the channels of communications in which public health entities engage to ensure communication effectiveness.

a) Oral Communication

This form of communication takes place mostly in a face-to-face situation/relationship. Also, it can be extended to the use of instruments/electronic devices such as telephone and public address systems (Kelvin-Iloafu 2016:95). According to Markovic and Salamzadeh (2018:17), oral communication expresses information with languages, which is composed of grammar and words. Generally, oral communication is easier and more efficient than written communication as it enables immediate feedback. The main advantage of this oral communication method is that it assists in conveying the message with the desired one and pitch that is required for the message (Prabavathi & Nagasubramani 2018:30). It also hugely saves on time and enormously on the effort that is spent. Oral communication is a less formal method as compared to others, hence adds a personal touch to your message. Combined with the right kind of verbal communication, oral forms can create confidence and loyalty on the sender from the receiver's side (Ezezue 2007:10).

b) Electronic Communication

Electronic communications are defined as data communications carried over both wireless and wire structures (Reif & woznick 2012:123). They differ from wire communications in that they are communications that are not transmitted by sound waves and cannot be characterised as containing a human voice. Instead, they include telegraph, telex communications, electronic mail, non-voice digitised transmissions and the portion of video teleconferences that do not involve the hearing of voice or oral sounds (Raulea & Raulea 2014:693; Kelvin-Iloafu 2016:95). Good communication skills are very vital in the public health care sector as communication can be very costly. If public health entities do not efficiently and effectively communicate to their suppliers regulations, rules and objectives along with their business culture, then, it is likely to

be disruptions and miscommunications amongst the two parties (Markovic& Salamzadeh 2018:19). Without good communication, things may be done incorrectly or may not be done at all or work could be done repeatedly, overlapping each other, which will be wasteful and expensive (Ezigbo 2011:352). Effective communication is crucial for the operation of a business in all aspects.

3.9.4 Trust

The notion of trust has been investigated and approached in relationship marketing from different prospect (Kabir, Alam, Alam 2009:150; Mosavi & Ghaedi 2012:4913). For example, Mosavi and Ghaedi (2012:4913) define trust as “a willingness to rely on an exchange partner in whom it has confidence”. Meanwhile, Chiu, Chang, Cheng and Fang (2009:763) view trust as a process that eases exchange relationships described by vulnerability, unreliable and reliance. Chopra and Meindl (2010:550) defined trust as the belief that each supply chain partner has an interest in the other’s welfare such that they will not take any actions without considering the effect on the other partners. According to Dolatabadi, Jamshidi and Pool (2012:88), trust may include numerous and various definitions; nevertheless, all the definition share the same meaning and idea that trust is the name of security and confidence-feeling based on the belief, which the customer attaches to an organisation and customer behaviour is motivated by the favourable and positive intentions toward that service provider.

In organisational behaviour literature, trust is regarded as the main ingredient for the development of long-term relationship and has been acknowledged as a vital element for enhancing inter-firm relationships (Kacmar, Bachrach, Harris & Noble 2012:45; Mamman, Kamoche & Bakuwa 2012:285). A long-term relationship with a partner may depend on the way the supplier and the buyer trust the ability of the other partner (Ganesan 2004:2). Therefore, a supplier and a buyer who trust each other will put more resources and effort to ensure the continuity of the relationship (Pfanelo 2015:43). According to Morgan and Hunt (1994:24), partners who trust each other will provide vital information and resources to the relationship and will cite the relationship as a long-term investment. Further, Lavelle, Rupp and Brockner (2007:845) articulate that in a relationship that is characterised by mutual trust and social benefits, both parties are likely to bestow rewards that both will appreciate. The following sections entail different dimensions of trust.

a) Different Dimensions of Trust

Trust is a complex and multidimensional concept. To understand measure and explain trust, it is important to identify the dimensions of trust (Katarzyna & Lewicka 2012:225). Previous studies showed that trust has three primary dimensions: benevolence, integrity and competence (Aurifeille & Medlin 2012:11; Deljoo, van Engers, Gommans & De Laat 2018:45; Svare, Gausdal & Möllering 2019:2). Viot (2018:2) defines benevolence as “an inclination to understand and oblige others”. A benevolent organisation is an organisation, which does not only have its interests at the heart but can align its interest to do exceptionally well to other entities (Svare *et al.*, 2019:4). Karssing (2007:3) defines integrity as a professional wholeness or responsibility (including a view with a focus on taking into account the environment): “integrity means that a professional exercises his tasks adequately, carefully and responsibly, taking into account all relevant interests”. Integrity is deemed as a crucial element as it is fundamental to the organisation as it assists to contribute to the development of the organisation (Sani, Endin, Masrek, Sahid, Baba & Kamis 2016:2). A public health entity with integrity reduces external regulations, enhances cooperation with stakeholders, strengthens stakeholders’ confidence in an organisation and diminishes conflicts (Huberts, Kaptein & Lasthuizen 2007:588; Meintjes 2012:31). In contrast, without integrity such as fraud and corruption and also the occurrences of misconducts can out-turn in extensive financial losses, severe reputational damage, bankruptcy and even the implosion of a country’s economic and political system that leads to organisational performance problems (Yeh 2011:86; Emerson, Cenuşă, Kovziridze & Movchan 2018:4).

Competence, as stated by Krot and Lewicka (2012:226), is an important dimension of trust in organisational relationships. Wibowo (2007: 86) defined competence as “an ability to carry out or do a job or task based on skills and knowledge”. A higher level of competence is the level of performance, which is independently undertaken and may go beyond the formal requirements of suppliers or employees’ scope of work (Krot & Lewicka 2012:226; Naser & Setia 2018:270). Studies have shown that competence is a vital factor in establishing trust (Paliszkiewicz 2011:317; Kharouf Lund & Sekhon 2014:371). Trust that is based upon competence can be built relatively quickly because it is not based upon emotional interactions (Salas, Rico & Passmore 2017:310). Based on the three dimensions mentioned and described, it is concluded that if a buyer believes that a supplier is honest, benevolent and competent (able to fulfil their promises and obligations), the buyer is likely to trust the supplier (Ristig 2009:660; Zixi & Dalzhenka 2012:13).

b) Antecedents of trust

Trust antecedents and outcomes are widely considered by academics (Özyilmaz 2012:325; Chang & Feng 2014:153). The most mentioned factors that lead to trust in the partner (supplier) are reputation, firm's size and brand (Van Benthem & Blik 2015:4; Zixi & Dalzhenka 2012:12). According to Zloteanu, Harvey, Tuckett and Livan (2018:2), reputation is described as an aggregate representation of trust towards, a certain organisation or individual. This mentioned factor plays a vital role in the initial stage when the new supply chain relationships are formulated and can affect the customer's perception of the supplier either negatively or positively (Zixi & Dalzhenka 2012:12). Reputation is not the only factor influencing the customer's "belief" in the provider. Oyelade (2019:4) claims that the size of the supplier's organisation plays a crucial role to be considered trustworthy. In short, large organisations are likely to be regarded as more trustworthy, than small enterprises as they work in the wide arena and have businesses with a large number of partners (Zixi & Dalzhenka 2012:12). In this company, it creates a certain degree of trust since it could build relationships with numerous entities.

3.10 SUPPLIER COMMITMENT IMPROVEMENT

To increase supplier commitments, buying departments in public health entities need to consider their suppliers as virtual extensions that help to motivate them to improve their performance (Sillanpaa & Shahzad 2015:227). According to Gang and Feng (2015:1047), transaction-specific investments such as investing in new material, processes and human resources to raise mutual dependence and reciprocal commitment in a relationship. Such investments increase the commitment of suppliers to customers. When suppliers invest in sustaining the relationship with customers, this action indicates that suppliers intend to commit to their customers and the relationship (Li & Feng 2015:1047). The higher the number of trust suppliers has for their customers, the more they will invest in maintaining the relationship with customers (Ryssel, Ritter & Gemünden 2015:8). Failing to practice supplier commitment, public health care can suffer from a shortage of continuous and reliable inputs ranging from office supplies and equipment to facility maintenance and repair services in support of their operations (Wong, Lai, Lun & Cheng 2012:7). Commitment can be enhanced through training and induction as well as through payments and rewards.

Training and induction programmes are two vital elements attributed to higher levels of supplier commitment in the public health care sector. An induction programme is commonly used to assist new suppliers to understand their scope of work within the organisation (Hendricks & LouwPotgieter 2012:1). Usually, training commences with orientation and presents numerous crucial opportunities that include explaining pay, work schedules and organisational policies and standard operations procedures (SOP) (Ndjama 2015:46). Chughtai and Zafar (2006:45) state that the provision of training and development in an organisation is very necessary as it sends a message to suppliers that the organisation cares for them and supports them, which in turn, will lead to an increase in organisational commitment. Also, training enhances supplier value to an organisation as well as their employability in the job market (Singla 2010:38).

Induction presents remarkable benefits to public health care sectors such as a reduction of time as it takes new suppliers to settle in well in an organisation and to reach their full capabilities (Mabaso 2012:33; Coleman 2013:3). Successful induction programmes lead to cost savings for the organisation (Bryne 2010:26). These benefits are not only restricted to organisations, they also contribute significantly to supplier commitment positively (Salau, Falola & Akinbode 2014:46).

It is very evident nowadays that financial stimuli alone can hardly inspire and motivate a person to do their job more productively and effectively (Mohsan *et al.*, 2010:228). Buying departments have now shifted their attention to total reward packages as a means of motivating suppliers and raising engagement levels (Nienaber 2010:85). Rewards, as defined by Haider, Aamir, Hamid and Hashim (2015:341), are the financial, non-financial and psychological benefits that an organisation provides to workers in return for their contributions and efforts to the organisation. According to Chughtai and Zafar (2006:44), providing high compensation and rewards could lead to higher supplier commitment. This is because higher compensation serves as an indication of how much employers value them and thereby enhancing their self-worth and feelings. In conclusion, rewards and compensation to performance motivate suppliers to exert more effort and hard on behalf of the organisation (Ndjama 2015:47). The following section provides literature on the benefits of having committed suppliers in an organisation.

3.11 THE ADVANTAGES OF HAVING COMMITTED SUPPLIERS

In today's rapidly changing environment, organisations from all around the world are compelled to the maximum potential of their workforce to stay ahead of the fierce competition and survive in the long run (Mohsan, Nawaz, Khan, Shaukat & Aslam 2010:226). Public health care sectors need suppliers who are willing to go beyond the call of duty and engage in extra-role behaviours. Public health entities want suppliers who are devoted to their work and willing to go beyond what is expected of them and suppliers who possess the sense of creativity, innovation and willingness to take some risks (Ndjama 2015:39). The public health care sector's overall effectiveness depends on more than simply maintaining a stable workforce; suppliers must perform assigned duties dependably and be willing to engage in activities that go beyond the requirements (Mohsan *et al.*, 2010:226).

a) Commitment and work behaviours

According to Mohsan *et al.*, (2010:226), supplier commitment is very vital for any organisation's success. According to Umoh, Amah and Wokocha (2014:62), public health entities whose suppliers have higher levels of commitment show higher performance and productivity and lower levels of service delivery and tardiness. Generally, this implies that highly committed suppliers tend to take greater efforts, willingness and initiatives to perform and invest resources in the buying organisation. Committed workers are genuinely and consequently productive because they can release their creativity and contribute towards organisational development initiatives (Ndjama 2015:39).

b) Business impact of commitment

Successful buying departments in public health entities are built on the inherent value of their human resources of motivated and committed suppliers who allow organisations to grow faster than similar competitive organisations (Dordević 2004:117; Mohsan *et al.*, 2010:226). Highly committed suppliers feel that they are valued by the buyer and that they are playing a vital role, which remarkably enhances both their commitment with the buyer as well as the services provided (Peete 2016:26). In conclusion, supplier commitment ameliorates a friendly atmosphere amongst the supplier and buyer, making the entire workforce enthusiastic to work together to achieve individual goals as well as organisational goals (Mohsan *et al.*, 2010:227).

From the analyses of the above, there is no doubt that committed suppliers show good work performances and many authors have tried to identify the factors of such commitment. The next section discusses procurement performance.

3.12 PROCUREMENT PERFORMANCE

According to Criveanu and Elena-Iuliana (2016:179), the concept of performance has gained increasing attention in recent decades, being pervasive in almost all spheres of human activity. The performance comprises the actual results or outputs of an organisation as measured against its intended outputs (or objectives and goals) (Short, Ketchen, Palmer & Hult (2007:147). Procurement performance, as defined by Maria, Githii and Thomas (2018:834) is a measure of the extent to which the procurement function of an organisation can outreach the goals and objectives at minimal costs. Engström, Wallström and Salehi-Sangari (2009:316) concur that procurement performance covers wider areas of procurement, which include suppliers, internal users, purchasing function, government policies, market forces and management decisions. Further, Kakwezi and Nyeko (2014:4) stipulate that procurement performance looks at the effectiveness and efficiency of the procurement function of an organisation. This study upholds the definition of procurement performance by Munyimi 2019:2) who states that procurement performance is achieved when goods or services are procured at the best possible cost to meet the needs of the purchaser in terms of quality, quantity, time and location. This definition is significant in a procurement performance context because an effective procurement performance is only achieved when the goals and objectives of the organisation are met at a minimal cost. The following section discusses factors, which affect the procurement performance in the public health care sector.

3.13 FACTORS AFFECTING PROCUREMENT PERFORMANCE IN PUBLIC HEALTH SECTOR

Several factors have been identified which affect the performance of procurement processes in the public health care sector. Such factors include poorly managed sites, absence of acceptable levels of supervision, the expertise and experience of procurement personnel, corruption and inadequate preparation by the contractors (Musanzikwa 2013:125; Cunningham 2017:14; Hamza, Gerbi & Ali 2016:22; Chimberengwa, Masuka, Gombe, Tshimanga & Bangure, 2015:1; Simiyu & Namusonge 2016:518). All these negatively affect the cost and time for the

procurement processes as observed by the following people. Further, Licenji (2015:239) observed that the lack of appropriate skills and specialised knowledge are significant problems that affect the procurement performance in public health care entities as procurement officers are required to provide value for money and take into account strategic considerations.

Due to the limited levels of public resources, it is very vital to ensure that the processes of public procurement in public health care is done successfully and productively to promote national development and serve as a manifestation of national obligation to efficiently use the insufficient resources available (Seidu, Fatawu & Ahmed 2014:4). According to Asante (2016:9), not following proper procedures concerning procurement processes will result in a poor organisation within different departments and increases the incidence of leakages of financial resources (Asante 2016:9). Kasisi, Benjamin, Mwangi (2015:30) stipulates that due to the highly competitive environment nowadays, it is very essential for every organisation to maintain an effective and efficient procurement function to cut down administration cost and to keep abreast of the market conditions to procure material and services at the right price, quality and time.

3.14 HOW TO IMPROVE PROCUREMENT PERFORMANCE IN THE PUBLIC HEALTH CARE SECTOR.

Public procurement is a crucial function of government for several reasons. Firstly, the sheer magnitude of procurement outlays has a positive effect on the economy and needs to be managed effectively (Amemba, Nyaboke, Osoro & Mburu 2013:41). The financial activities of government procurement managers are believed to account for 10% – 30 % of GNP in all countries (Callender & Matthews 2000:273). However, despite such importance, procurement function in the public health care sector still suffers from four bottlenecks. Firstly, traditional procurement procedures allow unethical maverick buying practice which represents a situation where employees make unplanned purchases from non-preferred suppliers at a relatively higher price (Rahim 2008:7). Secondly, the series of bureaucracy in the procurement process results in a rise to poor service delivery (Osir 2016:66). Thirdly, procurement policies are not properly developed, hence adopting the same becomes a serious challenge (Uyarra, Edler, Garcia-Estevéz, Georghiou & Yeowa 2014:631). Lastly, procurement is traditionally a labour-intensive activity meaning that managers spend considerable time on ‘nonvalue-added activities’ (Basik 2015:50). According to Osir (2016:75), three processes can be implemented in the public health entities

that can eliminate all the negative factors mentioned and improve the procurement performance. All those processes are discussed thoroughly below.

3.14.1 E- Tendering

Nowadays, tendering is regarded as one of the fairest means of awarding government contracts and one that is most likely to secure a commending outcome for a government isspending public money (Alyahya & Kriengsak 2017:2). As defined by Osir (2016:75), e-tendering is an e-procurement phase that involves the union of e-access and e-submission phases (Osir 2016:75). The general e-tendering process involves seven stages: the first stage is the pre-qualification and registration of potential suppliers (Emel & Petriçli 2016:425). Then, this stage is followed by a public invitation for the interested potential suppliers to apply (Rotich, Benard & Waruguru 2017:48). A public invitation is followed by tender submission, which is then followed by the close of tender. Once tenders have been received, they are evaluated and ranked based on pre-determined tender evaluation criteria that are then followed by the award of tender (Public Procurement 2011:2).

E-tendering is a solution that will electronically enhance the processes of public tendering for the procurement of specialised works, goods and consulting services of a high value and low volume (Kramer 2016:26). According to Rotich *et al.*, (2017:48), e-tendering is associated with many benefits. The benefits include improved process efficiency, reduced overhead costs, enhanced transparency and accountability in the procurement function, reduced ordering and holding costs, reduced paperwork, improved cash flow and reduced cost associated with credit control (Nawi, Deraman, Bamgbade, Zulhumadi, Riazi 2017:211; Anthony 2018:75). Gunawardhana and Karunasena (2012:149) revealed that there is a positive relationship between e-tendering and procurement performance. He elaborated that e tendering improves coordination of activities and communication amongst departments engaged in tender processing. In conclusion, the alerting system in e-tendering would remind those involved about sensitive tasks and issues that have been completed by different teams, eradicating human errors as well as routing documents to suitable parties (Osir 2016:75).

3.14.2 E- Ordering

According to Oteki, Namusonge, Sakwe & Ngeno (2018:2625), order processing is a factor of order fulfilment and the first stage of the fulfilment cycle. Order processing commences with the receipt or a purchasing requisition from the buyer. As defined by Kipkemboi and Lagat 2016:22), e-ordering is the process of formulating and approving purchasing requisition, placing purchase

orders as well as receiving stock ordered, by using a software system based on internet technology which greatly improves the procurement performance. E-ordering allows buyers and suppliers to exchange Purchase order acknowledgements, invoices and shipment notice electronically (Oteki 2018:2626).

The main advantage of using E-ordering is that if the supplier can receive the purchase order information electronically, they may be able to upload it directly into their order management system (Osir 2016:77). Afande (2015:12) revealed that there is a positive relationship between e-ordering and procurement performance. He emphasised that automated approval systems enable efficiency in the procurement process as it reduces the amount of time from requisition submission to purchase order creation. Further, Nawi (2012:212) states that e-ordering reduces the cost of sending purchase orders to suppliers due to lower processing overheads, increases compliance with spend limits as long as the hierarchy is accurately maintained and checked during approval and controls leakage as end-users have to go through additional steps to add suppliers not currently in the vendor master list.

3.14.3 E-Invoicing

E-invoices have all the same information as a paper bill but are presented in electronic form. E-invoicing involves electronically receiving invoices from suppliers, processing them and finally making electronic payments to suppliers via a bank automated clearing system (BACs) (Doherty, McConnell & Ellis- Chadwick 2013:496). E-invoices can be sent to both businesses and consumers (Pessi 2017:12). According to Dandapani (2017:615), the purpose of e-invoices is to maintain the bill in an electronic form during the whole billing process, from the preparation of the bill until the payment. By operating the bill, both sender and the recipient will benefit from the new operating model.

Doherty *et al.*, (2013:497) reported that there is a positive relationship between e-invoicing and procurement performance. They explained that e-invoicing eliminates printing and postage costs, enables faster retrieval of compensation from customers by reducing the time an invoice or payment is in the post, enables quicker and cheaper processing as the information in electronic invoices can be fed directly into an organisation's payment and accounting systems and lower storage costs. These lead to effectiveness and efficiency in the procurement process leading to enhanced procurement performance (Osir 2016:78).

3.15 ANTECEDENTS OF PROCUREMENT PERFORMANCE

According to Mallick, Ritzman and Sinha (2013:192), there are two antecedents of procurement performance named quality and cost. While Olajide and Olajide (2016:54) define cost as the amount incurred by the company in the manufacturing of a product, Lee, Yang and Yu (2001:692) define quality in relation to value, conformance to the standard, excellent and the possibility of matching or surpassing customer's expectations. Further, Hung, Hung and Lin (2015:194) hypothesised that delivery, cost, flexibility and quality, reflect organisations "competitive priorities" as antecedents of competitive procurement performance of an organisation. The authors recognise all those factors as a yardstick for measuring efficient flexible engagement through which organisations can be able to respond to changes in the operating environment and still maintain consistency. On the other hand, Wang and Yen (2012:1036) stipulate that innovation, risk-taking and pro-activeness are predictors of the organisations' competitive performance as positively supported by empirical evidence. As observed by Azis, Kartini, Bernik and Harsanto (2017:393), the need for organisation innovativeness originated as a result of competition in the marketplace, requiring organisations to actively re-adjust their strategies to strive in the long run. To achieve innovative capabilities and enhance effective procurement performance in public health entities, buying organisations need to improve the quality of their procedures, creative offering, distribution mechanisms, promotional skills and general operational strategies. The next section of this study focuses on the research conceptualisation and the development of the research hypothesis.

3.16 HYPOTHESIS DEVELOPMENT

According to Chigbu (2019:7), a hypothesis is a guess or supposition made by a researcher about the attributes of the population under investigation. Additionally, Mourougan and Sethuraman (2017:34) indicate that a hypothesis is an uncertain explanation that accounts for a set of facts and can be tested by further investigation. A hypothesis is a tentative statement about the relationship between two or more variables and it is a specific, testable prediction about what you expect to happen in your study (Kabir 2016:52). After a hypothesis has been statistically developed, it can either be a null statistically significant (H_0 = null hypothesis) or be a statistically significant (H_a = alternative hypothesis) on the research study findings (Mourougan & Sethuraman 2017:37). A Null Hypothesis is a hypothesis that proposes no relationship or difference between two variables (Kabir 2016:62). An alternative hypothesis

proposes a relationship between two or more variables (Martin & Bridgmon 2012:26; Kabir 2016: 62; Mourougan & Sethuraman 2017:37). Harber (2014:28) points out that a well-developed research study needs a hypothesis statement to effectively answer the research questions.

In addition, Le-Roy (2012:89) stresses that a hypothesis has three important parts, which are explained as follows:

- A hypothesis must be testable
- Specifies that there is a certain kind of relationship between a dependent variable and an independent variable
- A hypothesis should be derived from a theory.

The research hypothesis development for this study represents a testable statement predicted to have a statistically significant relationship and is discussed in the following sections:

3.16.1 Supplier selection and supplier commitment

Supplier selection as earlier noted has become one of the elementary roles of procurement managers since it virtually affects any industry's competitiveness (Li & Zabinsky 2011:344). Lambert and Cooper's supply chain management framework (2000:69) emphasised the need for an organisation to identify their primary suppliers and customers with whom to collaborate and coordinate their business processes. This implies that an organisation can effectively and profitably collaborate with its suppliers. The increasing importance of supply chain management is compelling public health care sectors to reconsider and improvise their procurement-related matters. *Instead* of that, the supplier selection process plays a vital role in procurement activity (Thiruchelvam & Tookey 2011:437). The choice of suppliers is an issue of strategic importance for the overall organisation and is a key strategic factor in today's modern supply chains (Liao & Kao 2011:10804; Stević 2017:23). Failure to undertake the right process in selecting the best possible supplier will result in supplier risks that may disrupt the industry's operations.

Also, commitment is a key determinant of both organisations and procurement performance. When collaborating, organisations invest in assets and technologies that are specific to their core competencies, thus, create new knowledge. Based on the fundamentals of business-to-business relationships, satisfaction between both parties has been viewed as a driver to long-term orientation, loyalty and relationship commitment amongst business partners (Suh & Houston,

2010; Segarra-Moliner, Moliner-Tena & Sa'nchez-Garcia 2013:207). Besides, Loice (2015:54) stipulates that the willingness of suppliers to commit to their relationships with the buying organisation has a positive influence on establishing trust in their associations, which indicates the major role that buyer-supplier commitment exerts in the performance of the organisations.

Organisations that invest in proper supplier selection procedures have better and effective performance through their common desire and willingness to share tactful and strategic information, which are critical in the well-functioning of their supply chain activities (Yang 2013:33). Also, high levels of supplier commitment in the organisation contribute significantly to establishing mutual trust amongst the supplier and the buyer (Yam & Chan 2015:76). Therefore, a proper supplier selection process enables and stimulates supplier commitment as both parties want to reach a common goal.

A prior study conducted by Morgan and Hunt (1994:230) states that commitment is the key go-between in the exchange between parties, which importantly leads to building a comparative co-operation. Kim, Park, Ryoo and Park (2010:864) observed that commitment is a vital element that contributes greatly to strengthening the buyer and supplier relationship. Moreover, Bojei and Abu (2014:174) contend that the more committed a supplier is to a customer, the higher the level is of satisfaction expectations. However, the relationship between supplier selection and supplier commitment has received little or no conceptualisation in literature. This begs the need for this study to examine if a relationship exists within the variables and also to uncover whether the variable has any positive relationship to the procurement performance of the public health care sectors. In light of the aforementioned literature, the following hypothesis was formulated:

H1: There is a relationship between Supplier Selection and Supplier Commitment

3.16.2 Supplier selection, supplier commitment and Supplier risk management

The increase of interest in supplier selection as the essential way of achieving competitive advantage has been the focus of many academicians, researchers and practitioners (Jayaram & Tan 2010:262; Prajogo & Olhager 2012:515; Danese 2013:1029; Yang 2014:104). According to Chen *et al.*, (2012:391) and Wong, Wong and Boon-itt (2013:566), supplier selection procedures and supplier commitment may not be effective if the process is not well implemented. The implementation of supplier selection, therefore, requires integrated mechanism such as people and information system that align both the tactical and operational activities as well as organisational procedures within the supply chain (Li, Yang, Sun & Sohal 2009:125; Flynn

Huo & Zhao 2010:58; Danese 2013:1030; Williams, Roh, Tokar & Swink 2013:543). The proper selection, commitment and management of the right suppliers allow the manufacturer to leverage its best-in-class technical capabilities and expertise to additionally improve the flexibility of its supply chain (Kiumarsi, Jayaraman & Soh 2016:187).

Due to unforeseen circumstances and disruptions, the organisation's risk strategy has to be selected and implemented. In the process of selecting mitigation strategies, there are some criteria on which strategies are scrutinised to find the best possible strategy for the risk at hand (Diehl & Spinler 2013:317; Kumar Sharma & Bhat 2014:1032). Some of the criteria mentioned by the authors included risk, customer service and cost (Simba *et al.*, 2017:9). For this study, two strategies namely risk transfer and risk-sharing were chosen to be crucial risk mitigation strategies, which are vital in the supplier selection process. Prior research conducted by Bhoola *et al.*, (2014:167); Kilubi (2016:13); Macharia and Caleb (2014:1818) have stated that the transferring of risk and sharing of risks amongst parties involved are vital strategies in any public health entity as they are effective in terms of cost reduction and acrimonious disputes. It is crucial to negotiate and communicate effectively with suppliers regarding which risk mitigation strategy is going to be applied during the supplier selection process and duration of the serving of contract to establish visibility and risk control (Ghadge *et al.*, 2017:4). However, I believe that the relationship between supplier selection, supplier commitment and supplier risk management strategies have no conceptualisation in literature. This begs the need for this study to examine if a relationship exists within the variables and to uncover whether the variable has any positive relationship to the procurement performance of the public health care sectors. Considering the literature, the following hypothesis was formulated:

H2: There is a relationship between supplier selection and supplier risk management

H3: There is a relationship between supplier risk management and supplier commitment

3.16.3 Supplier commitment, supplier selection and procurement performance

Commitment has been seen as a vital element that contributes greatly to strengthening the buyer and supplier relationship (Kim, Park, Ryoo & Park 2010:864). Supplier commitment is a willingness from both sides of the company and the supplier to strive to maintain long-term relationships (Ariesty 2016:62). According to Sillanpää, Shahzad and Sillanpää (2015:124), when supplier commitment is present in the buyer and supplier relationship, there is a gain in

mutual benefits and improved performance in the organisation, which results in long-term collaboration.

Strong reliable relationships in business to business environment significantly influence both organisations and their overall performance. Organisations that engage in committed relationships and proper supplier selection procedures have better performance through their common desire and willingness to share sensitive and strategic proprietary information, which are critical in the well-functioning of their supply chain activities (Yang 2013:1984). Also, an effective supplier selection process and a high level of supplier commitment contribute significantly to establishing an effective procurement performance (Yam & Chan 2015:1057). Moreover, Bojei and Abu (2014:174) assert that the more committed a supplier is to a customer; the higher the level is of satisfaction expectations. A shared commitment to problem-solving amongst parties involved leads to an effective procurement performance of an organisation (Lee 2016:330). From the above view, it could be argued that there is a link between supplier commitment, supplier selection and procurement performance. However, studies have also shown that supplier commitment in exchange relationships will have a positive impact on the procurement performance of public health entities (Lee 2016:335; Abidin, Hashim & Ariff 2017:76). In light of the aforementioned literature, the following hypothesis was formulated:

H4: There is a relationship between Supplier Commitment and Procurement Performance

H5: There is a relationship between supplier selection and procurement performance

3.16.6 Supplier risk management and Procurement Performance

As defined previously by Liu et al., (2010:224) and Spiegler *et al.*, (2012:6162), risks are any exposure posing a threat to the existence of an organisation. Organisational risks can be divided into four main areas namely operational, strategic, financial and compliance risks (Simba 2017:2). However, supply chain risks entail disruptions that interfere with the consistent movement of information, finances and materials, which may negatively influence the achievement of an organisation's goals as well as the supply chain about quality, time and cost (Colin, Pfohl, Gallus & Thomas 2011:840; Hofmann, Busse, Bode & Henke 2014:162; Spiegler *et al.*, 2012:6162). Risks in the supply chain are categorised as external and internal risks. External risks include labour disputes, economic downturns and price fluctuations, while internal risks include worker accidents, poor suppliers, distorted information and quality issues (Wilding, Colicchia, & Strozzi 2012:413; Dash Wu, Olson & Dash Wu 2010:698; Lin & Zhou 2011:177).

An organisation must implement risk mitigation strategies. In the context of effective procurement performance, risk transfer and risk sharing are recognised as strategies to manage risks in a supply chain (Lajis 2017:37).

Procurement performance plays a vital role when selecting a risk mitigation strategy. Because of the above-mentioned risks and their negative effects on organisations, operations and performance, organisations need resilience capabilities and committed suppliers to avoid, mitigate and reduce the effects of disruptions (Johnson, Elliott & Drake 2013:333; Urciuoli, Mohanty, Hintsa & Gerine Boekesteijn, 2014:57). Procurement performance, as defined by Maria, Githii and Thomas (2018:834), is a measure of the extent to which the procurement function of an organisation can outreach the goals and objectives at minimal costs.

Prior research conducted by Abdullah (2018:286) states that sharing the risk and transferring risk is important. Further, he states that risk transfer by contrast obliges one party to bear the risks of the other party. By doing so, creates a moral hazard and may encourage recklessness. The need to share the risk, on the other hand, restrains recklessness (Lajis 2017:37). However, the relationship between supplier risk management and procurement performance has received little or no conceptualisation in the literature. This begs the need for this study to examine if a relationship exists within the variables and to uncover whether the variable has any positive relationship to the procurement performance of the public health care sectors. In light of the aforementioned literature, the following hypothesis was formulated:

H6: There is a relationship between supplier risk management and procurement performance

3.17 CONCLUSION

This chapter presented the literature review regarding supplier selection, supplier risk management, supplier commitment and procurement performance. These four major concepts form the pillars of this study. Also, this chapter concludes the theoretical literature review of the study. The day-to-day running of procurement in the public health care sector depends greatly on the ability to provide value-added goods and services that can satisfy or exceed customer requirements and expectations. Exceeding customer requirements and expectations require that an organisation should be strategic, flexible and responsive. To ensure that procurement of public health care is strategic and responsive, the supplier selection process must be done effectively to avoid any bottlenecks from occurring. Besides, risk mitigation strategies are important in

ensuring the effectiveness of the procurement procedures. In conclusion, supplier commitment also plays a key role in the procurement procedure, thus, both parties need to ensure that they establish a common ground and build long-term relationships. The next chapter will discuss the research design and methodology.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

The previous chapter discussed and extended the theoretical review to gain an overview understanding of the theories underpinning the procurement performance in the public health care sector. Hypothesis development of the research variables referring to the influence of supplier selection, risk mitigation strategies and supplier commitment on the procurement performance were also discussed in detail. Procurement performance is essential in public health entities. The lack of understanding of it and all the theories underpinning it may lead to or prevent the efficiency of the procurement performance. The literature review of this dissertation indicates that proper supplier selection, supplier commitment and risk mitigation strategies can aid procurement performance of the public health care sectors effectively.

The chapter aims to present the methodology and design, the sampling method, method of data collection, data analysis method as well as statistical techniques for this dissertation. According to Punch (2010:47), research methodology refers to how data is gathered for a research project. Research methodology gives a layout on the standard operating procedures and principles for planning, designing, organising and conducting research (Mohajan 2018:2). The data collection techniques are first discussed in this chapter. It then moves on to discuss the statistical analysis techniques used to determine the extent of the data fit the proposed model. Subsequently, the chapter further gives an overview of the research methods and designs, sampling design as well as the data collection and analysis procedures used. The chapter concludes with a discussion of research constructs' validity and reliability matters.

4.2 RESEARCH REASONING

Research is a thoroughly individualised process; however, it is important to understand standard approaches to begin mastering this skill. In general, at a most basic level, there are two alternative approaches to research using deductive or inductive reasoning. Both kinds of research are explained thoroughly below.

4.2.1 Deductive Reasoning

Deductive reasoning, as explained by Schechter (2013:1), is when the truth of the input theory logically guarantees the truth of the output theory, if no mistake has been made in the reasoning. Further, Johnson-Laird (2010:3) stipulates that deductive reasoning is the mental process of making logical inferences. Deductive reasoning is the process of concluding conclusions from information that is known based on formal logic rules, where conclusions are obtained from the given information (Michal & Ruhama 2008:236). This type of study is based on the knowledge that is known of a given supposition, practice and sphere that aids the deduction of hypotheses, which is subjected to further empirical examination to conclude (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt & Wagner 2014:9).

4.2.2 Inductive Reasoning

According to Sauce and Matzel (2011:11), inductive reasoning is a “logical process in which multiple premises, all believed true or found true most of the time, are combined to obtain a specific conclusion or to supply evidence for the truth of a conclusion”. The inductive reasoning approach aims to develop a theory (Saunders, Lewis & Thornhill 2016:147). Inductive reasoning is a very insightful procedure as it makes predictions with regards to new hypotheses set by researchers (Mojahed 2017:43). The approach is built on the context in which the event comes about. Therefore, this allows the use of small samples of data to infer findings. In light of this, inductive studies are qualitative.

Thus, this study uses a deductive approach as it authorises researchers to explore numerous and different sources to examine causal relationships amongst variables and concepts (Saunders *et al.*, 2016:146). Besides, the deductive approach allows the operationalisation of concepts in such a way that facilitates the measurement of realities using a quantitative technique (McAbee, Landis & burke 2017:277). Lastly, the deductive view is very crucial for the generalisation of the finding of the study using a carefully selected sample size.

4.3 RESEARCH PARADIGMS

According to Bvuma (2013:64), a research paradigm entails a knot of beliefs that indicates what the researcher should study, how the research should be conducted and how the outcome should be elucidated.. Johnson and Christensen (2012:31) and Jonker and Pennink (2010:69) further state that a paradigm is an approach to research or doing research. There are currently three major

contrasting research paradigms namely; positivism, phenomenology and pragmatism (Saunders *et al.*, 2016:135). However, for this dissertation, a positivist view is used and discussed alongside other research paradigms.

4.3.1 Positivism

According to Pham (2018:2), the positivism paradigm is “a methodological philosophy in quantitative research where we will apply the methods of natural sciences to discover the study of social science. Positivism necessitates beliefs based on the proposition that trends, procedures, cause-and-effect issues and methods are relevant to the social sciences (Denscombe 2010:324 & Lincoln *et al.*, 2011:107). This view of positivism maintains that people who are referred to as the objects of the social sciences are suitable for the execution of scientific methods.

4.3.2 Phenomenology

Phenomenology can be described as “an approach to research that seeks to describe the essence of a phenomenon by exploring it from the perspective of those who have experienced it” (Teherani, Martimianakis, Stenfors-Hayes, Wadhwa & Varpio 2015:669). Further, Neubauer, Witkop and Varpio (2019:91) describe phenomenology as a qualitative research approach that is uniquely positioned. The purpose of the phenomenology approach is to clarify the essence of the lived experiences in the search for meaning that identifies the importance of the phenomena and its precise description through daily lived experience (Streubert & Carpenter 2003:48).

4.3.3 Pragmatism

The Pragmatism research notion accepts a concept to be applicable only if they support action. Pragmatics “recognise that there are many different ways of interpreting the world and undertaking research that no single point of view can ever give the entire picture and that there may be multiple realities” (Saunders, Lewis & Thornhill 2012:116). According to Feilzer (2010:8), pragmatism is a deconstructive paradigm approach that supports the mixed research methods, “sidesteps the contentious issues of truth and reality” and “focuses on ‘what works’ as the fact concerning the research questions under investigation. The main superiority of the pragmatism paradigm is that it gives the researcher the opportunity to view the world through different lenses namely the interpretivist and positivist (Addae & Quan-Baffour 2015:157). Consequently, the researcher gains a greater in-depth understanding of the two different worlds and in particular, the event under investigation.

In this study, a positivist paradigm is adopted. Positivism depends greatly on quantitative data as positivists believe it is more trustworthy and reliable than the qualitative research approach

(Johnson 2014:1; Saunders *et al.*, 2016:166). According to Sullivan and Sargeant (2011:450), quantitative research is more trustworthy than qualitative as its more scientific in its methods. By appertaining the positivist paradigm, this dissertation measured the level of reliability and validity of the research variables by experimenting with the research hypotheses. ultimately, the result that is attained from the positivist paradigm can be generalised to a wider population (Ponelis 2015:538). The next section focuses on the research approach and design.

4.4 RESEARCH APPROACH AND DESIGN

The research's general objective is to determine the relationship between supplier selection, supplier commitment, risk mitigation strategies and procurement performance in the public health industry in the Gauteng Province. The specific theoretical objectives are to conduct a literature study regarding Committed-trust theory; to carry out a literature synthesis on supplier selection practices, to review the literature on risk mitigation strategies, to provide overview literature on supplier commitment and to carry out a literature review on the procurement performance. The specific empirical objective of this study was to investigate the influence of supplier selection practices in supplier commitment on the procurement performance, to determine the influence of risk mitigation strategies in supplier commitment on the procurement performance. Further empirical objectives are to investigate the supplier selection in risk mitigation strategies on the procurement performance, to identify the influence of supplier selection on the procurement performance and to establish the relationship of risk mitigation strategies on procurement performance. To examine and regulate these components, two methodological approaches were compared to decide which one would be ideal for this study. These two methodological approaches known as quantitative and qualitative research, differ as the methods and uniqueness vary and they are utilised frequently in different disciplines (Holguin-Veras, Leal & Seruya 2017:76; Rahman 2017:102).

4.4.1 Quantitative approach

Bryman (2012:35) defined quantitative research as “a research strategy that emphasises quantification in the collection and analysis of data”. In quantitative research, data is composed in a numerical form and analysed through statistical methods (Terre-Blanche, Durrheim & Painter 2006:47). Findings of the quantitative approach are most likely to be generalised to a sub-population or a whole population as it includes the larger sample that is randomly selected (Rahman 2017:106). According to Andres (2012:63), a quantitative research approach is

confirmed by the notion of rationalism and it ensures that it adheres to a predetermined and structured sequence of procedures to study an event. A researcher can give statistical facts and estimates about relationships amongst variables and make general reasoning with regards to the target population, in quantitative research (Wagner, Kawulich & Garner 2012:87). Consequently, quantitative research is regarded as a structured and systematic approach, that aims at accessing information from respondents in an open manner (Du Plessis & Rousseau 2007:21).

Quantitative research is known to test hypotheses and make predictions while using randomisation to be able to generalise the study (Xiaoyong, Shanshan, Datong, Pengfei & Yuanjiang 2017:114). The main dominance of this research approach is that it employs the use of statistical data as an instrument for time and resource efficiency. The primary use of statistical data for the research analysis and descriptions reduces the effort and time, which the researcher would have invested in describing his result (Eyisi 2016:92). Data (numbers, percentages and measurable figures) can be calculated and conducted by a computer through the use of a SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure which saves a a lot of energy and resources (Gorard 2001:3; Connolly 2007:34).

4.4.2 Qualitative approach

Generally, qualitative research is used when there is little knowledge about the topic and when the researcher wants to gain a new set of knowledge or discover more about it. Qualitative research is used to understand one's episodes and to express one's perspectives (Antwi & Hamza 2015:220). According to Sullivan and Sargeant (2011:459), a qualitative research method is responsible to explore and generate a theory for uncertain, sensitive, social concepts and complex motivations and human intentions.

Qualitative research is not perturbed with variables but rather with understanding and gaining more knowledge on a given problem (Queirós, Faria & Almeida 2017:370; Sullivan & Sargeant 2011: 449). The primary objective of qualitative research is to produce thorough information to gain knowledge in various factors of the problem under analysis. The method through which data are collected in a qualitative research approach is regarded as being distinctive (Eyisi 2016:93). Qualitative data instruments such as open-ended questions observation, in-depth interview (audio or video) and field notes are used to collect data from participants in their natural settings (Eyisi 2016:93). These instruments give a full explanation and description of the research

regarding all the respondents involved. In consequence, a qualitative research approach provides adequate information and knowledge about real-life situations and people (De Vaus 2014:6).

This dissertation employed a quantitative research method to assist in establishing the statistical evidence on determining the relationship between supplier selection practices, risk mitigation strategies, supplier commitment and procurement performance. Besides, a quantitative research method was appropriate for this study because of its usefulness in hypothesis, reliability and validity testing and its objectivity.

4.4.3 Research design

A research design is regarded as the tactical, strategic and practicalities of the research (Cohen, Manion & Morrison 2011:125). Also, Van Wyk (2011:3) described a research design as a plan that connects a conceptual research problem to the relevant achievable empirical research. Gray (2009:131), further describes a research design as a detailed plan for the measurement, collecting and analysis of data. Additionally, Sekaran and Bougie (2009:102), further stipulate that a research design specifies issues related to decisions regarding the purpose of the study, the location, which is the study setting and the research type that can be labelled as the type of investigation. As noted in Ding, Liu, Shen, Liu and Fu (2017:191), a research design assists the researcher to come up with an insight into how the arrangement conditions for collecting data should be. The next section further motivates on reasons why descriptive research is chosen for this study.

4.4.4 Descriptive research

Descriptive research is described as “a research method used to describe the existing phenomena as accurately as possible” (Atmowardoyo 2018:198). Leedy and Ormrod (2016:136) describe descriptive research as research, that involves the identification of characteristics of an observed phenomenon or exploring possible associations amounting to two or even more phenomena. The main aim of descriptive research is that it gives an outline of the phenomena such as the behavior of humans in the organisation and administrative sciences, by specifying how elements or variables are related to one another and how they affect each other (Churchill & Iacobucci 2005:74). Descriptive research is designed to furnish a vivid scenario of a situation as it happens naturally (Burns & Grove 2004:201).

This research is chosen because it provides a precise account of the behavior, abilities, opinions and knowledge of a certain individual, situation and group (Mgiba 2015:50). Importantly, it also enables researchers to study a broader and large group of individuals more effortlessly and

simply(Welman, Kruger & Mitchell 2007:23; Jackson 2012:17). Lastly, this study seeks to portray a detailed and accurate picture of phenomena through an accurate and precise description of situations taken from the data (Babbie, Mouton, Voster & Prozesky 2016:80). All of this will be achieved through descriptive research.

4.5 SAMPLING DESIGN PROCEDURE

A sample is regarded as a portion of the population that represents the attributes and characteristics of the population (Kabir 2016:169). It is viewed as a procedure of selecting many individuals in a way that the chosen speaks for a large group from which they were selected (Marchi, Ferrara, Bertini, Fares & Salvati 2017:182). The primary purpose of sampling is to give an estimate of the population parameter and test hypotheses. Kabir (2016:170), further pinpoints the advantages of sampling that are money and time-efficient and it enables more accurate measurement as it is managed by experienced and trained investigators and enables collection of comprehensive data. Further, Neuman (2009:88) observed and stipulated that a good sample encourages a researcher to study features of the sample and construct accurate generalisations about the entire population involved.

Probability and non-probability sampling are regarded as the two types of sampling design. A Probability sampling can be defined as having a discriminate attribute that each unit in the population has a greater chance of being selected and included in the sample (Etikan, Musa & Alkassim 2016:1). Non-probability sampling is a sampling technique that does not give all the participants an equal chance of being included in the population (Brown, Strauss, LaBar, Gold & Morey 2014:154; Etikan *et al.*, 2016:1). This dissertation adopted the non-probability sampling approach using a convenience sampling method, in which every element is selecting to part-take in non-random ways.

4.5.1 Non-probability sampling

There are two sampling methods namely probability and non-probability sampling. This dissertation adopted non-probability sampling. Non-probability sampling is a sampling procedure that will not bid a basis for any opinion of probability that elements in the world will have a chance to be included in the sample study (Etikan & Bala 2017:1). In non-probability sampling, randomisation is not crucial in selecting a sample from the population of interest. Rather, subjective methods are used to decide which elements are included in the sample (Etikan

et al., 2016:1). According to Showkat (2017:6), a non-probability sampling method involves judgment, hence participants and contributors are selected because they are easy to access instead of randomisation.

A non-probability sampling does not follow the speculation of probability in the choice of sample elements. According to Kumar (2014:242), a non-probability is utilised when the number of elements in a population is not known or the elements cannot be identified individually. In non-probability sampling, there is no way the researcher can be certain or predict that each component or element of the population will be represented in the sample (Leedy & Ormrod 2013:214). Wagner, Kawulich and Garner (2012:92) postulate that non-probability sampling is entirely convenient for survey research. A convenience sampling technique that falls under the non-probability sampling approach was adopted for this study.

Convenience sampling is a type of nonprobability where members of the target population that meet a specific criteria such as availability at a given time, geographical proximity, easy accessibility or the willingness to participate are incorporated in the study (Showkat 2017:7). A convenience sampling technique was appropriate and suitable for this dissertation as it is convenient and the subjects employed are accessible and available to be tested as every subject is invited to part-take and it is also affordable, easy and the subjects are readily available (Angerhofer & Angelides 2006:29).

4.5.2 Target Population

A population as defined by Berndt and Petzer (2011:347) is “the collection of people or objects (elements) about which the researcher wants to make inferences and the total group of people who could be asked to participate in the research study.” According to McDaniel and Gates (2002:396), the population is the entire group of people about whom information is needed, which is also called universe or population of interest. The target population in this dissertation was composed of all the Procurement department personell in public health industries located in the Gauteng Province. All of these indivituals were selected because they have adequate and intensive knowledge regarding the procurement performance of public health entities.

4.5.3 Sampling frame

Mann and Richards (2012:1) refer to a sampling frame as a listing of population members that are used to create a random sample and may include individuals, households or institutions. It is necessary to rely upon a sampling frame to represent all the elements of the population of interest because a researcher rarely has direct access to the entire population of interest (Malhotra

2010:373). In line with the above definitions, public health care entities within the Gauteng Province were chosen for this study because of their proximity with the researcher that helped the speed of data collection. In this dissertation, the sample frame was drawn from a list of Public health entities in the Gauteng Province and the sample frame for this study was collected from the National Health Research Database (NHRD) of South Africa. The next section discusses the sampling techniques used to determine the sample size of 350 participants used in this study from the sampling frame.

4.5.4 Sampling size

Sample size determination is the process of selecting the number of replicates or observations to include in a statistical sample. Zikmund (2010:519) defines a sample size as the number of people, animals, patients and specified circumstances that are situated in a population. The sample size is only suitable if it enables the researcher to make an indisputable judgement that a statistical result is correct to a chosen degree of error and has sufficient power to detect a specified meaningful effect (Malone, Nicholl & Coyne 2016:21). According to De Vos, Strydom, Fouché and Delport (2011:224), the smaller the population, the bigger the percentage of that population needs to be sampled and vice versa. However, larger samples enable researchers to make representative and accurate conclusions and to make more accurate predictions than in smaller samples.

In this dissertation, the final sample size might turn out to be much smaller than the actual designated sample size and if it happens it will be considered a non-response (Malhotra 2010:379). Before anticipating the right sample size, a pilot study is carried out in order to make an effort to predict a very suitable, better yet the exact sample size for the full-scale project as well as to improve various aspects of the study design. In this study, a sample size of 200 respondents was estimated and 200 questionnaires were distributed whilst 150 questionnaires were valid including the pilot testing. In determining the sample size for this study, the researcher applied historical decisions based on what numbers previous studies have applied. Researchers such as Budak and Rajh (2014:12), Field (2013:156), Oloo, Atambo and Muturi (2017:1902) and Chegugu and Yusuf (2017:16) used sample sizes ranging from 200-500 in their various studies on SME. Based on these, the sample size for this present study is pegged at N =200 respondents. This sample size will be suitable for Smart PLS 3 in data analysis.

Table 1:Determining the sample size

Year	Authors	Scope of the study	Sample size used
2014	Budak and Rajh	The Public Procurement System: A Business Sector Perspective.	309
2013	Field, A	Discovering statistics using IBM SPSS statistics and sex and drugs and rock &roll.	320
2017	Oloo,A.O, Atambo,W. & Muturi,W.	Effects of procurement practices on the performance of public hospitals in Kenya: a comparative study of hospitals in Homabay and Kisii counties	279
2017	Chegugu, N. R & Yusuf, K. G	Effect of electronic procurement practices on organisational performance in public hospitals in the country government of Uasin Gishu, Kenya	367

4.6 QUESTIONNAIRE DESIGN AND DATA COLLECTION METHOD

In the following section, this dissertation looked into other methods of collecting data with a particular reference to questionnaire design which forms an integral part of the data collection technique utilised.

4.6.1 Questionnaire design

Saunders *et al.*, (2016:437) define a questionnaire as a general term used to describe all methods of data collection in which all participants are asked to respond to the same question in a predetermined pattern. Shammout (2007:107) refers to a questionnaire as a ‘reformulated written set of questions to which respondents record their answers and is usually within the closely defined alternatives’. Structured questionnaires can collect large amounts of information from a large number of respondents and results can be easily and quickly quantified (Feinberg, Kinnear & Taylor 2012:264). As per Martins, Loubser and Van Wyk (2002:216), there are three main

reasons for designing a questionnaire which are: (i) to facilitate the collection as well as analysis of the data., (ii) to maximise the participation and cooperation of the target respondents and (iii) to maximise the relevance and accuracy of the data collected.

For this study, the questionnaire consisted of five sections. Section A solicited participants' background information. Section B comprised questions on supplier selection practices. The questions used in this section were adapted from Tawfik, Tarek and Mady (2014:426). Section C comprised questions on supplier risk management. The questions used in this section were adapted from Satyendra and Anil (2014:1039). Section D comprised questions on supplier commitment. Questions in this section were adapted from studies conducted by committed (Abdul-Muhmin 2005:627). Section E comprised questions on procurement performance. The questions used in this section were adapted from Tarek *et al.*, (2014:426). Section A consisted of dichotomous and multiple-choice type questions. Sections B to E consisted of 5-point Likert scale questions anchored on 1= strongly disagree to 5= strongly agree. Five-point Likert scaled questions are useful because they are easy to construct and administer and participants find them easier to use (Bradley 2010:111).

According to Aaker, Kumar and Day (2000:275), "Likert scale is the process of creating a continuum on which objects are located according to the amount of the measured characteristic they possess". A Likert scale is used because it is faster and easier for the respondent to complete; it makes the response items standard and comparable. Also, it can be used to assess respondents' characteristics such as attitudes, beliefs, opinions and perception; the questions are easy to code and analyse as each answer has a value attached to them. Besides, interviewed bias is reduced and questions can be administered more quickly (Cooper & Schindler 2014:421). The scale items for the questionnaire are attached in Appendix 1. Table 2 shows the research constructs, the research measuring items adapted as well as the original measuring items by researchers in the related field.

Table 2: Measurement Scales and sources

RESEARCH CONSTRUCTS		MEASUREMENT ITEMS (ORIGINAL)	RESEARCH MEASUREMENT ITEMS (ADAPTED)
Supplier Selection	SS1	The Company's Selection process is competitive and fair	The hospital's Selection process is competitive and fair
	SS2	The Company's Selection process can obtain the best value for money in its supplies	The hospital's selection process can obtain the best value for money in its supplies
	SS3	The Company's practices transparency in supplier selection	The hospital practices transparency in Supplier/Tender selection
	SS4	The Company's Selection process exhibit honesty and Accountability	The hospital's selection process exhibits honesty and Accountability
	SS5	The companies follow a code of ethics when it comes to their Supplier Selection activities	The hospital follows a code of ethics when it comes to its supplier/tender selection activities

RESEARCH CONSTRUCTS		MEASUREMENT ITEMS (ORIGINAL)	RESEARCH MEASUREMENT ITEMS (ADAPTED)
Supplier Risk Management	SM1	We avoid unreliable suppliers, we choose robust suppliers with high quality	We avoid unreliable tenders, we choose robust tenders with high quality
	SM2	We check suppliers business continuity plan at the time of supplier selection	We check tenders business continuity plan at the time of supplier selection
	SM3	We make production and inventory plans jointly with suppliers	We make production and inventory plans jointly with our tenders
	SM4	We avoid suppliers in politically and geographically unstable region	We avoid tenders in politically and geographically unstable region
	SM5	We do invest in supplier development	We do invest in tender development

RESEARCH CONSTRUCTS		MEASUREMENT ITEMS (ORIGINAL)	RESEARCH MEASUREMENT ITEMS (ADAPTED)
Supplier Commitment	SC1	We always pay our suppliers on time	We always pay our tenders on time
	SC2	Our suppliers provide the right quantity and	Our tenders provide the right quantity and

		quality of goods and services	quality of goods and services
	SC3	Our suppliers deliver products on-time	Our tenders deliver products on-time
	SC4	The procurement costs of our suppliers' products are highly competitive	The procurement costs of our suppliers' products are highly competitive
	SC5	We have no intentions to change our current Suppliers	We have no intentions to change our current Tender/s

RESEARCH CONSTRUCTS		MEASUREMENT ITEMS (ORIGINAL)	RESEARCH MEASUREMENT ITEMS (ADAPTED)
Procurement performance			
	PP1	Suppliers can deliver at the right time	Our tenders can deliver at the right time
	PP2	Suppliers can deliver the right quality	Our tenders can deliver the right quality
	PP3	Suppliers can deliver at the right price	Our tenders can deliver at the right price
	PP4	Suppliers can deliver the right quantity	Our tenders can deliver the right quantity
	PP5	Our customers are satisfied with our goods/services	Our customers are satisfied with our goods/services

4.7 DATA GATHERING PROCEDURE

Three research assistants with good knowledge of the study environment and experience in the administration and collection systems were selected to gather the data, together with self-administration technique to facilitate good response frequency. The data collection exercise started in November 2019 and lasted through February 2020. The data gathering process covered three months. This study ensured that a maximum of 5 minutes was used in responding to the questionnaires by making use of short and coherent sentences. Procurement managers and employees within the procurement department are the people allowed to provide answers to the questionnaires since they possess background knowledge of this study that is based on drivers of procurement performance in the public health industry in Gauteng province.

4.7.1 Ethical considerations

According to Johnstone (2009:15), ethics refers to a system of principles that can critically change previous considerations about choices and actions. Punch (2014:36) defines research ethics as “a branch of applied ethics focused on the specific contexts of planning, conduction, communicating and following up research”. It represents the principles that detail and clarify the manner under which research is conducted. Ethical procedures exemplified in this study are explained below.

4.7.1.1 Informed consent

One of the major ethical issues in conducting research is informed consent. According to the Office for the Protection of Research Subjects (2017:3), informed consent is a discretionary agreement to take part in the research. Informed consent seeks to incorporate the rights of autonomous individuals through self-determination (Fouka & Mantzorou 2011:4). It also seeks to prevent assaults on the integrity of the patient and protect personal liberty and veracity. Informed consent is not only a form that is signed but is a process, in which the participant has an understanding and overview of the research and its risks (OPRS 2017:3) Informed consent is essential before enrolling a participant and ongoing once enrolled.

To achieve a good response from research participants, a covering letter with details of the research title and purpose, together with the Vaal University of Technology logo accompanied the research questionnaires. Through the letter, the researcher appealed for the consent of the research participants, who in return responded amazingly, knowing fully well that the research is purely for academic purposes.

4.7.1.2 Voluntary Participation

Voluntary participation and no coercion as implied by the principle of informed consent, participation must be voluntary and not subject to any coercion or threat of harm for non-participation (Vanclay, Baines & Taylor 2013:247). Non-coercion does not mean that there should not be any compensation for participation. However, any compensation should correspond with the amount of time and normal income expectations of the participants and should not be immoderate such that it would lead to inappropriate inducement or bribes.

Respondents were made to understand that their decision to participate in the survey is essential for the progress of the study but that their participation is voluntary. Respondents were given

sufficient time to complete the questionnaire. Occasions abound in the data gathering process wherein the researcher had to walk away from an intended respondent who did not feel comfortable providing the needed information in the questionnaire.

4.7.1.3 Right to personal privacy and Confidentiality

Confidentiality and right to privacy refer to the treatment of information that an individual has disclosed in a relationship of trust and with the assumption that it will not be disclosed to others without permission in ways that are inconsistent with the understanding of the original disclosure (UCI Office of Research 2018:1). Wiles, Crow, Heath and Charles (2008:418) state that confidentiality means not disclosing any critical information extracted from an interviewee, deliberately or accidentally, in ways that might identify an individual.

This study ensured that participants' rights to personal privacy were maintained throughout the data collection by not requesting any personal phone number(s) and e-mail(s) of the respondent(s). Importantly, the researcher ensured that the structure and wording of the questionnaire were formal and that information that might deter the confidence of the respondents in the process was removed.

4.7.1.4 Protection from harm

Protection from harm is more than implementing and developing plans, policies and responses to incidents that have previously occurred. Protection from harm is a legal and moral commitment to respect, support and value the dignity and worth of a person (Intellectual development disabilities 2016:1). Researchers must ensure that participants who take part in research will not be caused distress (Mcleod 2015:1). Participants must be protected from physical and mental harm, meaning that participants must not feel embarrassed, frightened, offended or even harmed.

Respondent's right of participation was protected from any circumstance capable of causing emotional or physical harm and from any kind of discomfort. The data collection process was undertaken at the best comfort state of the respondents. Hence, the data gathering process was stopped at any point the respondents felt uncomfortable. Importantly, respondents that wished to provide answers to the questionnaires on a later date were allowed to do so.

4.8 DATA PROCESSING METHOD

Once the fieldwork was completed, data for editing, coding and final analysis was prepared. Zikmund and Babin (2010:491) stipulate that after the gathering of data, it may not be in a ready state for analysis. Further, they stipulated that there might be errors and faults that might need to be corrected first. An array of research studies highlights the importance of preliminary preparation of data which includes editing the data, coding, classification and tabulating the responses into frequencies or tables before the data are analysed using statistical techniques (Kothari 2004:122; Saunders, Lewis & Thornhill 2009:46 & Stangor 2014:346). The two major phases of data preparation, which have been employed in this study, were data editing and coding. Editing and coding are addressed in this section while classification and tabulation are discussed in the next section.

3.8.1 Editing

It is expected that respondents can make errors in completing questionnaires, hence, double-checking for possible errors in data processing is a crucial exercise through a process called editing (Motaung 2016:55). Editing as explained by Sam and Sam (2011:178) is the process of assessing and adjusting the raw data collected in interviews or questionnaires to detect mistakes and omissions and to see that they are corrected and the schedules prepared for tabulation. Further, Zikmund and Babin (2010:493) define editing of data as “the process of checking the completeness, consistency and legibility of data and making the data ready for coding and transfer to storage”. Therefore, completed questionnaires were examined or inspected closely and thoroughly to ensure that the data generated is accurate and consistent with the intent of the question and other information in the survey, uniformly entered and arranged to simplify coding and tabulation.

3.8.2 Coding

According to Jonker and Pennink (2010:139), coding is “the process of breaking down, scrutinising, comparing, conceptualising and categorising research data, which will be grouped into categories”. Section A (biographical information) of the questionnaire was also hand-coded from question A1 to A4 by allowing numbers to each response, for example, gender was coded (1=male and 2=female). The pre-coding procedure was used throughout the questionnaire by providing a set of response options to the respondents and by assigning a code number to each respective question and response of Sections B and C of the questionnaire.

For this study, a codebook was prepared to successfully enter the information from the research questionnaire into a format that SPSS can understand. In this process, the researcher defines and labels each of the research variables such as demographic profile, supplier selection, risk transfer, risk sharing, supplier commitment and procurement performance and assigns identification numbers to each of the possible responses. Table 3 shows the example of a codebook for this study. For this study, a codebook was prepared to successfully enter the information from the research questionnaire into a format that SPSS can understand.

Table 3: Coding book

Variable	SPSS variable name	Coding instructions
Identification number	ID	Number assigned to each survey
1. Please indicate your Gender	A1	1. Male 2. Female
3. Educational background	A4	1. Junior certificate 2. Senior certificate 3. National Diploma 4. Degree 5. Postgraduate qualification 6. Other (Specify)

Supplier Selection Risk	SS	1 = Strongly disagree
Sharing	SM	2 = Disagree
Supplier risk management	SC	3 = Moderately agree
Supplier Commitment	PP	4 = Agree
Procurement performance		5 = Strongly agree

In the first column of Table 3, the names of the variables are spelt out fully rather than in computer talk. In the second column, the variables abbreviated name that will appear in SMART-PLS are indicated and the third column contains the detail on how the researcher coded each of the responses obtained for this research by assigning a numerical code before it is computed into SMART-PLS.

4.9 DATA ANALYSIS AND STATISTICAL APPROACH

The focus of this section is to describe data analysis mechanisms given the study objectives and hypothesis. According to Sarantakos (2013:417) converting collected data into numerical and readable form as well as analysing results is of utmost importance in any quantitative study. The main purpose of statistical analysis is not restricted to organising data into tabular forms and drawing graphs but also to explain terms and statements and refine concepts in the research study, discover what is vital to know and deciding on a form of communicating observations (Fox & Bayat 2007:106).

In this study, the first process to achieving this is through the screening of data. The questionnaire that was not properly answered was removed. Then, this was followed with the coding of the data into an excel spreadsheet and followed up with data cleaning to ensure comprehensive entry of the raw data. From the excel workbook, data was imported into SMART PLS-3 for applying descriptive statistics on SMEs respondent's demographic summary. This procedure was then followed with Factor Analysis (FA) using Principal Component Analysis (PCA). Also, in the next phase of the analysis, the researcher conducted Path Modelling using the SMART –PLS 3.

4.9.1 Descriptive statistics

Descriptive statistics methods as defined by De Vos *et al.*, (2011:251) are “used to describe the distribution (or spread) of a sample or population across a wide range of variables using all four levels of measurement namely nominal, ordinal, interval and ratio measurements”. They are used to traverse the collected data, provide an overview of observations found in the data explain and clarify the data (Awang, Muhammad & Sinnaduai 2012:42). The basic application of descriptive statistics are measures of central tendency, which comprise the mean, median, and mode and measures of dispersion that include variances and standard deviation (Saunders *et al.*, 2016:528). This study utilised descriptive statistics to analyse and interpret data sets in the form of charts and tables. All these are further explained below.

4.9.1.2 Charts and tables

Frequency distribution tables and charts were utilised to make the findings of this study meaningful. This also includes pie charts and bar charts to show similarities, differences and trends originating from the data sets. The demographic frequency result for the public health care sectors in this study was presented in tables and charts.

4.9.1.3 Mean and standard deviations

As defined by Picardi and Masick (2014:180), mean is “a measure of central tendency that measures the average value in a given distribution”. Means are usually applied when considering ratio/interval variables (Bryman *et al.* 2014:318). Standard deviation, on the other hand, is the instrument that estimates the average difference between each score and the spread of the dataset around the mean (Bernstein, Pooley, Cohen, Gouldthorp, Provost, Cranney & Penner 2013:52). These measures -mean and standard deviation- enable the researcher to compare the distribution of one variable with another.

4.9.1.4 Correlation analysis

Correlation analysis as defined by Bryman and Cramer (2011:210) is the establishment of a benchmark that assists in measuring the strength of a given relationship. Correlation can only be realised in an instance where an increase or decrease in one variable causes an increase or decrease in one or two other variables, following a predictable pattern (McBurney & White (2009:399). The presumption is that the changes in one variable influence the changes in another (Gates 2010:448). It is very vital to examine the statistical significance of a computed correlation

coefficient to determine to what degree will the coefficient be found in the population (Bryman 2012:349). In this study, coefficient correlation is used to assess the strength of the relationship between supplier selection, risk transfer and risk sharing, supplier selection and supplier commitment, product quality and buyer-supplier commitment, supplier commitment and procurement performance and the public health care sectors procurement performance.

4.10 RELIABILITY

According to Collis and Hussey (2014:217), reliability is the ability of a measuring instrument to produce consistent results. Additionally, McDaniel and Gate (2010:140) define reliability as “the consistency with which a measure produces the same results with the same or comparable populations”. There are different types of reliability. However, for this study, a Cronbach’s alpha was used to test the internal consistency of the measuring scale. Furthermore, composite reliability (CR) and average value extracted (AVE) through confirmatory factor analysis (CFA) were also used to determine the internal consistency of the scale. The reason behind this is because Cronbach’s alpha assumes that different indicators have equal factor loadings and error variances but CFA takes into consideration the differences among the existing indicators and does not assume equal weight measures (Kern 2011:56).

According to Pallant (2016:6), a Cronbach’s alpha coefficient is commonly used in measuring the coefficient of reliability and normally has a value range from zero to one. A value of 0.40 to 0.60 designates moderate internal consistency reliability and a value of 0.60 to 0.80 indicates substantial internal consistency reliability (Fox & Bayat 2007:125). Pietersen and Maree (2007:216) point out that when the items of the scale strongly correlate with each other, they are said to have high internal consistency with an alpha coefficient of close to one. Guidelines to Cronbach’s alpha coefficient are expressed in Table 4

Table 4: Guidelines to Cronbach's alpha coefficient

Cronbach's alpha coefficient	
1.00	A perfect correlation
0.80-0.99	A high correlation
0.60-0.80	A substantial correlation
0.40-0.60	A reasonable (moderate correlation)
0.20-0.40	A low correlation

0.00-0.20	A very low correlation or no correlation at all
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Source: Fox and Bayat (2007:125)

4.11 VALIDITY

McBurney and White (2009:173) state that validity is “an indication of accuracy in terms of the extent to which a research conclusion corresponds with reality”. Further, Drost (2011:114) explains that validity is concerned with the significance of the research elements and describes the extent to which an instrument accurately measures the target it was designed to measure. In quantitative data, validity might be improved through appropriate instrumentation, cautious sampling and suitable statistical treatments of data (Cohen & Gohan 2007:133). There are three main approaches to assess a measuring instrument namely content validity, convergent validity and discriminant validity (Sekaran & Bougie 2009:159). All of these approaches are discussed below.

4.11.1 Face Validity

Face validity as explained by Thabane (2015:54) is a simple measure of validity but also the most innocuous measure of validity. According to Royce (2008:153), an instrument is said to have face validity when it appears to measure the intended construct. Face validity alone is insufficient to meet the accuracy of tests of validity. Rather, content and construct validity also need to be measured. Jones (2015:103) states that even though face validity does not tender the instrument to be adequately valid, it is important to establish it as it assists in establishing other components of validity and further ensures that the respondents are not subjected to answering questions that are irrelevant to the research study.

4.11.2 Content validity

Fink (2010:117) describes content validity as the extent to which a measure systematically and properly measures the skills or characteristics it is meant to measure. According to Kumar (2014:214), content validity is the extent to which questions or statements represent the issue they are supposed to measure. In this study, content validity was achieved through a conscious effort by the researcher to ensure that the wordings of the measuring instruments are kept simple and short to facilitate research participants’ comprehensibility. Content validity is assessed using simple, direct and non-technical terms to formulate the questions. The questionnaire was kept short and to the point to avoid respondent boredom, which may result in unanswered questions

4.11.3 Construct validity

Construct validity is the extent to which an instrument measures a characteristic that cannot be directly perceived, yet is presumed to exist based on patterns in respondents' behaviour (Leedy & Ormrod 2013:90; Ary, Jacobs, Sorensen & Walker 2014:31). Construct validity is centred on how well a measure conforms to theoretical expectations (Punch 2014:240). There are two types of construct validity namely discriminant and convergent validity. Discriminant validity shows that measures that should not be related are in reality not related. In construct, convergent validity focuses on establishing whether the measures that should be related are indeed in reality related (Wagner *et al.*, 2012:81). In this study, construct validity was explored by examining the relationship existing between the study variables such as the relationship existing between the factors. This study proposed as influencing the procurement performance in the public health care sector, for example, supplier selection, supplier risk management, supplier commitment and procurement performance).

4.12 SMART-PARTIAL LEAST SQUARES (SMART-PLS 3)

SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure as defined by Byrne (2013:76) is a multiplex technique used to test hypotheses of a study. Smart-partial least square 3 is used to test which hypothesis best explains and summarises the data collected (Wesley 2006:4). The main drive of Smart-PLS3 is to explore the underlying variance structure of a set of correlation coefficients (Sikhwari 2015:91). Smart-PLS 3 was used in this study to explain the hypothesised relationship existing between the research variables, supplier selection, risk transfer, risk-sharing and public health care sector procurement performance.

He, Zhu and Zhang (2013:687) recommended that the reliability and validity should be assessed through Smart-PLS3, therefore, the measurement scales of this study were accessed through the Smart- PLS 3. Factor analysis assessed through Smart – PLS 3 is crucial for an exceptional measurement model for the study, showcasing composite reliability (CR) and average variance extracted (AVE) which are vital for the reliability and validity assessment of the study constructs (Adil & Awais 2016:111).

4.13 CONCLUSION

This chapter focused on describing the research methodology also known as the research design of this study. Matters examined in this chapter are the different research philosophies such as positivism, critical realism, interpretivism, postmodernism and pragmatism and their ontological, epistemological and axiological positions. Further, this chapter outlined the descriptive survey design and quantitative research approach that was used in the study. The descriptive research of the study was highlighted, also the sampling design procedures which include discussions on the study population, the target population of the study, sampling techniques and the sample size for the study were discussed in detail. This chapter proceeded on the discussions of the data gathering techniques and the questionnaire design. The study measurement scales and their corresponding source(s) from which they were adopted and adapted into the study were explained thoroughly.

With regards to the data gathering procedures, different measures are undertaken to ensure the reliability, validity and readiness of the measuring instruments were examined equally. Among these measures are coding, tabulation, face and construct validity and internal consistency through Cronbach's alpha and composite reliability. The study concludes with the examination of confirmatory factor analysis (CFA) and structural equation modelling (SEM). The next chapter presents the findings of the empirical study. It includes reporting, analysis and interpretation of the research results related to the objectives of the study.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION

5.1 INTRODUCTION

The previous chapter focused mainly on the discussion of the research methodology, sampling design methods, data collection methods and the data analysis techniques employed in the dissertation. This current chapter is devoted to presenting the results together with the interpretation and discussion of the findings to address the investigation objectives handed over in the first chapter. The results of the study are related to the literature review showing how and the extent to which they support the postulations made in the literature review. This chapter commences with the discussion of the demographic profile of respondents. Thereafter, the perceptions of respondents towards the research constructs are discussed. This is succeeded by a discussion of the inferential statistics, which include the testing of the validity and reliability of the measurement scales using the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure as well as the results of the hypotheses tests. The chapter's closing sections provide a thorough discussion of the effects of each hypothesis test.

5.2 DESCRIPTIVE STATISTICS

According to Kaur, Stoltzfus and Yellapu (2018:60), descriptive statistics are utilised to summarise data in an well-put manner by describing the relationship amongst variables in a population or sample. Mgiba (2015:62) stipulates that descriptive analysis is conducted to deliver a thorough understanding of the nature of the respondents and it is usually depicted well with tables and charts. Rodrigues, De Lima and Barbosa (2017:620) stipulate that presenting descriptive statistics is enlightening as it permits the person who is reading to have an overview of the basic aspects of the data being analysed.

There were four sections that required respondents to provide certain demographic and biographic information, which served as the independent variables in this research. The variables were inclusive of gender, age, race and educational background. In this dissertation, the researcher made use of a pie chart and statistical explication (a deliberation of the results) on

biographic questions (Section A). An analysis of employees' profile is discussed thoroughly in the following sections.

5.3 DEMOGRAPHICAL DESCRIPTION OF THE SAMPLE

This section is covers the analysis of the public health care sectors' demographic data regarding their gender, age group, race and academic qualifications. This dissertation used pictorial evidence to display the information vividly from the statistical analysis. Figure 3 conveys the demographic description of the gender of respondents in the public health care sectors.

5.3.1 Gender

The percentages and frequencies about the respondents' gender are illustrated in figure 3

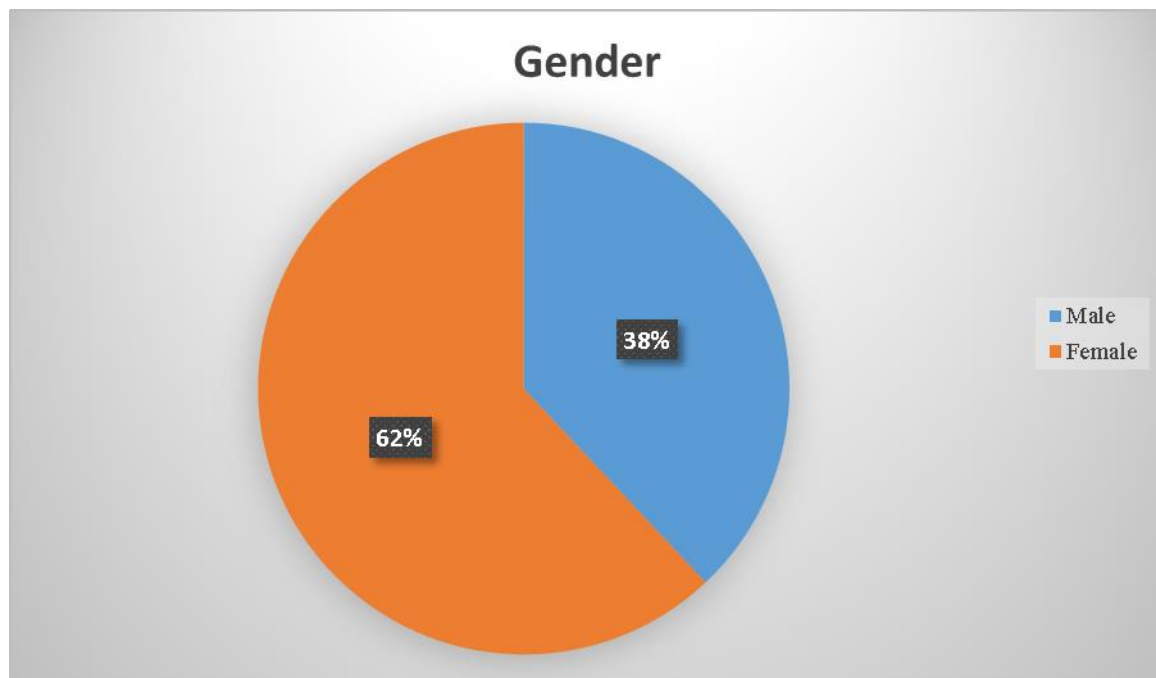


Figure 3: Respondents' gender

Figure 3 indicates an analysis of the gender of the respondents. The figure depicts that 62% of respondents were female and 38% were male. The above figure entails a remarkable difference between the frequencies of the female, as compared to the male. And as such, it can be concluded that the female group was the dominant category among the respondents operating in procurement function in the public health care industries.

5.3.2 Age

Figure 4 indicates the frequencies and percentages about the ages of respondents in the public health sector

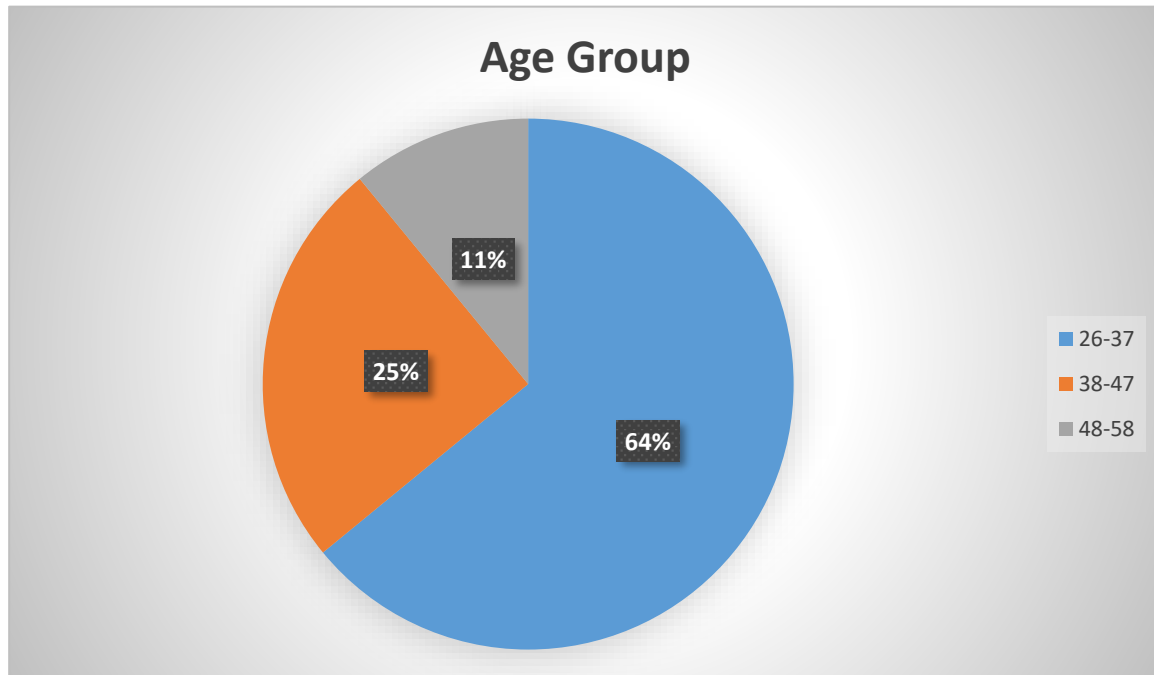


Figure 4: Age group

The results in Figure 4 stipulated that out of the 150 respondents who completed the questionnaire, 11 percent were aged between 48-58, while 25 percent were aged between 38 and 47 years. Further, the analysis shows that 64 percent of the respondents were between the age of 26 and 37. In light of these findings, and concerning the crucial variance in terms of ratios between the categories of this section, it could be suggested that the 26-37 and 38-47 categories were the dominant age group of the respondents, with the 26-37 group being the leading cohort of employees in the public health industries.

5.3.3 Race

Figure 5 indicates the frequencies and percentages about the race of respondents in the public health sector

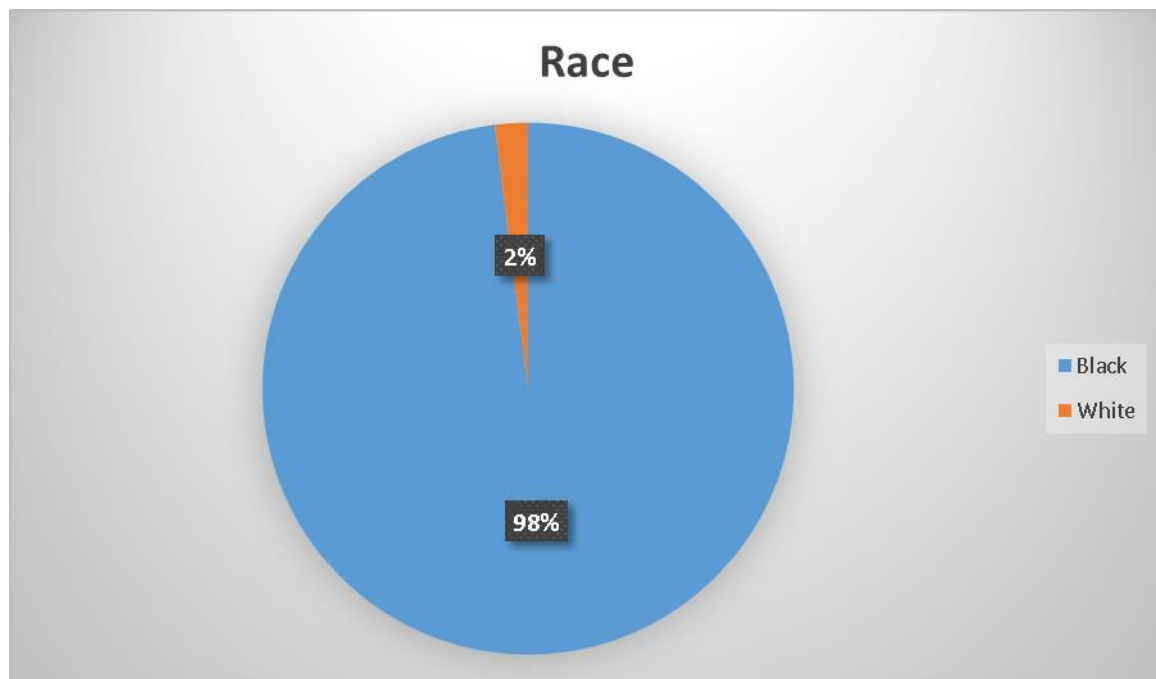


Figure 5: Racial profile of respondents

Figure 5 indicates the 150 respondents that participated in this study, an overwhelming majority of 98 percent were black, 2 percent were white and none was Coloured or Indian. Taking into account the history of inequality in our country, our government has instigated policies to forge ahead of the historically disadvantaged people. This stipulates that the affirmative action policy implemented by the government in South African is working, at least regarding race. As the consequence, the public sector, which is the custodian of the policy, takes the lead in ensuring that black people occupy positions that are perceived to be administrative.

5.3.4 Educational background

The frequencies and percentages for the respondents' highest qualifications are provided in Figure 6

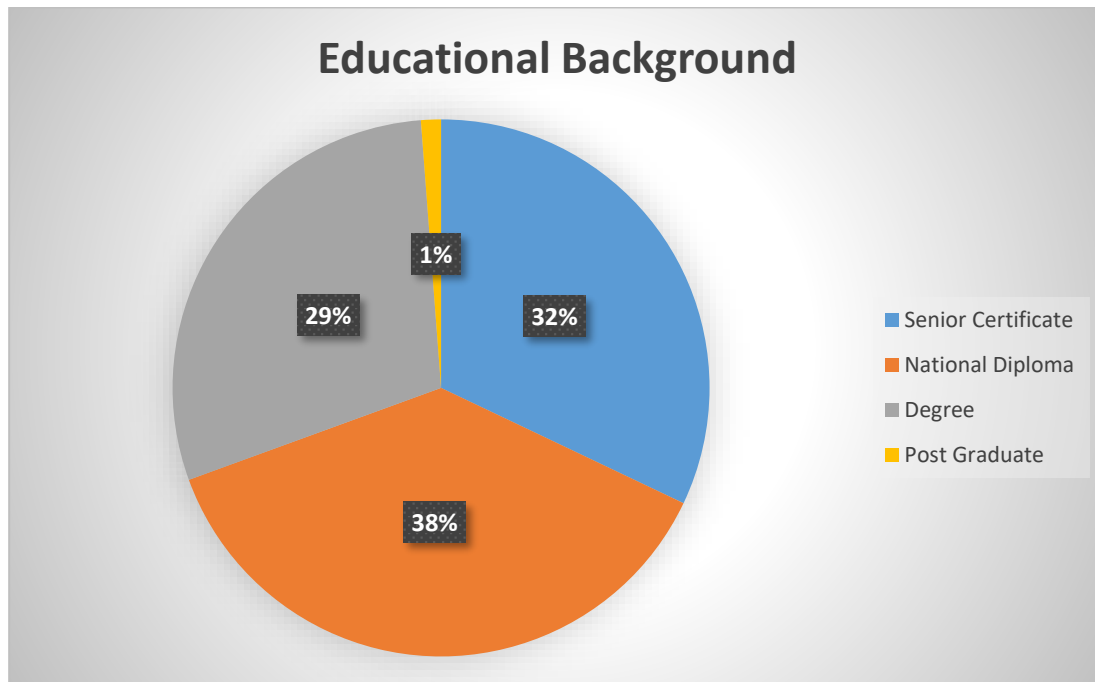


Figure 6: Qualifications of Respondents

Figure 6 indicated that out of the 150 respondents that answered the questionnaire, 32 percent were holders of senior certificates while 38 percent had diploma qualifications, 29 percent had degrees and 1 percent had postgraduate degrees. This vividly depicts that the majority of procurement personnel in the study have an essential qualification, which should permit them to execute their duties delicately. However, there are those respondents who have not advanced their qualifications. Reasons could be that there is a lack of support regarding incentives or it could also be that there is too much work and so employees cannot find the time to further their studies.

5.4 PERCEPTIONS OF RESPONDENTS TOWARDS THE DRIVERS OF PROCUREMENT PERFORMANCE IN THE PUBLIC HEALTH INDUSTRY IN GAUTENG PROVINCE.

This study tested associations between four factors, which are supplier selection, supplier risk management, supplier commitment and procurement performance. Before the relationships are tested, it is essential to determine the perceptions of respondents towards these constructs to attain a vivid picture of their degree of disagreement or agreement with the items in the measurement scales. The perception of respondents towards the factors is crucial as it provides in-depth knowledge and understanding of how the sampled public health care industries are operating in terms of each factor used in the study. This procedure is obedient and in check with

the first objective of the study, which focused on determining the drivers of procurement performance. These results are discussed through the mean score analysis of the measuring instruments. A lower mean score entails that participants disagree with the question, while a higher mean score signifies that the respondents agree with the question presented before them. In this dissertation, mean scores below 3% are regarded as low while below 3% are regarded as high.

Table 5: Supplier selection

Items	Description	N	Mean \bar{x}	Std. Deviation SD
SS-1	The hospital's selection process is competitive and fair	150	3.38	.807
SS-2	The hospital's Selection process can obtain the best value for money in its supplies	150	3.28	.802
SS-3	The hospital practices transparency in Supplier selection	150	3.30	.811
SS-4	The hospital selection process exhibit honesty and accountability	150	3.27	.840
SS-5	The hospital follows a code of ethics when it comes to its supplier selection activities	150	3.52	.859
Likert Scale: 5= Strongly agree; 4= agree; 3= Slightly agree; 2= disagree; 1= Strongly disagree				

Table 5 depicts that public health care respondents uphold the optimism that strategic supplier selection significantly influences public health sector procurement performance. The analysis revealed that the hospitals' supplier selection process is fair and competitive (\bar{x} = 3.38; SD = 0.807). The analysis displayed that the selection process can obtain the best value for money in its supplies (\bar{x} = 3.28; SD= 0.802) and that they practise transparency in their supplier selection (\bar{x} = 3.30; SD = 0.811). Also, the analysis executed that the selection process exhibits honesty and accountability (\bar{x} = 3.27; SD = 0.840). Finally, the analysis suggests that respondents further agreed that the hospital sticks to the code of ethics when it comes to its supplier selection activities (\bar{x} = 3.52; SD = 0.859). These findings show that an effective procurement performance in the public health industry is characterised by a significant degree of supplier selection. This is very vital as supplier selection has been established as a major factor that controls and determines the success of any organisation (Jain, Sungaiah, Sakhuja, Thoduka & Aggarwal 2016:555; Ahimbisibwe 2014:89; Li & Zabinsky 2011:344). Therefore, it could be concluded that nurturing and developing suppliers may be seen as a key strategy that may foster the procurement performance of an organisation.

Table 6: Supplier risk management

Items	Description	N	Mean \bar{x}	Std. Deviation SD
SM-1	We avoid unreliable suppliers; we choose robust suppliers with high quality	150	3.71	.721
SM-2	We check suppliers business continuity plan at the time of supplier selection	150	3.11	.806
SM-3	We make production and inventory plans jointly with our suppliers	150	3.04	.851
SM-4	We avoid suppliers in the politically and geographically unstable region	150	2.46	.874
SM-5	We do invest in supplier development	150	2.32	.987

Likert Scale: 5= Strongly agree; 4= agree; 3= Slightly agree; 2= disagree; 1= Strongly disagree			

Table 6 depicted the mean score analysis of the supplier risk management. Based on the analysis, public health care sector respondents moderately agree with the perception that supplier risk management is integral in relationship with procurement performance. The respondents agreed that they avoid unreliable suppliers and they choose robust suppliers with high quality (\bar{x} = 3.71; SD = 0.721). They agreed with the notion that they check suppliers business continuity plan at the time of supplier selection (\bar{x} = 3.11; SD = 0.806). The respondents in the public health care sector also indicated that production and inventory plans are a result of a collaborative agreement with suppliers (\bar{x} = 4.10; SD = 0.835). However, they slightly disagree that they avoid suppliers in politically and geographically unstable region (\bar{x} = 2.46; SD = 0.874). Finally, respondents slightly disagree that they invest in supplier development (\bar{x} = 2.32; SD = .987). These results imply that respondents moderately agreed that supplier risk management is vital in sustaining procurement performance in the public health care sector.

Table 7: Supplier Commitment

Items	Description	N	Mean \bar{x}	Std. Deviation SD
SC-1	We always pay our suppliers on time.	150	4.04	.742
SC-2	Our suppliers provide the right quantity and quality of goods and services.	150	3.43	.735
SC-3	Our suppliers deliver products on time.	150	3.30	.833
SC-4	The procurement costs of our suppliers' products are highly competitive.	150	3.52	.875

SC-5	We have no intentions to change our current suppliers.	150	3.18	.858
Likert Scale: 5= Strongly agree; 4= agree; 3= Slightly agree; 2= disagree; 1= Strongly disagree				

Table 7 presents an analysis of the supplier commitment mean score. Judging and commenting about the table, the discernment of most of the respondents is that supplier commitment has a positive influence on the procurement performance in the public health care industry. The analysis revealed that respondents agreed that they always pay their suppliers on time ($\bar{x} = 4.04$; $SD = .742$). Respondents also agreed that their suppliers provide the right quality and quantity of goods and services. ($\bar{x} = 3.43$; $SD = .735$). Further, they agreed that their suppliers deliver products on time ($\bar{x} = 3.30$; $SD = 0.833$). Besides, the respondents revealed that the procurement costs of their suppliers' products are highly competitive ($\bar{x} = 3.52$; $SD = 0.875$). Finally, respondents stated that they have no intentions to change their current suppliers ($\bar{x} = 3.18$; $SD = 0.858$). Suppliers' commitment and performance at the required level have effective effects on the organisation's overall performance as pointed out by Kaushik and Kaushik (2014:191). Additionally, they elaborated that sufficient supplier commitment contributes to cost-effectiveness, averaging between 8 to 12 percent of total procurement costs in an organisation. In light of this, it could, therefore, be suggested that public health entity suppliers' abilities and capabilities to consistently meet their buyer's expectations influence positively the procurement function to achieve the stated benefits.

Table 8: Procurement Performance

Items	Description	N	Mean \bar{x}	Std. Deviation SD
PP-1	Suppliers can deliver at the right time	150	3.37	.753
PP-2	Suppliers can deliver the right quality	150	3.34	.801

PP-3	Suppliers can deliver at the right price	150	3.55	.798
PP-4	Suppliers can deliver the right quantity	150	3.30	.744
PP-5	Our customers are satisfied with our goods/services	150	2.94	.803
Likert Scale: 5= Strongly agree; 4= agree; 3= Slightly agree; 2= disagree; 1= Strongly disagree				

An analysis of public health care sector procurement performance is presented in table 8. Public health entities agreed that suppliers can deliver at the right time ($\bar{x} = 3.37$; $SD = 0.967$). They also agreed that suppliers can deliver the right quality ($\bar{x} = 3.34$; $SD = 0.801$). The analysis further showed that public health entities agreed that suppliers can deliver at the right price ($\bar{x} = 3.55$; $SD = 0.798$) while upholding the fact that suppliers are also able to deliver at the right quantity ($\bar{x} = 3.30$; $SD = 0.744$). Finally, the respondents indicated how satisfied customers are with the goods and services ($\bar{x} = 2.94$; $SD = 0.803$), which depicts that customers are slightly dissatisfied with the goods/services. The following section presents the measuring scale internal consistency.

5.5 MEASURING SCALE INTERNAL CONSISTENCY (RELIABILITY TEST)

The SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure was employed to read and analyse the data. In this current study, three tests, that is, Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) were conducted to assess the reliability of the measures. All three tests needed to be conducted to discover the measure of reliability. CR and AVE tests seek to validate and confirm the presence of reliability while the Cronbach's Alpha test is intended to certify if there is reliability. Table 9 below provided the results for the tests which will be elaborated on hereafter. The scale item column indicates the mean value regarding responses otherwise described above as well as respective standard deviation values.

Table 9: SMART-PLS results

Research construct	Indicators	Descriptive statistics		Reliability statistics			Validity statistics		
		Mean (\bar{x})	SD	Alpha (α)	<i>Rho</i>	CR	AVE	Factor loading	Item-total correlation
Supplier selection	SS1	3.38	.807	.902	0.898	0.923	0.706	0.867	.777
	SS2	3.28	.802					0.761	.634
	SS3	3.30	.811					0.878	.806
	SS4	3.27	.840					0.897	.829
	SS5	3.52	.859					0.837	.742
Supplier risk management	SM1	3.71	.721	.856	0.903	0.919	0.696	0.765	.568
	SM2	3.11	.806					0.836	.684
	SM3	3.04	.851					0.881	.771
	SM4	2.46	.874					0.764	.699
	SM5	2.32	.987					0.738	.650
Supplier commitment	SC1	4.04	.742	.889	0.858	0.898	0.638	0.693	.577
	SC2	3.43	.735					0.860	.763
	SC3	3.30	.833					0.898	.813
	SC4	3.52	.875					0.832	.734

	SC5	3.18	.858					0.872	.776
Procurement Performance	PP1	3.37	.753	.895	0.902	0.928	0.721	0.828	.718
	PP2	3.34	.801					0.861	.773
	PP3	3.55	.798					0.790	.686
	PP4	3.30	.744					0.871	.787
	PP5	2.94	.803					0.847	.748

Note: Alpha (α) = Cronbach's alpha; Rho= Dillon-Goldstein's *rho*; CR=Composite reliability; AVE=Average variance extracted.

5.5.1 Cronbach's alpha Test (α)

Cronbach's alpha coefficient was utilised to indicate the internal consistency of the measuring items. In table 9, the Cronbach's alpha values stipulated are as follows; 0.902, 0.856 and 0.889,0.895 respectively. These three values propose acceptable internal reliability as they all surpassed the 0.7 threshold for higher reliability (Shamsudin, Ali, Ali & Shabi 2019:528). In addition to Cronbach's alpha, the inter-item correlation was employed in improving the internal consistency of the constructs. A positive and a higher inter-item correlation revealed that the items are consistent in measuring the same fundamental attributes, therefore, suggesting a statistical bond with items of measurement. The values of item-total correlation as indicated in table 9 ranges from 0.5 to 0.8 approximately, which is, therefore, above the cut-off point of 0.3 as advised by Dong, Jin, Oerlemans, Yu, Yang, Zhu & Xu (2020:3); Daryaafzoon, Amini-Tehrani, Zohrevandi, Hamzehlouiyen, Ghotbi, Zarrabi-Ajami & Zamanian(2019:455). The Cronbach's Alpha results indicated in Table 9, therefore, validate the reliability of measures used in the current study. The following section discusses composite reliability.

5.5.2 Composite reliability test (CR)

Composite reliability is regarded as statistical procedure which is utilised to examine the internal consistency of the measuring scale. As explained by Koksalmis (2019:5), "composite reliability represents the shared variance among a set of observed variables that measures an underlying construct". Composite reliability is calculated from the square of the summation of the factor loadings, the square of the summation of the factor loadings and summation of error variances (Hatcher & O'Rourke 2013:236) and the formula is presented below:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)}$$

According to Shahbaz, Kazi, Othman, Javaid, Hussain and Rasi (2019:3894), a higher reliability of 0.7 and above stipulates a very good reliability and suggests that the variable scales are consistently measuring the measurement model. For this dissertation, the internal consistency was assessed using the SMART-partial least squares (SMART-PLS 3) to reveal that the composite reliability for all the measuring constructs was higher than the 0.7 threshold, which suggests that each measuring construct has an impressive reliability.

5.5.3 Average variance extracted (AVE)

The average variance extracted (AVE) is defined by Martino, Napoli, Esposito, Prilleltensky and Arcidiacono (2018:7) as an estimate that reveals the total amount of variance in the measurement items used to measure a latent variable. The average variance extracted is more conservative than composite reliability and Cronbach's alpha and is utilised to evaluate and assess the discriminant validity (Gu, Guo, Liang, Lu Zhao, Liu and Long 2019: 5). A higher score of 0.50 and above represents the measuring construct and is treated as an indication of convergent validity. From table 9, the average variance extracted ranges from 0.638 to 0.721 and is accepted, hence they achieved the minimum acceptable value.

The formula below was used to calculate average variance extracted (AVE):

$$V_{\eta} = \Sigma \lambda_{yi}^2 / (\Sigma \lambda_{yi}^2 + \Sigma \epsilon_i)$$

AVE = (summation of the squared of factor loadings)/ (summation of the squared of factor loadings) + (summation of error variances). For this study, the construct reliabilities and the average variance extracted estimates reveal that the measuring scales are internally consistent.

5.5.4 Convergent Validity

Convergent validity is responsible for assessing whether the research factors namely supplier selection, supplier risk management, supplier commitment and procurement performance are loaded highly on their respective factors. According to Thoma, Cook, McGrew, King, Pulsipher, Yeo, Monnig, Mayer, Pommy and Campbell (2018:5), convergent validity is the extend to which the scale corresponds with other measures of the same construct, meaning that, the items in the same construct show similarities. The recommended factor loadings for convergent validity should be above 0.5 (Martino *et al.*, 2018:7). As indicated in Table 9, the factor loadings are all

above the recommended value ranging from 0.693 to 0.897. This stipulates acceptable individual item convergent in the validity of all scale items. Further, convergent validity was scrutinised using the composite reliability (CR) value for each construct, which should be above 0.7 as per Gu, Guo, Liang, Lu, Zhao, Liu and Long (2019:8). The composite reliability estimate exceeds 0.7 in In Table 9, providing enough information and evidence of convergent validity.

5.5.5 Discriminant Validity

According to Litson, Geiser, Burns and Servera (2017:31), discriminant validity is when measures of different characteristics (either by different methods or same methods) do not show much overlap. Hair, Hult, Ringle and Sarstedt (2014:18) stipulated that to describe if there is discriminant validity or not, it must be observed that the variable involved displays a higher loading on its construct than on other construct involved in the structural model. As recommended by Gu *et al.*, (2019:8), to check if there is discriminant validity, the correlation between the researches constructs is less than 1.0. As indicated in Table 10 below, the inter-correlation values for all paired latent variables are less than 1.0, therefore indicating that a discriminant validity is existing.

Table 10: Correlation between the Constructs

	Procurement performance	Supplier commitment	Supplier risk management	Supplier Selection
Procurement performance	0.840			
Supplier commitment	0.860	0.834		
Supplier risk management	0.616	0.665	0.799	
Supplier selection	0.600	0.613	0.643	0.849

5.6 PATH MODEL RESULTS

A Smart PLS version 3.0 was employed in this dissertation to generate the path coefficients for the proposed relationships modelled among the constructs. In addition, a bootstrap procedure that provided the t-values for each path estimate provided the significance of these coefficients. Figure 6 and Table 11 present the results of the PLS analysis on the structural model along with the path estimates and t-values.

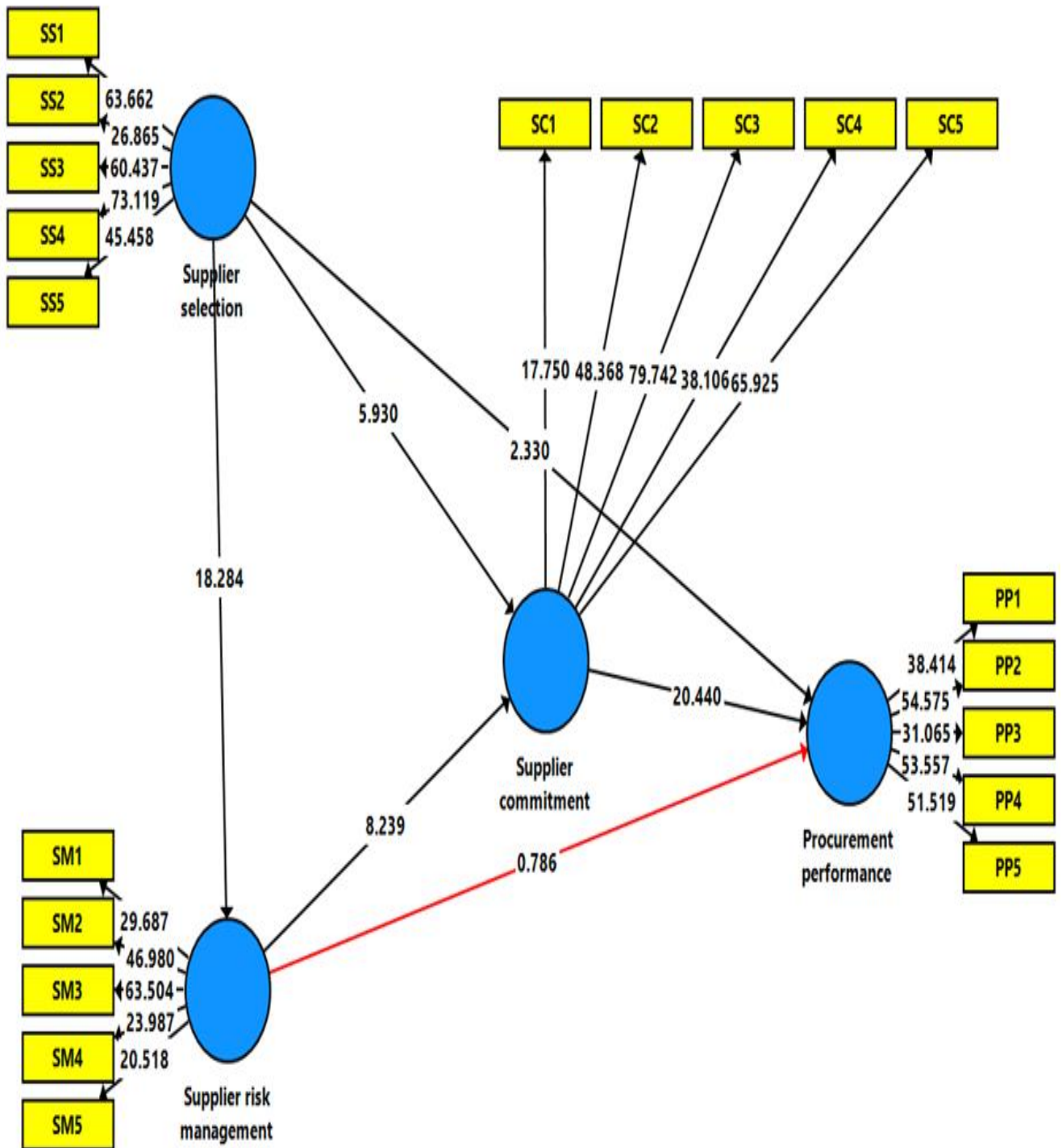


Figure 7: PLS 3.0 Bootstrapping analysis results

Table 11: Hypothesis Testing Results

Proposed path Relationship	HYPOTHESIS	Path Coefficient	P-VALUE	T-VALUE	OUTCOME
SS>SC	H1 (+)	0.316	0.000	5.930	Supported
SS>SM	H2 (+)	0.643	0.000	18.284	Supported
SM>SC	H3 (+)	0.461	0.000	8.239	Supported
SC>PP	H4 (+)	0.773	0.000	20.440	Supported
SS>PP	H5 (+)	0.013	0.020	2.330	Supported
SM>PP	H6 (-)	0.035	0.427	0.786	Rejected

Figure 7 and Table 11 presented the six hypothesised relationships, the t-statistics, path coefficients as well as the accepted level. The t-statistic value indicates whether the relationship is either notable or not. To ensure the significance of any relationship, at-statistic value should be above 1.96 and a p-value of ≤ 0.05 to designate strong relationship levels (Greenland, Senn, Rothman, Carlin, Poole, Goodman & Altman 2016:34; Garson 2016:20).

Out of all the six that were proposed, five were statistically significant and accepted. Hypothesis six is rejected as t-statistics > 0.5 .

5.6.1 Results after testing hypothesis 1

Hypothesis 1 stated that there is a significant and positive relationship between supplier selection and supplier commitment. This means that effective supplier selection practices in public health industries may stimulate the supplier's degree of commitment to the organisation. The dissertation accepted and supported the stated hypothesis (H1). This is because a moderate and positive significant relationship was observed between supplier selection and supplier commitment ($\beta = 0.316$; $p < 0.00$). Further, this result was supported by previous studies undertaken by some scholars such as Taherdoost and Brard (2019:1026) who posit that an

appropriate supplier selection procedure would improve profits, grow customer satisfaction, reduce purchasing costs, decrease product lead time, and strengthen the competitiveness and in turn, stimulates suppliers commitment. Kui-ran, Ji-ning and Ping (2012:43) further postulate that a mutual exchange of crucial and sensitive information and commitment among business partners contributes to a long-lasting relationship amongst them. Furthermore, in their investigation on the impact of supplier selection and relationship commitment among parties involved. Cheraghi, Dadashzadeh and Subramanian (2017:91) endorse that effective supplier selection practices are characterised by trust and integrity have a significant and positive influence on the supplier's abilities and capabilities to do a diligent job. Thus, effective supplier selection in the public health industry influences supplier commitment and is thus, a significant antecedent factor of supplier commitment.

5.6.2 Results after testing hypothesis 2

As depicted in Table 11, supplier selection has a significant and positive relationship with supplier risk management. This dissertation found this hypothesis to be accepted and supported. This decision is because there is a positive and strong association established between the two constructs ($\beta = 0.643$; $p < 0.00$). This result was supported by a study conducted by Taherdoost and Brard (2019:1029) concerning the significance of the stated relationships. As recommended by Zubar and Parthiban (2014:75), supplier selection is regarded as the key driver of supply chain management and all public health entities have become aware that to deliver exceptional customer satisfaction, they must focus on the entire value chain. The authors alluded that a healthy relationship between a buyer and a supplier is one of the most potent elements of superior value delivery and customer satisfaction. Moreover, Krishnaraju and Zubar (2018:6) conceded that good supplier management commences with the selection of suitable suppliers from a given pool followed by the effectiveness of supplier risk management in the public health industry. Given the stated results, it could be given that supplier selection is an effective driver of supplier risk management in the public health care sector.

5.6.3 Results after testing hypothesis 3

As depicted in Table 11, there was a significant and positive correlation between supplier risk management and supplier commitment ($\beta = 0.461$; $p < 0.00$). These findings validate that supplier risk management has a strong significant influence on supplier commitment in the public health industries. This finding has received massive academic support as portrayed by a study conducted by Kara & Firat (2018:1) who determined that supplier risk management has a positive and major bearing on performance appraisals in supplier commitment. Sillanpaa, Shahzad & Sillanpaa (2015:236) endorse the vital role that supplier commitment plays in improving

procurement performance. According to these authors, buying organisations, which in this case is public health industries, need to consider suppliers as virtual extensions that assist to motivate them and improve their performance. Moreover, effective risk management in place and suppliers' commitment and willingness to engage long-term partnerships has been described to be more efficient and effective in increasing their overall procurement performance in public health industries (Parker, Zsidisin & Ragatz 2008:71). Given the stated results, it could be expressed that supplier risk management is an effective driver of supplier commitment in the public health care sector.

5.6.4 Results after testing hypothesis 4

As depicted in Table 11, hypothesis four, which pertains to supplier commitment, has a significant and positive relationship with procurement performance. This dissertation found this hypothesis to be accepted and supported. This decision is based on the fact that there is a positive and strong association established amongst the two constructs ($\beta = 0.773$; $p < 0.00$). The finding validates that supplier commitment has a strong influence on procurement performance in the public health industry. Literature has supported the fact that suppliers' commitment is fundamental in ensuring an effective procurement performance in the public health industry (Jiwa, Tarigan, Siagian, Sutjipto, Wiliater & Panjaitan 2020:250; Nawi, Songappenm, Nadarajan, Ibrahim and Mustapha 2017:246). Besides, Umoh, Amah and Wokocha (2014:62) denote that public health entities whose suppliers have a high level of commitment show greater productivity and performance and lower levels of service delivery and retardation. Thus, it could be suggested that commitment amongst public health entities suppliers' is a vital element in influencing the level of procurement performance. As such, it is, therefore, logical to postulate that supplier commitment is indeed a principal factor of the procurement performance in the public health industry.

5.6.5 Results after testing hypothesis 5

Hypothesis 6 stated that there is a significant and positive relationship between supplier selection and procurement performance. This means that an improvement in supplier selection practices in the public health industry may stimulate their effectiveness of the procurement performance. The study accepted and supported the stated hypothesis (H6). This is because a positive but moderate significant relationship was observed between supplier selection and procurement performance ($\beta = 0.013$; $p < 0.020$). This result was supported by previous studies undertaken by some scholars such as Constantin and Valentina (2018:49); Kabuturaand and Mulyungi (2018:1739); Xu, Cooke, Gen and Ahmed (2017:710) who posit that suppliers are one of the essential forces that improve an organisations' procurement performance. Naibor and Moronge

(2018:362) claim that the significance of supplier selection is apparent from its effect and impact on the public health industries procurement performance and more precisely on the final product attributes such as design, manufacturability, quality and cost. Because of the stated results, it could be stipulated that supplier selection is an effective driving force of the procurement performance in the public health care sector.

5.6.6 Results after testing hypothesis 6

The relationships between supplier risk management and procurement performance were found not to be supported and insignificant as shown in Table 11. Thus, it could be elicited that there is little influence amongst the supplier risk management and procurement performance in the public health care sector. However, this appears as a contrasting view as opposed to a study that is conducted by Kamoni, Rotich and Ochiri (2018:8), which described that supplier risk management has a positive and significant influence on procurement performance. Buzzetto, Baulia and De Carvalho (2020:8) view supplier risk management as the main drive that facilitates and enables a long-term relationship amongst buyer-supplier to formulate and eventually improves the procurement performance of an organisation. The results of this dissertation do not conform to the general findings of previously established studies about the positive influence of the identified relation. However, it was also established that supplier risk management has a significant and positive relationship with supplier commitment, which in this case, is our mediator on the conceptual model. It could be suggested that this finding may, to a certain extent, indicate that supplier risk management without the mediating variable may not be that effective in the public health industry context.

5.8 RESULTANT CONCEPTUAL MODEL

When the findings of this dissertation are considered and integrated as a single predictor of procurement performance, a structure divulging the link between the three factors namely the supplier selection, supplier risk management and supplier commitment, their associated dimensions and procurement performance can be explicated. The structure entails the strength of the connection that exists between each dimension of the three factors and procurement performance. In addition, the structure reveals the mean scores for the three factors as a demonstration of the degree of impact that each factor has on the procurement performance. Supplier risk management yields higher results ($\beta = 0.461$; $p < 0.00$) positive significant association with the supplier commitment (mediator) than supplier selection ($\beta = 0.316$; $p < 0.00$). Contrary to the significance of the mediator, the conceptual model stipulates that supplier

selection deploys a higher influence ($\beta = 0.643$) on supplier risk management. Furthermore, supplier commitment ($\beta = 0.740$; $p < 0.01$) is shown to have the greatest collision on procurement performance, followed by supplier selection ($\beta = 0.103$; $p < 0.00$) and supplier risk management ($\beta = 0.035$) is listed last. The conceptual framework is illustrated in Figure 8

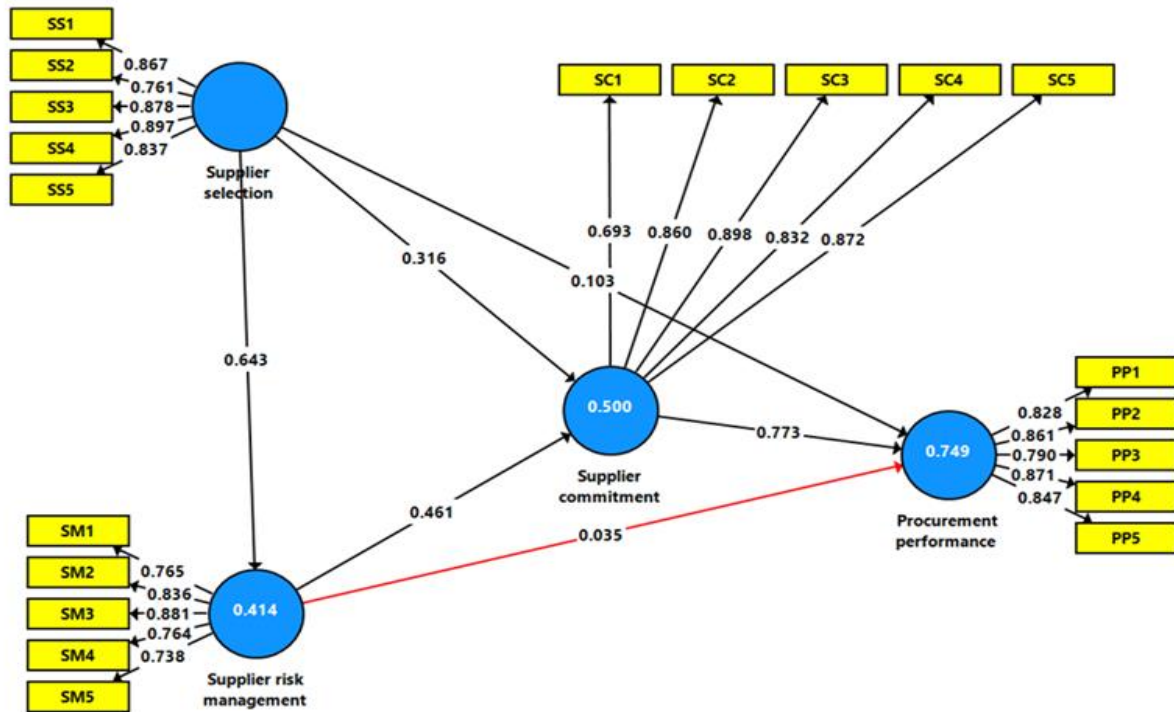


Figure 8: PLS 3.0 the main research model results

Additionally, to being supported by the findings of this dissertation, the conceptual framework proposed in this dissertation has adequate support from previous empirical research (Suraraksa & Shin 2018:2; Sillanpää, Shahzad & Sillanpää 2015:236; Thiruchelvam & Tookey 2011:437; Kamoni, Rotich & Ochiri 2018: 4), which also found that there is a notable relationship amongst the factors to the outcome variables. In addition, a developing body of research by some scholars (Makhitha 2020:2; Taherdoost & Brard 2019:1025) continues to elaborate and demonstrate an empirical linkage between supplier selection in an organisation and procurement performance. Besides, numerous researchers (Tarigan, Siagian, Sutjipto and Panjaitan 2020:240; Nina Shin, Park & Park 2019:2) suggested the conceptual perception of a significant relationship between supplier selection and supplier commitment and supplier commitment and procurement performance. Furthermore, in line with the findings of the current study, Mafini & Loury-Okoumba 2016:618; Guido, Micheli, Cagno & Zorzini (2008:846) found that supplier risk management is a good predictor of supplier commitment and the procurement performance of public health entities. Therefore, the conceptual structure proposed in this dissertation can be a

convenient instrument for examining relationships amongst supplier selection, supplier risk management, supplier selection and procurement performance.

5.9 CONCLUSION

Chapter five commenced with a hasty background exposition of the previous chapter, together with the explanation of the numerous goodness of fit measures utilised in this dissertation. This chapter further provided the empirical results drawn from the research thoroughly. Essentially, the descriptive statistics of the study were presented. Come after was an address of the item scale results. Thereafter, validity and reliability tests were conducted respectively and both tests elicited results confirming validity and reliability of measurement. Subsequently, the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure was employed in this study. The primary motive was to examine the study's proposition that the predicting role of supplier selection, supplier risk management and supplier commitment have a positive impact and influence on the procurement performance in the public health care sectors in Gauteng province. All six hypothesised relationships were supported as expected except for one. Having analysed data with the use of stipulated statistical packages and procedures, it can be deduced that proper assessments regarding research objectives and hypotheses can be made bearing in mind the empirical evidence. This appraisal will be done in the next chapter, that is, 6.

CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

6.1 INTRODUCTION

The motive of this chapter is to provide a final analysis of the study. The chapter's first motive is to provide a summary review of the study. Its second motive is to present conclusions to each objective set for the study. The third cause is to recommend strategies that may be adopted and implemented to enhance procurement performance within the public health sector in Gauteng through effective supplier selection practices, supplier risk management and supplier commitment to minimise bottlenecks, in check with the findings emanating from this dissertation. The fourth drive is to acknowledge the limitations of this dissertation. The fifth reason is to propose a direction for future studies. Finally, the chapter provides the overall conclusion to the study.

6.2 REVIEW OF THE STUDY

The main purpose of the study was to examine and explore drivers of procurement performance in the public health industry in Gauteng province. The thesis is divided into six chapters. The first chapter provides an introduction and background to the study and outlines the problem statement, the research objectives and a summary of research hypotheses, the limitations of the study, a brief research methodology, statistical analysis, ethical considerations and chapter outline. The second chapter provides a literature review related to the procurement performance in the public health industry. The chapter focused on the overview of the public sector from the nature of the procurement, different categories of procurement and challenges linked with procurement in public health industries. In the third chapter, literature about supplier selection, supplier risk management and supplier commitment were discussed. The fourth chapter discussed the research methodology employed in the study. In the fifth chapter, data were analysed to produce the research results and their interpretation was provided. The sixth chapter closes the study by discussing the conclusions, recommendations and limitations of the dissertation as well as suggestions for further researchers.

6.3 CONCLUSIONS BASED ON THE THEORETICAL OBJECTIVES

Conclusions drawn from the following theoretical objectives set for the study were:

- To conduct a literature review on the Committed- Trust theory.
- To appraise the literature on Supplier selection practices.
- To conduct a review of the literature on supplier risk management.
- To provide overview literature on supplier commitment.
- To carry out a literature study on procurement performance.

6.3.1 Conclusions based on the literature review on the Committed- trust theory

This theoretical objective was detailed in chapter three, section 3.2 of this study. The objective was based on principles of the Committed- trust theory. This theory was developed and introduced by Morgan and Hunt (1994:230). The theory stipulates that two fundamental factors notably commitment and trust must co-exist for a relationship to be successful (Kosgei & Gitau 2016:139). The theory highlights the significance of commitment and trust amongst the parties involved. Hence, through commitment and trust, partners can bridge relationship spaces that would lead to the partner's cunning behaviour. However, the tendency for cunning behaviour arises in exchange relations because of the lack of trust and commitment among partners. Trust issues in partnerships give rise to concerns such as questioning the partner's reliability in delivering a consistently higher quality of stock when needed by the other party. The Committed-trust theory encourages partners to show trust and commitment to the terms and conditions governing their relationship agreement whether verbal or written.

In chapter three, section 3.2, this study reviewed the association between commitment-trust theory and the study variables. Of notable is the link with commitment. The successful relationships between suppliers and buyers are built based on a mutual commitment between the two parties involved (Wahab 2011:242). Also, commitment ameliorates a friendly atmosphere amongst the supplier and buyer, making them both enthusiastic to work together in order to achieve common goals. The association of the committed-trust theory portrayed the significance of trust and commitment in partners' continued relationships. Therefore, this, encourages both partners to establish a long-term beneficial relationship.

6.3.2 Conclusions based on the literature review on supplier selection practices

The theoretical objective two was reviewed in chapter three, section 3.3. The purpose of the objective was to aggregate information relating to supplier selection, the process of supplier selection, supplier selection criteria, its importance, supplier satisfaction, its importance, benefits and its antecedents. Supplier selection is considered to be a very vital tool in ensuring effectiveness in the public health industry's procurement performance. The success of the procurement performance in public health industries depends greatly on the ability to select the best suitable suppliers and ensuring that trust and commitment are established between both parties. However, challenges mainly arise when there is mistrust between parties which results in cunning behaviors. Thus, this calls for the procurement department in public health entities to constantly review their supplier performances and their communication channels and seek to align such with their partnership objectives.

6.3.3 Conclusions based on the literature review on supplier risk management

The theoretical objective of this section was based on supplier risk management. This objective was discussed greatly in chapter 3 sections 3.6 to 3.7. Issues covered and examined within the context of this objective include the various supplier risk management definitions, the importance of supplier risk management and risk mitigation strategies. Supplier risk management conveys an essential role in effectively operating procurement performances in the presence of a variety of unpredictability (Ho, Zheng, Yildiz & Talluri 2015:1). As defined in chapter 3, section 3.6, supplier risk management is an instrument employed to recognise, evaluate and reduce or eliminate the factors that might harm the expected result (Sollish & Semanik 2011:172). Supplier risk plays an essential role in organisations performance as risks tend to disrupt sustainable operations, which ultimately reduce an organisation's performance but these risks can be monitored through supplier risk management practices, which leads to a higher organisation's performance. Also, risk mitigation strategies play an essential role in the public health industries as they give a better perspective on which route to embark if the organisation needs to mitigate risks. With that being said, it is therefore concluded that supplier risk can be combatted when organisations manage and ensure that supplier risk management practices are adhered to.

6.3.4 Conclusions based on the literature review on supplier commitment

The theoretical objective in this section was based on supplier commitment. This objective was discussed thoroughly in chapter 3 sections 3.8 to 3.12. Issues examined and discussed within the context of this objective include the various commitment definitions, existing drivers of supplier commitment, supplier commitment improvement and advantages of having committed suppliers. Commitment is the intention to continue maintaining and nurturing a relationship into the future (Yamaguchi 2013:58; Morgan *et al.*, 1994:23). Commitment enhances better comprehension of the nature of the interactions between partners and provides more valid implications in an emerging market setting (Saleh, Ali & Julian 2014:330). According to Griffith, Hu and Ryans (2000:303), when suppliers show stronger commitment to their relationship with their buyers, their organisation performances improve in line with their discernment regarding the reliability of their cooperating partner. So, suppliers are urged to show stronger commitment in their business relationship in order to reap the benefits of their improved performance.

6.3.5 Conclusions based on the literature review on procurement performance

The fifth theoretical objective concentrated on conducting a review of literature on procurement performance, which was attained in the third chapter, section 3.13-3.16 of this study. The objective was to aggregate information relating to procurement performance, factors affecting procurement performance in the public health care sectors, ways to ameliorate procurement performance in the public health care sector and the antecedents of procurement performance. Widely, procurement performance is acknowledged as a crucial function responsible for increasing organisational competitiveness in unstable environments. Also, the study highlighted that numerous organisations consider procurement performance as the keystone of the success of the organisation, hence the need to optimise the performance of that function.

In this study, it also emerged that for organisations to have a successful procurement performance, they must move from risk dodging to risk management and from keeping information to sharing information amongst parties involved. Besides, the study acknowledges that to obtain a successful procurement performance, public health industries must implement and enforce a variety of management techniques and performance indicators including e-tendering, e-ordering and e-invoicing. Further, the study accepts that the public health care sectors are unable to manage their procurement performance due to several challenges, which include corruption, inexperienced procurement personnel and inadequate preparation by the contractors. Thus, it is concluded that a successful procurement performance can be achieved

when organisations manage and ensure there is integrity throughout their interaction with their personnel and mostly their suppliers.

6.4 CONCLUSIONS BASED ON EMPIRICAL OBJECTIVES

This section discussed and covered conclusions drawn from the dissertation's empirical objectives. The empirical objectives of this dissertation were converted into a conceptual structure, describing the proposed relationship between the various research constructs considered as hypothesis statements. The relationships were established through the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure. The empirical objectives are based on the hypothesised relationship between the research variables examined in this dissertation. Conclusions drawn from the following empirical objectives and set for the dissertation were:

- To investigate the influence of supplier selection practices on supplier commitment
- To investigate the influence of supplier selection practices on supplier risk management
- To determine the influence of supplier risk management on supplier commitment
- To investigate the supplier selection on supplier risk management
- To identify the influence of supplier selection on procurement performance.
- To establish the relationship of supplier risk management on procurement performance.

6.4.1 Conclusions regarding the investigation of the influence of supplier selection practices on supplier commitment.

H1: Supplier selection practices have a positive influence relationship on supplier commitment.

From the empirical results, the public health industries that took part in this study graded the relationship between supplier selection and supplier commitment as very high. The impact of this relationship was empirically examined at $p < 0.000$ and the coefficient relationship of ($\beta = 0.316$) indicating a stronger relationship. Therefore, this shows that public health entities, which follow proper procedures in terms of supplier selection, are highly likely to select the best possible suppliers, who are committed. Shin, Park and Lee (2016:739) confirm that the link between supplier selection and supplier commitment enables supplier and buyer to control the loyalty amongst themselves in a way that benefits their business relationship and establishes a long-term relationship.

6.4.2 Conclusions regarding the influence of supplier selection on supplier risk management

H2: Supplier selection practices have a positive influence relationship on supplier risk management.

The influence of supplier selection on supplier risk management was rated higher from the lens of the participated public health industries. This was evidenced from the coefficient of regression and p-value at the level of ($p < 0.000$; $\beta = 0.643$). The relationship between the two constructs is among the highest in the Smart PLS3 model. It is evident that when public health industries take the initiative to ensure that appropriate supplier selection practices are adhered to, they are likely to experience less supplier risk, thus, will be able to manage the risks using supplier risk management approaches implemented in the organisation. However, this relationship was supported in studies conducted by Constantin and Valentina (2018:48) and Maheshwari and Jain (2014:558) in which they stated that the increasing dependency on suppliers is prone to uncertain events; thus, the supplier chain risk management has become a necessary part of the supplier selection. Thus, this dissertation concludes that supplier selection has positive and significant influence on supplier risk management.

6.4.3 Conclusions regarding the investigation of supplier risk management on supplier commitment.

H3: Supplier risk management has a positive influence relationship with supplier commitment.

Given the results of this dissertation, it could be concluded that, indeed, supplier risk management has a strong positive and significant influence on supplier commitment in the public health industry. This was evidenced from the coefficient of regression and p-value at the level of ($p < 0.000$; $\beta = 0.461$). This assessment was supported by studies conducted by Kara and Firat (2018:1) as well as Giunipero and Eltantawy (2004:703) who suggested that supplier risk management approaches are vital in enhancing supplier commitment in the respective organisation. This points to the importance of developing adequate and strategic supplier risk management practices between parties involved, which will enable them to reap the benefits that one cannot achieve in separation. Moreover, supplier risk management has been viewed by Rakash, Soni and Rathore (2017:70) to be fundamental in minimising supplier risk and enhancing and sustaining the overall procurement performance of an organisation.

6.4.4 Conclusions regarding the investigation of the supplier commitment on procurement performance

H4: Supplier commitment has a positive influence relationship on procurement performance.

This study positioned supplier commitment as the focal point of the study's relationship model between supplier selection, supplier risk management and procurement performance. This means that the efficacy and effectiveness of the supplier commitment variable are dependent on the efficacy and effectiveness of the first three variables. By implication, this study reveals that the public health industry strategies and objectives executed through the influencing factors of supplier commitment can enable the organisation to reap higher-level benefits of procurement performance. Empirically, this relationship was supported with the path coefficient value of 0.773 and a p-value of $p < 0.000$, indicating a positive relationship between the measuring variables. The relationship between commitment and procurement performance found support from a study conducted by Nawari, Songappan, Nadarajan, Ibrahim and Mustapha (2017:246) and Sillanpää, Shahzad and Sillanpää (2015:228), stating that supplier commitment is a positive enabler of procurement performance.

6.4.5 Conclusions regarding the influence of supplier selection on procurement performance.

H5: Supplier selection practices have a positive influence relationship on procurement performance.

In this dissertation, public health industries that participated showed their support in the hypotheses that supplier selection has a positive and significant influence on procurement performance. This was empirically examined with a p-value of <0.020 . This shows that the procurement department which can select the best possible suppliers without any ulterior motives will enjoy the long-term commitment with their collaborating suppliers and improve the overall procurement performance of the organisation. Moreover, this relationship was supported in studies conducted by Manyega and Okibo (2015:59) stating that effective supplier selection methods assist in improving procurement performance in organisations.

6.4.6 Conclusions regarding the relationship of supplier risk management on procurement performance.

H6: Supplier risk management has a positive influence on procurement performance.

Unlike the previous findings obtained, it appeared that supplier risk management has little influence on procurement performance in public health industries. This contrasts with several

studies (Kamoni, Rotich & Ochiri 2018:3; Aghajanian & Shevchenko-Perepy 2018:731; Chapman, Bernon & Haggett 2011:1030; Xie, Tummala & Schoenherr 2011:481), who have viewed supplier risk management as a key determinant factor that allows an organisation to conduct supplier risk management practices freely and openly through sharing of strategic information and solutions from their inbound to their outbound supply chain activities. This leads to an improvement of suppliers' overall performance, of which one after the other, will have a positive effect on the public health industry's procurement performance. It indicates the vital role that public health industries' capabilities to implement a supplier risk management plan may have in contributing to enhancing their procurement performance. Also, supplier risk management has been described as an essential factor that contributes to a decrease of supplier risk, which has a positive effect on an organisation's procurement performance (Zhao, Huo, Sun & Zhao 2013:116).

6.5 RECOMMENDATIONS

The results of the dissertation suggest that effective supplier selection practices, supplier commitment and supplier risk management will lead to better procurement performance in the public health care sector. It is, consequently, a necessity to suggest recommendations that could be useful to improve supplier selection practices, supplier commitment and supplier risk management as well as improve the procurement performance.

6.5.1 Supplier selection and supplier commitment

The findings realised have conveyed that supplier selection has a strong and positive influence on supplier commitment and that the relationship between the two variables is notable. Thus, the dissertation recommends that in their efforts to improve their supplier selection practices, public health care buyers must ensure that standard operating procedures are followed if they desire their alignment to succeed and create value in the organisations. Public health procurement performance must acknowledge the significance of selecting the right suppliers, sharing knowledge when attempting alignment and embracing the association of the two functions in the running of the organisation. Sharing of knowledge and information amongst parties involved will have a significant effect on the procurement performance as suppliers will feel valued, therefore, stay committed and deliver exceptional results.

6.5.2 Supplier selection and supplier risk management.

The findings of this dissertation showed that supplier selection is a vital construct for supplier risk management. Further, this highlights the need for the public health care sectors to improve their supplier selection practices and also ensure that supplier risk management is followed. This study highlighted the importance that public health industries have in developing and building a good relationship with their suppliers as this may allow them to collaborate hand in hand and have notable trust in the knowledge and information being shared. Procurement personnel in the public health industry should focus exclusively on developing and improving their supplier-base by providing training and obtaining the mandatory knowledge/skills and competence required which will subsequently be in line with what the department expects. This may, therefore, enable them to have some level of trust as they have the confidence of the fact that these suppliers will be able to meet their demands and expectations. Once this is in place, supplier risks will be minimised and thus, managed effectively.

6.5.3 Supplier risk management and supplier commitment.

The findings of this dissertation conveyed that supplier risk management has a strong and positive influence on supplier commitment and that the relationship between the two variables is notable. Consequently, this dissertation proposes that public health care buyers must have a supplier risk management strategy in place so that they can establish long-term relationships with their suppliers of which will enhance supplier commitment. Procurement personnel in public health industries must nurture and develop relationships with their suppliers that will enable each of them to buy into the same common goals. This will allow them to collectively improve their trust level, enable supplier commitment, which in return, allow them to all converge in the same direction to achieve their goals set. The study recommends that supplier risk management practices such as risk-sharing and risk-shifting are a relevant approach to mitigate risks and improve supplier commitment. This may be effective as it may enable parties to stick with performing counterparts, therefore, contributing significantly in increasing their degree of trust and foster suppliers' performance.

6.5.4 Supplier commitment and procurement performance.

Furthermore, the study's findings conveyed that supplier commitment has a strong and positive influence on procurement performance and that the relationship between the two variables is significant. The study proposes that public health care buyers must establish long-term relationships with their suppliers to improve or increase procurement performance. To increase supplier commitments, buying departments in public health entities need to consider their

suppliers as virtual extensions that will motivate them to improve their overall performance. As the findings revealed that supplier commitment and procurement performance have the strongest relationship, the dissertation recommends that public health care buyers must conduct training and introduce performance bonuses to suppliers to ensure that they remain committed to the organisation and establish a long-term and durable relationship with them.

6.5.5 Supplier selection and procurement performance.

The findings of this dissertation showed that supplier selection is a vital construct for an effective procurement performance. Further, this highlights the need for the public health care sectors to improve and strengthen their procurement performance by ensuring that suitable suppliers are elected. This study proposes that procurement professionals should be encouraged to perform site visits before the final approval of any supplier contract. This would effectively ensure and assist in ascertaining the capacity of these suppliers to supply the material or services sought. In the selection of the best possible supply, procurement professionals in the public health sectors should ensure that they provide regular feedback to suppliers regarding their performance, with indications to which areas they should improve. Also, rewards should be provided to suppliers who excel in their performance. These may include performance bonuses, positive referrals and more contracts. Once these are provided, suppliers will be motivated to deliver at an even better standard of which will have a positive impact on the procurement performance of the public health care sector.

6.5.6 Supplier risk management and procurement performance

The results of this dissertation have revealed that supplier risk management has little influence on the procurement performance of the public health care sectors. Many factors can be listed as possible suggestions to improve these relationships:

- Engage in joint and mutual forecast activities, which involve supplier risks. This may develop and strengthen synergistic processes between both supplier and buyer as they will mutually share key strategies and policies to provide plans aimed at eradicating any supplier risk.
- Flexible contracts and multiple sourcing is an alternative way to minimise risks by using different suppliers. If one supplier fails to deliver because of quality or other delivery issues, at the minimum, the alternative supplier will still be available ensuring the delivery of goods effectively. Such supplier risk management will have a positive impact on the procurement performance as risks will be eliminated.

- Collaboration is another factor that will improve the relationship between supplier risk management and procurement performance. According to Singh, Gunjan Soni and Badhotiya (2019:109), collaboration means that supply chain officials are planned and executed jointly by two or more organisations for reciprocal benefits. A collaborative partnership will assist to anticipate the disruption and manage supplier risks efficiently of which, in turn, will have a positive impact on supplier risk management.

6.5.7 Recommendations based on supplier commitment and procurement performance-influencing factors

This dissertation showed that there is a positive and significant association between two factors of supplier commitment (Mediator) namely supplier selection and supplier risk management. This would, therefore, suggest that the supplier commitment of the public health industries might be significantly enhanced if they focus greatly on these top two factors. To foster an effective supplier selection and commitment amongst suppliers, it is crucial to employ suitable suppliers with a good reputation with great interpersonal skills and the ability to work greatly in a team. Achieving this objective will require the buying organisation to do a thorough supplier background check before they appoint a suitable candidate. Additionally, concerning supplier risk management, an Enterprise Risk Management (ERP) could be adopted and implemented for management in an organisation to have an overview, understand and be able to measure the number of risks they are exposed to. Importantly, ERP will enable the organisation to select the right supply chain flexibility necessary to address supply chain risks and enhance commitment amongst parties involved.

Also, the study revealed that three factors are linked to procurement performance (outcome variable) namely supply selection, supplier risk management and supplier commitment. Supplier selection and supplier commitment have a significant and positive association with procurement while supplier risk management has little influence on the procurement performance. This alludes that the understanding of supplier risk management and its impact on procurement performance is not revered highly by public health industries. This prompts the need for increased awareness and exposure of the public health industries on the benefits of supplier risk management to procurement performance.

6.6 CONTRIBUTION OF THE STUDY

The present study is remarkable in several ways. Theoretically, it contributes greatly to the existing knowledge as it is an addition to the obtainable literature on supplier selection, supplier commitment, supplier risk management and procurement performance. Besides, it is a crucial origin of information on the research methodologies for studies in supply chain management. Furthermore, the dissertation provides a specific understanding of the relationship between supplier selection, supplier commitment, supplier risk management and the procurement performance of the public health care sector, where no such study has been conducted before.

Practically, the dissertation provides vital information to procurement personnel in the Gauteng public health care sectors concerning the improvement of the procurement performance. It underlines that the performance of procurement in public health care sectors can be massively improved by managing the supplier risks their contribution to the performance. This indicates that if suppliers have underperforming issues such as poor service delivery, the solution is to minimise the effects of the risks mentioned in this dissertation, which ameliorates the extent to which the procurement can become flexible. In succession, this will lead to better and superior procurement performance in public health industries. Therefore, this study provides a fundamental solution to the service delivery challenges facing the Gauteng public health care sectors. The solution is to mitigate the available supplier risks using established supplier risk management methods, which will lead to better procurement performance.

6.7 LIMITATIONS OF THE STUDY

The current dissertation provided some insightful perceptions on the relationship between supplier selection, supplier risk management and supplier commitment in the procurement performance of public health industries. It is the primary responsibility of the researcher to ensure that the dissertation is without flaws. Despite the effort, it has several limitations that need to be underlined so that they are addressed thoroughly in the future. The first limitation is that the dissertation was restricted to a small sample size of 150 respondents who were based in one geographic location, Gauteng Province, due to the global pandemic of Coronavirus. As a result, the SMART-partial least squares (SMART-PLS 3) structural equation modelling procedure was employed. The second limitation is that it did not take into account all the supply chain risks that exist within the public sector. This dissertation only acknowledged those risks assumed the major ones such as the availability of skills, supplier risk and supplier performance monitoring. The

third limitation is that the researcher could not confirm the accuracy of the responses as the respondents completed the questionnaires when the researcher was absent. The researcher did not have adequate time to sit each respondent during their time to monitor the completion of the questionnaires. Besides, because this study is constrained by time, a cross-sectional survey approach to data collection was executed. This could affect the quality of the data as the respondents are not given sufficient windows to express their comprehensive view concerning the variables under consideration.

6.8 SUGGESTIONS FOR FURTHER RESEARCH

Numerous implications for further research can be put to light. First, since the dissertation was only inclusive of one department in the public health sector which is procurement, future studies should consider other departments such as operations, accounting and finance and, research and development. The scope of the dissertation can be expanded to other supply chain risks excluded from this current study such as among other things social factors, economical factors, environmental risk, political factors, legal risk and human behaviour risk. Since the dissertation was regulated using the quantitative methodology, a different view would be to perform indistinguishable research using a mixed method approach, which also involves the qualitative methodology where interviews are conducted. The results of the study could be informative if the views of consultants working in the space were included and compared. This presents the need for conducting similar studies using perceptions of consultants working temporarily in the public sector's procurement departments. Even though this research provided some interesting findings regarding the relationships between supplier selection, supplier risk management, supplier commitment and procurement performance in public health industries in Gauteng, it is unclear whether these relationships would be the same in other provinces of South Africa. Therefore, future research should examine the differences and similarities in the relationship between supplier selection, supplier risk management, supplier commitment and procurement performance in other provinces.

Future studies could employ exploratory factor analysis to identify the supply risk and procurement performance challenges instead of depending on literature for this motive. More vigorous statistical approaches such as structural equation modelling could also be employed in future studies since the study is multifactorial, involving several independent variables.

Furthermore, procurement is a multi-dimensional concept and the study only investigated three important dimensions that improve procurement performance namely e-tendering, e-ordering and e-invoicing. There are many other e-procurement functions such as e-purchasing, e-transportation e-payment, e-catalogue and e-tailing. Future research should investigate the relationship between supplier selection, supplier risk management, supplier commitment and e-procurement functions. In conclusion, another area of research is analysing the factors that influence the degree of supplier risk management on procurement performance such as organisational commitment, trust and top management support as well as shared objectives and visions among parties involved.

6.9 CONCLUSION

The results of this dissertation provide statistical evidence that there is a relationship between supplier selection, supplier risk management, supplier commitment and procurement performance in the South African public health care sector. While there is a lot of literature on supplier selection, supplier risk management, supplier commitment and procurement performance, information on their relationship, specifically in the South African public health care sector, is rare. The current dissertation shows that in the South African public health care sector, procurement performance is at its lowest and supply chain risks continue to flourish. These risks incorporate the availability of skills where either personnel are not enthusiastic about their roles or they just do not have the necessary skills, knowledge and qualifications required to fulfil them, which leads the public sector to rely on consultants to fill in positions. This can be an ineffective process whereby information is either inadequate, late or takes time to come. Also, corruption and supply complexity are among the risks that inhibit procurement performance. Further, the study reports that procurement performance can be improved through the management of individual risks considered in this dissertation, which, in succession, will lead to a superior procurement performance.

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APPENDIX A: QUESTIONNAIRE



Vaal University of Technology

Thank you for paying attention to this academic questionnaire. The purpose of this study is to determine the relationship between supplier selection practices, supplier risk management, supplier commitment and procurement performance in the public health industry in the Gauteng Province. I am therefore, requesting for your assistance in completing the questionnaire. The research is purely for academic purposes and the information will be kept confidential. It will take you approximately 5 minutes to complete the whole questionnaire.

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SECTION A

General Information

The section is asking the background information of the company. Please indicate your answer by ticking (X) on the appropriate box.

Profile of company

A1: Please indicate your Gender

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

A2: Please indicate your Marital Status

Married	<input type="checkbox"/>
Single	<input type="checkbox"/>
Widowed	<input type="checkbox"/>

Divorced	
Engaged	

A3: Please indicate your Age group

25-less		48-58	
26-36		59-69	
37-47		70+	

A4: Please indicate your Race

Black		White	
Indian		Coloured	

A5: Please indicate your Languages

English		Afrikaans	
Sotho		Zulu	
Xhosa		Pedi	
Other		Other(specify)	

SECTION B

Supplier selection

Below are statements about supplier selection. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale below:

1	2	3	4	5
strongly disagree	disagree	moderately agree	agree	strongly agree

Please tick only one number for each statement

SS1	The Company's Selection process is competitive and fair	Strongly disagree	1	2	3	4	5	Strongly agree
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SS2	The Company's Selection process is able to obtain the best value for money in its supplies	Strongly disagree	1	2	3	4	5	Strongly agree
SS3	The Company's practices transparency in supplier selection	Strongly disagree	1	2	3	4	5	Strongly agree
SS4	The Company's Selection process exhibit honesty and Accountability	Strongly disagree	1	2	3	4	5	Strongly agree
SS5	The Company's follows a code of ethics when it comes to its Supplier Selection activities	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION C

Supplier risk management

Below are supplier risk management. You are required to indicate the extent to which you agree or disagree with the statement by ticking the appropriate number where:

Tick only one number for each statement.

1	2	3	4	5
strongly disagree	disagree	moderately agree	agree	strongly agree

Please tick only one number for each statement

SM 1	We avoid unreliable suppliers, we choose robust suppliers with high quality	Strongly disagree	1	2	3	4	5	Strongly agree
SM 2	We check suppliers business continuity plan at the time of supplier selection	Strongly disagree	1	2	3	4	5	Strongly agree
SM 3	We make production and inventory plans jointly with suppliers	Strongly	1	2	3	4	5	Strongly agree

		disagree						
SM 4	We avoid suppliers in politically and geographically unstable region	Strongly disagree	1	2	3	4	5	Strongly agree
SM 5	We do invest in supplier development	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION D

Supplier commitment

Below are statements about supplier commitment. You may agree or disagree with each statement by ticking the appropriate number provided where:

1	2	3	4	5
strongly disagree	Disagree	moderately agree	agree	strongly agree

Please tick only one number for each statement

SC1	We always pay our suppliers on time	Strongly disagree	1	2	3	4	5	Strongly agree
SC2	Our suppliers provide the right quantity and quality of goods and services	Strongly disagree	1	2	3	4	5	Strongly agree
SC3	Our suppliers deliver products on-time	Strongly disagree	1	2	3	4	5	Strongly agree
SC4	The procurement costs of our suppliers' products are highly competitive	Strongly disagree	1	2	3	4	5	Strongly agree

SC5	We have no intentions to change our current suppliers	Strongly disagree	1	2	3	4	5	Strongly agree
-----	---	-------------------	---	---	---	---	---	----------------

SECTION E

Procurement performance

Below are statements about procurement performance. You may agree or disagree with each statement by ticking the appropriate number provided where:

1	2	3	4	5
strongly disagree	disagree	moderately agree	agree	strongly agree


Please tick only one number for each statement

PP1	Suppliers are able to deliver at the right time	Strongly disagree	1	2	3	4	5	Strongly agree
PP2	Suppliers are able to deliver the right quality	Strongly disagree	1	2	3	4	5	Strongly agree
PP3	Suppliers are able to deliver with the right price	Strongly disagree	1	2	3	4	5	Strongly agree
PP4	Suppliers are able to deliver the right quantity	Strongly disagree	1	2	3	4	5	Strongly agree
PP5	Our Customers are satisfied with our goods/services	Strongly disagree	1	2	3	4	5	Strongly agree

THE END

THANK YOU!!

APPENDIX C: APPROVAL LETTERS FORM COMPANY

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FIFTY YEARS
1966 - 2016

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04-06-2020

To public health care entities


Letter of Recommendation for Data Collection

To whom it may concern

Please note, that SHILELA CATHERINE MASEMOLA (Student Number: 214062538) is currently a master student at the Vaal University of Technology in the Logistics Department specifically. She is conducting research entitled 'DRIVERS OF PROCUREMENT PERFORMANCE IN THE PUBLIC HEALTH INDUSTRY IN GAUTENG PROVINCE,' under the supervision of Dr. Osayuwamen Omoruyi. To fulfill her research work, she needs to collect data at your respected organization, and your kind cooperation will be highly appreciated.

Your sincerely

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04-06-2020

To public health care entities

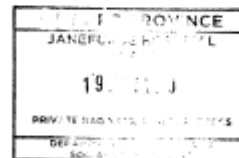
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LANGUAGE EDITING CERTIFICATE



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1 March 2021

Report on Master Thesis: SHILELA CATHERINE MASEMOLA (214062538)

Thesis title: DRIVERS OF PROCUREMENT PERFORMANCE IN THE PUBLIC HEALTH INDUSTRY IN
THE GAUTENG PROVINCE

This serves to confirm that I edited substantively the above document including a Reference list. I returned the document to the author with some tracked changes intended to correct errors and clarify meaning. It was the authors' responsibility to attend to these changes.

Yours faithfully

Dr. K. Zano

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