Evaluation of selected Supply Chain Management Elements in Department of Community Safety and Transport Management in Mahikeng.

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DEDICATION

I dedicate this work to my mother Olivia Majimba who has sacrificed a lot for the well-being of her children after losing a husband at a tender age of 24.

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All glory to the highest God because “He gives wisdom, from His mouth come knowledge and understanding” (Proverbs 2:6).

I would like to thank my family for their dedicated support. My wife, Keitumetse for the support she gave, during the period of my studies I somehow did not give my family a full attention as I should. My daughter, Bokang Tlotliso and my son, Mohau Oatile, I came late at nights and sometimes did not give them much deserved time yet they understood. I isolated myself in many times and ways to deal with my studies yet they continued to give me support.

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ABSTRACT

The study aimed to determine the shortcominngs and identify factors that can improve the effective implementation of demand management and supply chain performance management in the department of community safety and transport management in Mahikeng. The study, followed positivism paradigm in which quantitative research method was used to collect and analyse data. A survey questionnaire was used to collect data from the participants. This questionnaire was paper based and online (Google Forms). The sample was composed of the managers drawn from the department of community safety and transport management.

The findings of the study revealed that when implemented effectively, demand management and SCPM will improve the entire SCM system. Also, the study revealed that there are drawbacks to demand management and SCPM. These relates to lack of collaborative planning, non-adherence to legislations, unclear understanding of these two concepts. The study finally revealed that there are factors that can improve the implementation of demand management and SCPM, which include: the monitoring of supplier should form the basis for contract management activities. These contract management activities' reporting elements should include a database of Service Level Agreements (SLA) concluded, the reporting elements of contract management, and risk management plan.

In conclusion the researcher recommends the following implementation strategies to address the findings of the study in relation to demand management and SCPM at the department of community safety and transport management:

- Thedepartment should conduct demand analysis whereby a consumer-product/service segmentation is mapped,
- Strive for a collaborative demand planning implementation process beyond the organisation's limitations,
- Align supply and demand management to ensure that all bits of departmental supply chain puzzle fit cozily together,
- Reduce variability and increase flexibility to help organisation to respond to internal and external events, Measure Performance and Invest in training the role players.

Key Words: Demand Management, Procurement, Supply chain management, Supply chain performance management.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
AGSA	Auditor General South Africa
CFO	Chief Financial Officer
CSP	Civilian Secretariat for Police
DCSTM	Department of Community Safety and Transport Management
HOD	Head of Department
HRM	Human Resource Management
MEC	Member of Executive Council
OLP	Operator Licenses and Permits
PFMA	Public Finance Management Act
PIA	Provincial Internal Audit
PPR	Preferential Procurement Regulations
PR	Policy and Research
PTS	Public Transport Services
SA	South Africa
SCM	Supply Chain Management
SCPM	Supply Chain Performance Management
SLA	Service Level Agreement
SPSS	Statistical Package for Social Sciences
SSS	Strategic Support Services
RSM	Road Safety Management
RTM	Road Traffic Management
TCO	Total Cost of Ownership
TOR	Terms of Reference
TPPD	Transport Planning and Policy Development

CHAPTER 1

INTRODUCTION TO THE STUDY

1.1. INTRODUCTION

According to section 217 of the Constitution of South Africa, government institutions should have a structure of procurement that is fair, equitable, transparent, competitive, and cost-effective (*Constitution of the Republic of South Africa* 1996). Equally, the Public Finance Management Act (PFMA) stipulates that government institutions' accounting officers are to develop a procurement system that is fair, equitable, transparent, competitive, and cost-effective (*Public Finance Management Act* 1 of 1999). To give effect to the provisions of the constitution and PFMA, the government introduced procurement reforms. The concept of Supply Chain Management (SCM) was adopted in the public sector (Mantzaris, 2017). As a result, SCM in the public sector developed as one of the most interesting issues among South African citizens (Mhelembe & Mafini 2019).

It is crucial, then, for public sector institutions in South Africa to continually search for techniques for improving their relevant supply chains' performance to guarantee that their contributions to the countrywide economy are sustained. Besides, SCM in the government spheres in South Africa is regarded as a critical indicator of audit outcomes (National Treasury, 2015). Hamid and Ibrahim (2015) allude that Supply Chain integration in the public sector is essential for the sustainability of service delivery to the communities in any government institution. In concurrence, Dzuke and Naude (2015) highlight that internationally, public administration procurement occupies a key role in service delivery and performance of government institutions.

There are five critical components of SCM, which are demand, acquisition, asset and disposa, logistics, and supply chain performance (National Treasury, 2015)**.** Demand management and supply chain performance form part of key supply chain management elements in the public administration (Bizana, Naude, & Ambe, 2015). Public administration SCM is a crucial tool in financial resources to public entities (Hamid & Ibrahim, 2015). In agreement, Deasy, White, Parfitt, and Ringwald (2014) highlight that public SCM integrates supply and demand management within and across organisations (Badenhorst-Weiss, Maurer, & Brevis-Landsberg, 2013). Demand management within

SCM in public administration is an essential part of the progression of cross-functional activities that add to accomplishing strategic and operational obligations (National Treasury, 2017). It is used in government institutions to efficiently and effectively arrange for delivering goods or services (Deasy et al., 2014). Demand Management is considered the first step towards fulfilling the strategic planning process (Masete & Mafini, 2018). Bizana et al. (2015) argue that as a core activity of supply chain management, if demand management is not carried out accurately at an early phase, it will have undesirable ripple consequences that will ruin the results. It performs a strategic role in the government's capacity to deliver on its service provision commitments (Mantzaris, 2017).

The objective of demand management in broad-spectrum is to support the department with the planning for the procurement of goods and services in a proactive way and move away from simply reacting to procurement demands (Aimable, Osunsan, Irau, Comet & Nakato 2019). The National Treasury (2015) further highlights that demand management provides the officials with a common understanding of the procedures to be followed when implementing SCM practices. Demand management incorporates procurement planning, forecasting, and strategic sourcing activities (Ambe & Maleka, 2016) . When executed correctly, demand management within SCM forms an essential part of a chain of activities that will contribute to attaining the measured aims of the organisation (National Treasury, 2015).

Furthermore, the National Treasury (2015) highlights that SCM can ensure that goods or services are provided as envisioned, with reliable quality standards and user satisfaction. The correct implementation also guarantees that there are control measures for managers to detect discrepancies early and remedy them accordingly (National School Government, 2017). Supply Chain Performance, on the other hand, monitors the progress undertaken in a reviewing analysis to establish whether the procedures have been followed and if the anticipated goals were accomplished (Ambe & Maleka, 2016).

Performance needs to be monitored as it impacts on the "relationship management frameworks, future budgets, and the risk management plan" (Bizana et al., 2015: 673). Once the contractor has completed the project, rendered a service or delivered a product, there has to be an evaluation, and all unresolved matters should be settled (Aimable et al., 2019). Supply Chain performance effectiveness helps provide various direct and indirect benefits to organizations (National Treasury, 2017). For this purpose, supply chain performance management is crucial to guarantee ongoing enhancement in supply

chain management (Bizana et al., 2015). An effectively integrated supply chain management system will transform into enhanced service delivery to citizens (Hamid & Ibrahim, 2015). This phase guarantees that goods, services, and other procurements are appropriately planned and lined up to the buying entity's policy and resource plan (National Treasury, 2015). Stakeholders can also be involved as sources of information concerning essential issues like the existence of a need for a particular product or service, probable and accurate costing of services, and suppliers' appropriateness, among others (Masete & Mafini, 2018).

1.2. BACKGROUND TO STUDY

SCM in the public administration in South African has been misinterpreted and underestimated (Ambe & Maleka, 2016). As thus, SCM throughout public institutions is exceedingly fragmented (Masete & Mafini, 2018). This makes it challenging for it to achieve maximum value when procuring and making use of goods and services (Deasy et al., 2014; National Treasury, 2015). Procurement transformation developments in the South African public administration were introduced and absorbed in promoting good governance ideologies and the introduction of a preference system to address socioeconomic intentions (Ambe & Badenhorst-Weiss, 2012). Bizana et al. (2015) emphasize that supply chain management in the public sector is utilized as a mechanism to augment quality service delivery to the communities. There have been misconceptions about SCM's strategic importance in public service (National Treasury, 2015).

The procurement function at all the participating entities is regarded as an operational function, despite its strategic importance (Dzuke & Naude, 2015). Service delivery protests indicate that the citizens feel that they are not getting the quality of service they need (Bizana et al., 2015; Hamid & Ibrahim, 2015). The findings of the study conducted by Dzuke and Naude (2015) confirmed that there are challenges in the public sector procurement process that compromise service delivery quality. Recurring undesirable Auditor-General (AGSA) reports highlighting a lack of accountability in government departments (National Treasury, 2017). The public sector habitually undervalues the importance of supplier performance management, and there is a narrow understanding of how public sector resolutions and arrangements affect the general corporate environment (National Treasury, 2015). Public entities have an obligation to choose the most suitable Supply Chain Management framework to ensure compliance with Supply

Chain policies and procedures (Masete & Mafini, 2018). Equally, public entities must choose a framework that can efficiently utilize limited organizational resources for enhanced service delivery (Aimable et al., 2019).

On the other hand, suppliers frequently exploit the existing weak public sector Supply Chain Management setup (National Treasury, 2017). Public Sector SCM tends to function at low levels of efficiency and capability. With assigned little organizational status, it is habitually not perceived as a value driver (National Treasury, 2015). Several departments in the North West Province have been placed under administration after suffering financial predicament (Low, 2020). According to Shange (2018) North West province's office of the premier, departments of Community Safety, Education, Health and Public Works were put under Section 100 (1) (a) administration, while, the departments of Finance, Economic Development, Local Government, Rural Development, Social Development and Tourism were put under Section 100 (1) (b).

Bizana et al. (2015) accentuate that the ineffective usage of SCM practices by the South African public institutions has resulted in maladministration cases and misappropriation of funds. SCM can work significantly, efficiently, and effectively to the government's ability to market intelligence and knowledge about market intelligence (National Treasury, 2015). Masete and Mafini (2018) highlight a deficiency in improved and optimized SCM and this impact negatively on government institutions' financial positions. Furthermore, it increases the risk of non-compliance to SCM legislation, which ultimately impacts negatively on service delivery (Naidoo, 2015).

Government institutions are frequently not gathering adequate information about the products or services to be procured in order to analyze the market and past procurement trends of a particular institution (National Treasury, 2015). In assent, Dzuke and Naude (2015) highlight that this makes service delivery suffer because institutions treat procurement as incidental. This ultimately makes service delivery suffer as it results in the provision of goods and services of inferior quality on government projects (Bizana et al., 2015). Demand planning, procurement planning, items and specification management, and supplier management are critical phases in the tendering stage (National Treasury, 2017).

As alluded by Dzuke and Naude (2015), South African public sector stakeholders, therefore, face the challenge of developing and applying solutions that will challenge the

status quo and ensure that SCM contributes productively to the realization of the government's socio-economic development requirements (Masete & Mafini, 2018). Procurement decisions are not made correctly in public procurement. This results in mediocrity and late service delivery to the public (Ambe & Maleka, 2016). The alignment between demand management, procurement planning, and supply chains' performance is critical because it ensures that goods and services are delivered efficiently (Aimable et al., 2019).

1.3. PROBLEM STATEMENT

The research problem of this study emanates from the findings by previous researchers (Abd Razak et al., 2016; Ambe & Badenhorst-Weiss, 2012; Ambe & Maleka, 2016; Badenhorst-Weiss et al., 2013; Bizana et al., 2015; Masete & Mafini 2018; Mantzaris, 2017; Naidoo, 2015; Ngobeni, 2016) about the discrepancies in supply chain practices and the abuse thereof. Demand management in the public sector involves procurement planning, budget linking, market/industry analysis, and strategic sourcing (National Treasury, 2015) within the supply chain performance circle. Supply chain performance entails monitoring processes and performing a retroactive analysis to establish whether the intended results were achieved (Ambe & Maleka, 2016).

This study focuses on these two elements of the public sector SCM system (demand and supply chain performance management). A rationale behind selecting these elements was motivated by the discrepancies identified by previous researches as highlighted above. Bizana et al. (2015) accentuate that institutions are obliged to plan appropriately and budget for their needs and market and commodity evaluation. Dlamini and Ambe (2013) argue that there is an inefficiency to this effect, which leads to the misuse of funds in the public sector institutions. In agreement, Ambe and Badenhorst-Weiss (2012) affirm that SCM's main challenges come from insufficient planning and linking demand to the budget.

Despite the endeavors to empower practitioners with relevant skills and understanding (Bolton, 2016), the Public Service Commission (cited by Ambe and Badenhorst-Weiss 2012) reveals that SCM's execution and control remain a significant limitation. Mantzaris (2017) argues that challenges in the public sector SCM are aggravated by, among other things, demand management (planning, proper cost estimation, and budgeting balancing) and performance management (contract management, monitoring, and evaluation of

performance). Masete and Mafini (2018) highlight that lack of performance management is a weak link in the SCM system and not only strengthens lack of control but also simplifies non-compliance and deviations from rules and regulations. The public sector SCM is under immense pressure from internal and external sources to exhibit performance improvements (Mwilu, 2013). Mantzaris (2017) highlights that lack of planning, estimation of cost, budget balancing, control of bids, and monitoring has contributed to poor performance within the supply chain management. While supply chain performance effectiveness helps provide benefits for suppliers and companies (Hamid & Ibrahim, 2014), it is a great concern that the public sector's performances inadequate (Ambe & Maleka, 2016). SCM's demand management element is very critical because it involves controlling, coordinating, and balancing the supply and demand of an institution to decrease total cost for a firm and its supply chains (Bizana et al., 2015). Performance management includes contract management, which is a key component that impacts service delivery (Bizana et al., 2015).

According to Ambe and Badenhorst-Weiss (2012), numerous things stand in the way of an efficient and economical public sector SCM system. Munenzhi (2015) highlights that fraud and corruption occur mostly throughout poor procurement management and control within the supply chain. The literature highlights the importance of demand management and performance management in executing SCM in public and private. Still, there is limited or no known empirical research on the impact on the North West Department of Community Safety and Transport Management SCM process. During the regular audit of the North West Department of Community Safety and Transport Management (DCSTM) by Auditor-General South Africa (AGSA), it was found that there is a repetitive contravention of the Acts, Treasury Regulations, and Supply Chain Management Practice Notes (AGSA, 2019).

The instances of non-compliance and deviations necessitated the investigation of the effectiveness and impact of demand management and supply chain performance management. Therefore, this study seeks to evaluate the impact of demand management and Supply Chain Performance Management in the Department of Community Safety and Transport Management in Mahikeng. As alluded to by Masete and Mafini (2018), different hindrances impair the effective implementation of SCM practices in public institutions. Some of these barriers include poor demand management and underestimating how important supplier management (National Treasury, 2015). The

National Treasury (2015) posits that inadequate performance management results in suppliers charging high prices for inferior quality goods and services, which ultimately gives way for corruption and waste (National Treasury 2017).

1.4. SIGNIFICANCE OF THE STUDY

According to Naidoo (2015) and (Ngobeni, 2016), South Africa experiences an increase in the number of knowledgeable citizens, and consequently, the government faces demands for accountability and provision of good quality service. One of the main areas highlighted as having the potential to bring efficiencies in public administration is demand management and performance management within the public sector SCM (Masete & Mafini, 2018). Although SCM has become increasingly significant, according to Boston (2017), there appears to be inadequate research on supply chain practices. In agreement, Hamid and Ibrahim (2014) submit that studies on the link between supply chain management and supply chain practices are still lacking. Researchers (Abd Razak et al., 2016; Ambe & Badenhorst-Weiss, 2012; Ambe & Maleka, 2016; Badenhorst-Weiss et al., 2013; Bizana et al., 2015; Masete & Mafini 2018; Mantzaris, 2017; Naidoo, 2015; Ngobeni, 2016) have been concentrating instead on the entire SCM system thus not doing much justice to individual elements.

The two SCM elements were explicitly chosen to be the subject of the study because they are very much critical to the performance of the entire SCM system. Abd Razak et al. (2016) allude that there is a significant relationship between supply chains' performance and consumer satisfaction, and demand management is considered to be of great importance (Munenzhi, 2015) in SCM. However, Dzuke and Naude (2015) posit that the lack of understanding of these two elements delays delivering essential services in the public sector.

This study mainly focuses on demand management and supply chain performance management in the DCSTM in Mahikeng. Despite the importance of demand management and supply chain performance management in the public sector SCM, there have been inadequate studies that focus on the demand and supply chain performance management as public sector SCM elements (Bolton, 2016; Hamid & Ibrahim, 2016). This study seeks to fill that gap and contribute to society and research scientific community knowledge. The study seek to achieve this by exploring and interrogating the key concepts of the topics under study.

This study may help the government departments in South Africa (SA) to improve their demand management and supply chain performance management, subsequently, the effective SCM, which will enhance service delivery. The recommendations of the study seek to address the shortcomings indentified by the study.

1.5. OBJECTIVES OF THE STUDY

Research objectives are usually brief statements that define what the study will achieve (Gaus, 2017). In general, research objectives pronounce what we assume to accomplish by a project. Research objectives are typically articulated in lay terms and are directed as much to a reader as to the investigator (Antwi & Hamza, 2015).

The objectives of this study are:

- To determine the impact of demand and performance management on the SCM system in the North West Department of Community Safety and Transport Management
- To determine the limitations affecting the effective implementation of demand and performance management on the SCM system in the North West Department of Community Safety and Transport Management
- To understand the impediments to effective demand and supply chain performance management in the North West Department of Community Safety and Transport Management
- To determine factors that can improve the implementation of demand and performance management on SCM in the North West Department of Community Safety and Transport Management
- To determine the challenges in the implementation of demand and supply chain performance management in the North West Department of Community Safety and Transport Management

1.6. RESEARCH QUESTIONS AND HYPOTHESIS

These are the questions that were addressed by a study. Questions emanate from a perceived knowledge deficit around a subject area (Jansen, 2010). A research question is an answerable analysis into a specific apprehension, and it is an early phase in a study (Strydom et al., 2011).

1.6.1. Research Questions

The following are the research questions of the study:

- What is the impact of demand and supply chain performance management on the SCM system in the North West Department of Community Safety and Transport Management?
- What are the limitations affecting the effective implementation of demand and supply chain performance management in the North West Department of Community Safety and Transport Management?
- What are the impediments to effective demand and supply chain performance management on the SCM system in the public sector in the North West Department of Community Safety and Transport Management?
- What factors improve the implementation of demand and supply chain performance management in the North West Department of Community Safety and Transport Management?
- What are the challenges to implementing demand and supply chain performance management in the North West Department of Community Safety and Transport Management?

1.6.2. Research Hypothesis

A research hypothesis is a specific, explicit, and testable proposition about a scientific research study's possible outcome based on a particular aspect of a population, such as a relationship between variables (Antwi & Hamza, 2015).

The following are the research hypotheses of this study:

- There is a positive correlation between demand and supply chain performance management and SCM system.
- There is a negative correlation between insufficient implementation demand and supply chain performance management and SCM system.
- There are impediments in the effectiveness of demand and supply chain performance management.
- Lack of understanding on supply chain practices and processes leads to poor implementation of demand and supply chain performance management.

- There are limitations affecting the effective implementation of demand and supply chain performance management.
- There are challenges to the implementation of demand and supply chain performance management.

1.7. RESEARCH METHODOLOGY

This study adopted an onion from Saunders (Sahay, 2016) to explain the research methodology to be followed. Illustratration of this frame work is presented in Figure 1 below. The framework be further explained and linked to this study in chapter three.

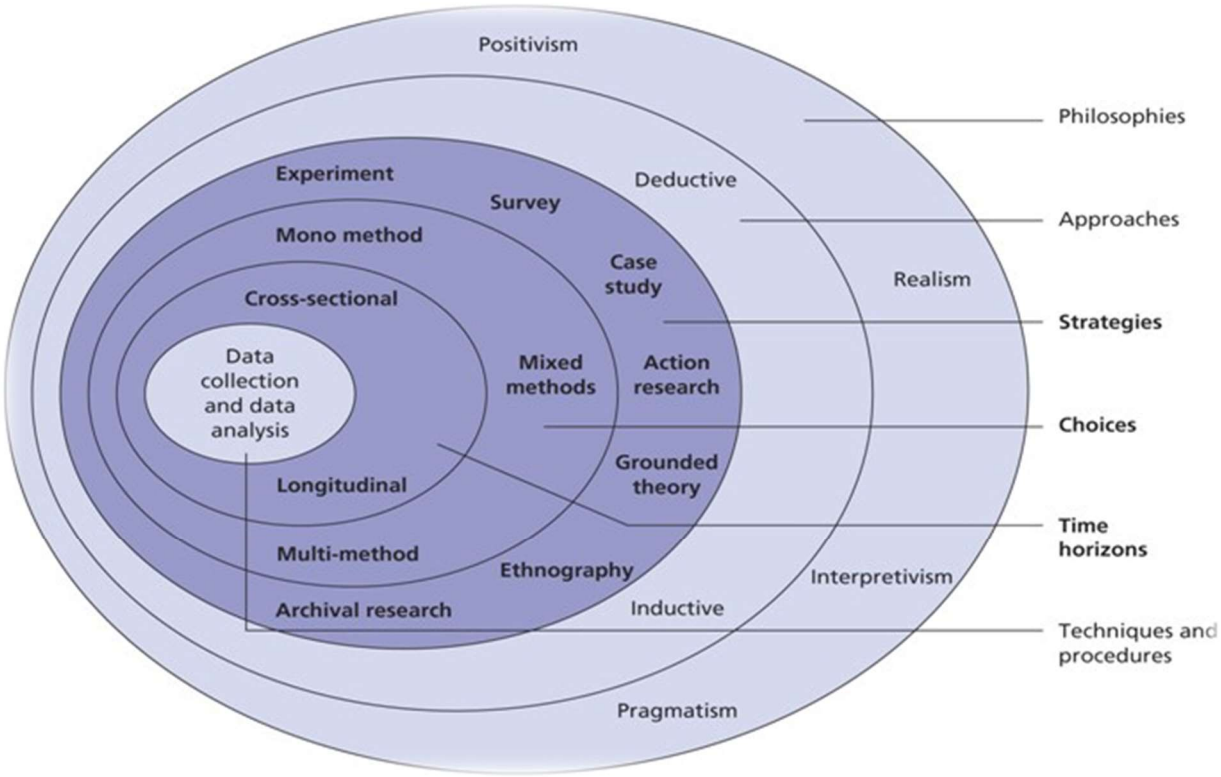

Figure 1 Research Onion (Source: adopted Al Zafeiti & Mohamad, 2015).

1.7.1. Research philosophy

This study adopted a positivist philosophy with a straightforward quantitative approach. This study used quantifiable observations that test through statistical analysis. The different fundamentals of this study's research approaches are further elaborated in chapter three of this paper.

1.7.2. Research Approach

This study followed a deductive orientation to test hypotheses. The investigation started with proposing hypotheses in section 16.2 above. These were confirmed by the findings of the research in chapter four.

1.7.3. Research Strategies

The research strategy explains how the researcher plans to transmit out their study (Emmanuel, 2019). A survey questionnaire was used in this study. The strategy was chosen simply because the research followed a quantitative research method. The questionnaire that consisted of a series of questions was developed to gather information from respondents. Closed questions structure that allowed ordinal data were to be designed to collect data.

1.7.4. Research Method

As highlighted in 1.7.1 above, the research followed a quantitative research method. The purpose of a research method is to ensure that the substantiation achieved enables a researcher to effectively discourse the research problem as unmistakably as possible (Peersman, 2014). This research choice was followed because the researcher adopted positivism and collected and analyzed data using statistical methods.

1.8. CHAPTER OUTLINE

Chapter One

This chapter presents a road map to be followed towards conducting this study. It provides the introduction, the research question, objective, and hypotheses of the study. The chapter also presented a straightforward research methodology as well as an ethical clearance procedure to be followed.

Chapter Two

This chapter reviews the literature on the topic under study. An expansion of the concepts of demand management, supply chain performance management, and supply chain management is provided.

Chapter Three

This chapter elaborates further on the methodology of research followed by the study. The chapter also explains the sampling techniques, data gathering methods, data analysis methods, and the study's ethical considerations.

Chapter Four

The chapter deals with the data presentation, analysis, and highlighting research findings concerning the data collected.

Chapter Five

The chapter presents a summary of the study. It further provides the research conclusion and offers recommendations to the research findings, as explained in chapter four.

1.9. CONCLUSION

This chapter introduced the topic of discussion, provided a brief background, and highlighted the study's objectives and research questions. The research methodology was outlined. The methodology discussion indicated the research approach, strategies, methods, and outline to be followed as adopted from Saunders's research onion.

This chapter also indicated the data collection techniques used to conduct this research. These include data collection, collection tools, coding, and analysis. Research population and sampling were also outlined in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1. INTRODUCTION

This chapter reviews the literature concerning the problem of the study. Numerous empirical studies carried out in SA, and the rest of the world are carefully explored. This chapter entails defining critical concepts, empirical literature review, and conclusion and how they are applied in the public sector. The empirical literature explains different theories put forward by various authors. Lanier and Briggs (2014) highlight that a literature review is an essential aspect of any study. It is an organized written demonstration of what has been published concerning a specific topic of study by authors. Thus, this chapter provides insight into studies conducted around demand management, supply chain performance management (SCPM), and overall supply chain management (SCM). This chapter clarifies the research by exploring the public sector SCM framework, how demand management and SCPM align with it. Furthermore, the chapter discusses the impediments to demand and SCPM, challenges, and factors that can improve these two elements' implementation.

2.2. SUPPLY CHAIN MANAGEMENT OVERVIEW

SCM in the public sector plays a crucial role in terms of the whole organisation's performance. As indicated in chapter one SCM in public administration incorporates five essential elements (National Treasury, 2015). Figure 2, as adopted from the National Treasury (2015), shows the supply chain management context in the public administration. Figure 2 shows the position of demand management (top) and performance management (bottom) on the diagram highlighting their importance and linking them to other SCM elements.

Concerning the DCSTM, SCM is structured according to the treasury guide, as indicated in Figure 1. However, there seem to be deficiencies in the implementing demand management and SCPM. According to the North West Provincial Treasury blueprint (2019), demand management should encompass planning and linkages, strategic planning, operational planning, and needs analysis. Furthermore, the blueprint guides the

department to establish SCM performance management, which entails risk management and internal control.

According to the AGSA, the department is lacking when it comes to the implementation of these two elements (AGSA, 2015; AGSA, 2017). The DCSTM has repeatedly contravened legislation governing SCM in the public sector (AGSA, 2015; AGSA 2016; AGSA, 2017). In contrast, it is required by law accounting authorities to establish effective, efficient, and transparent systems of risk management and internal control, also a procurement system that is impartial, unbiased, transparent, and economical. The AGSA report indicates that the department has been in contravention from the financial year 2014/15 onwards with regard to strategic planning, performance management, SCM risk management, internal control, and procurement and contract management. A strategic plan for 2014/15 was not prepared by the department as required by Treasury regulation 5.1.1. There was no evidence that contracts are awarded in accordance with legislative requirements (AGSA, 2016). There are repeated internal control deficiencies that result in the basis for qualified opinions.

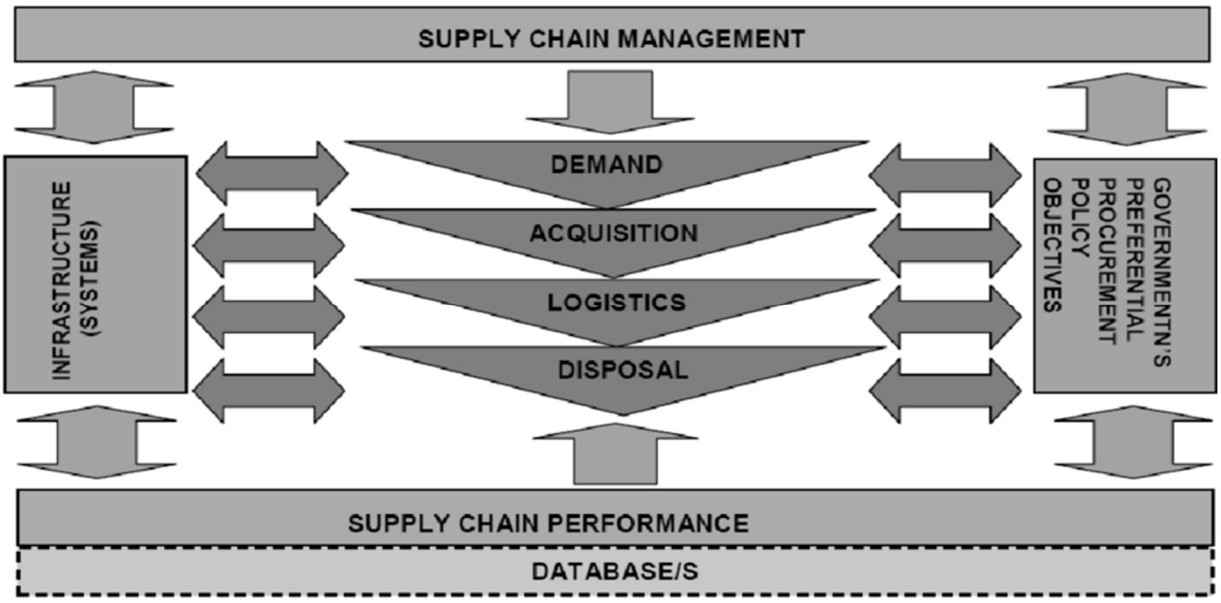

Figure 2 Supply Chain Management Elements (Adopted: National Treasury 2015)

SCM is one of the critical functions of promoting service delivery through the timeous acquisition of goods and services (Singh & Singh, 2019). According to the National Treasury (2015), supply chains need to be appropriately managed through the correct model and activities that will guarantee higher supply chain performance to accomplish a competitive edge. In the public sector, SCM's primary concern is to add value at each

stage of the procurement process in the chain (Ambe & Maleka, 2016). Furthermore, SCM has become an essential part of the public sector financial management process (Human, 2016).

Different researchers (Ambe & Badenhorst – Weiss, 2012; Ambe & Maleka, 2019; Mathu, 2019; Mholi, 2016; Masete & Mafini, 2018; Manyathi, 2014; Mantzaris, 2017; Naidoo, 2015; Ngobeni, 2016) confirm that SCM is a concept that has long been in the literature in SA. Ambe and Maleka (2019) highlight that SCM was first adopted in SA's public sector in 2003. This conformity was encouraged by the government's desire to address the deficiencies in the procurement processes (Masete & Mafini 2018). Ambe and Badenhorst – Weiss (2012) agree that reforms to this concept were introduced to promote ideologies of good governance and initiated a preference point system to address socio-economic activities. Singh and Singh (2019) further argue that public sector SCM is critical in promoting service delivery through the timeous acquisition of goods and services. In SA, SCM in the public sector has emerged as one of the most topical issues among management practitioners and researchers (Mhelembe & Mafini, 2019). Furthermore, demand management and supply chain performance management have become an essential component of SCM. According to Okeke-Uzodike and Chitakunye (2014), performance management draws evidence from various reforms in government towards accomplishing government goals and objectives. Performance measurement has played a pivotal role in the public sector and plays a role in daily management practice.

Performance management is not only a concept; it also suggests an agenda of change and improvement. Performance management can add value to the organisation by supporting the process and improving organisational performance (Phuhakka, 2018). Measuring performance against the strategic baseline should be the very basis when evaluating the targets. However, the AGSA reports suggest that DCSTM lacks when it comes to the usefulness and reliability of performance management information. The 2015/16 report indicates that the department's performance information is not in line with the National Treasury principles. In this report, AGSA highlights the contravention section of the Public Finance Management Act (PFMA) and Treasury Regulation, mainly those that regulate the implementation of finance and SCM (AGSA, 2017). For example, one of the significant challenges that give basis to the qualified opinion is the lack of evidence that advocates for proper management and implementation of processes in line with

treasury guidelines (AGSA, 2017). Performance management has attracted a lot of discussions in the recent past (Fatile, 2014). It is a logical effort to improve performance through an ongoing process of establishing the desired outcomes, setting performance standards to develop performance and productivity, and improving the quality of public service delivery (Uzodike & Chitakunye, 2014). It notes that performance management has been introduced in the African public service to monitor, review assessing performance, and recognize excellent performance (Deloitte, 2017). The performance management system in Africa has not achieved the expected level of performance, which will improve productivity.

On the other hand, demand management is a process concerned with balancing customer requirements with the capabilities of the supply chain. These include forecasting demand, synchronizing it with production, procurement, and distribution capabilities within the SCM (Croxton, Lambert, Garcia- Dastugue & Rogers 2016). With the right prices in place, management can match supply with demand proactively and execute the plan with minimal disruptions. The demand management practice is focused on envisaging customer demand and determining how that demand can be coordinated with the supply chain's competencies. When implemented well, demand management (planning) can be crucial in boasting a supply chain's profitability. Organisations compete with applying new technologies and analytics to make their supply chains more competent, reduce inventory, and improve customer satisfaction while improving profitability. This implies the need to have an effective process for demand management.

It can be reasoned from the above insights that SCM's concept in public service was adopted to promote good governance and improve service delivery. As Mholi (2016) alludes, public SCM in SA has been a valuable tool to deliver service to broader social, economic, and political objectives. Mathu (2019) further claims that SCM's aim in public administration in SA is to achieve internal operational goals and meet targets of service delivery to the general public. However, that being the case, deficiencies are still detected as Mholi (2019) contends that there are many public sector procurement activities in SA which are not executed within the predetermined parameters of cost, time, and quality.

Both public and private SCM face similar problems concerning balancing cost reduction against supply and service quality. However, the public sector tends to be more highly regulated and therefore constrained (Razak et al., 2019). Thus, the public sector SCM is under scrutiny as it operates in a sensitive environment and requires accountability all the

time, mainly due to the general expectation of improved service delivery and greater transparency (Mathu, 2019).

2.3. LINKING SCM, DEMAND MANAGEMENT AND SUPPLY CHAIN PERFORMANCE MANAGEMENT

Public sector supply chains' integration is essential for sustainability in any organisation (Sehgal, 2017). For an organisation to remain competitive, whether it is providing a product/ service, it must always sustain the response to customer's changing demands as quickly as possible (Kandil & El Aziz, 2018). As a management philosophy, SCM takes a system approach to view the supply chain as a single entity (Hamid & Ibrahim, 2015). A framework was developed to include demand management, acquisition management, logistics management, risk management, performance management, and disposal management (National Treasury, 2015). However, this study explored only demand management and supply chain performance management as the knowledge and awareness of these units are crucial.

According to the National Treasury (2015), demand management is a cross-functional activity that brings the end-user closer to the supply chain management practitioner. It balances the customers' requirements with the supply chain's capabilities by synchronizing supply and demand, increasing flexibility, and reducing variability in an SCM process (Croxton et al., 2016). Roger (2020) argues that demand management within SCM analyses consumption levels and determines the patterns that seek to reduce total costs. SCPM indicates the extended supply chain's activities in meeting end-customer requirements, including product accessibility, on-time supply, and the required inventory and capacity in the supply chain to distribute that performance responsively (Kluwer, 2014). During SCPM, processes of the entire supply chain are monitored to determine whether proper procedures have been followed and if the anticipated objectives have been achieved (Mhelembe & Mafini 2019).

2.3.1. Demand Management

Demand management is a subject that has emerged in the field of SCM and marketing (Deshmukh & Mohan, 2016). It seeks to balance demand with the operational competency of suppliers (Manyathi, 2014). It also strategically incorporates supply and customers' needs across the supply chains by managing the entire value chain (Manyathi, 2014). Ambe and Badenhorst – Weiss (2012) argues that demand management is an

fundamental part of the public sector SCM process in that it outlines the decision- making process that permits government institutions to acquire timeously, at the right location, and at cost-effectively.

Furthermore, Ambe and Badenhorst-Weiss (2012) depict demand management as the first procedure of the SCM system that includes planning and overseeing resources, setting up objectives and targets, such as addressing the need valuation of the end-users. Melo and Alcantara (2015) classify demand management into two approaches: demand management as integration of marketing and SCM, and demand management as the process and SCM component. From these opinions, it can be argued that demand management plays a significant role in informing the consumer department about their needs in the market and also helps them to make cost-effective procurements while efficiently managing their supply chains.

Concerning DCSTM demand management practice, the AGSA's report discovered an overstatement of goods and services due to the overpayment of the service provider. This implies that there was no cost-effective procurement concerning these services. Additionally, AGSA identified deficiencies concerning procurement planning as there was no evidence that all contracts are awarded per legislative requirements. The misrepresentation of demand information suggests that the service providers or suppliers will only note their immediate order figures and will be misinformed by the amplified demand patterns (Badenhorst-Weiss, Maurer & Brevis- Landsberg 2013).

2.3.2. Supply chain performance management

The concept of SCPM is a combination of processes from the ultimate receiver of goods or services right through to the provider of those goods or services (Hamid & Ibrahim, 2015). SCPM is a unified approach to improving the effectiveness and efficiency of all supply chain processes (Deloitte, 2017). To fulfill its goals, an institution has to keep the performance of supply chains under check (Maestrini et al., 2017). According to Bigliardi and Bottani (2014), SCPM is recognized as a instrument for providing a speedy and high dependable service delivery of high-quality goods and services at a low price. National School of Government (2017) alludes that supply chain performance includes contract management and performance measurement. Performance measurement outcomes ought to assist an institution in pinpointing the shortfalls in the realization of the objectives (Bizana et al., 2015). These shortfalls are to be rectified through adjustments and

realignment of processes (National Treasury, 2017). Integrating performance measurement with the company helps assess overall performance across the supply chain and identify the internal improvement actions to make a better significant impact on competitiveness (Lenghari, Sarsri, Okar & Es-Satty, 2019).

The main concerns of performance measurement are to gather and analyze data to evaluate the work done and the results achieved since performance measurement (Dametew, Ebinger & Beshah 2018). In the case of DCSTM, it has been confirmed that this element is not implemented on several occasions. According to AGSA‘s report for 2015/16, the department is continually failing to implement adequate controls, and compliance with applicable laws and set standards is not adequately monitored.

2.4. THE IMPACT OF DEMAND MANAGEMENT AND SCPM ON SCM SYSTEM

2.4.1. The impact of Demand Management

According to Bolton (2016), the main reason for indecisiveness on the part of supply chains that have been found with unnecessary levels of inventory is the deficiency of demand management. Demand management necessitates the integration and communication between the concerned parties (Bondarev, 2012). The demand manager must develop contingency plans to deal with supply chain interruptions that may arise (Bizana et al., 2015). Demand management is a collaborative process that determines how much needs to be procured (the demand) at each phase of the supply chain (National Treasury, 2015). It is used to stimulate the supply of the organisations’ goods and services to lessen the total cost for an institution and its supply chains. According to the annual report for the financial year 2017/18 of the department, there are still discrepancies in the implementation of demand management. This is impacting negatively on the entire value chain of the department. Though the ineffective implementation is caused mainly by the capacity challenges in the directorate SCM, adherence to prescribed legislation by suppliers and officials is still a contributing factor. According to paragraph 4.4.1 of the guideline on the implementation of demand management, the SCM unit should apply strategic sourcing principles to determine the optimum manner in which to acquire goods, works, and services. This, according to NWP (2019), entails, among others, the following:

- Conducting an industry and market analysis of goods, works, and services to be acquired and determining their reasonable prices.

- Confirmation that funds have been allocated for the procurement of required goods, works, and services.
- Consideration of the optimum method to be used to satisfy the need. This means choosing whether procurement is through price, quotations, advertised bid, limited bid, transversal term contract, or ad hoc contract.
- The frequency of the requirement must be established to determine whether it would be cost-effective to arrange a specific term contract if it is not available in terms of a transversal term contract facilitated by the relevant treasury.
- Establishing whether it will be cost-effective to have goods available as a store item within an institution.
- Establish the lead time required by potential suppliers to deliver goods, works, and services after receiving the official order.

2.4.2. The impact of Supply chain performance management

Section 216(1) (c) of the constitution of South Africa (1996) requires that National Treasury must introduce uniform standards and principles within the government to ensure transparency and spending control processes, which should contain best practices related to SCM. Further, the public financial management act (PFMA) emphasizes the need to ensure that performance measures and key performance indicators are developed as integral parts of the planning process and that these systems and methods can provide relevant information that will enable institutions to determine if they are achieving objectives identified in their strategic plans (National Treasury, 2015).

Performance management stimulates the dialogue between the teams by rationalizing instead of emotionalizing strategic choices backing the acceptance of the set objectives, the predisposition of leaders to coordinate the teams in the quest of goals attainment, and the teams for their execution (Ossovski, 2016). Performance management is a critical element of decision making and business performance improvement (Kasie, 2013).To emphasize the development of appropriate performance measures is a crucial issue that ensures competitiveness in the global market and continuously improves performance. An effective SCM performance management system must be established and implemented following departmental policies and procedures and applicable legislative requirements. SCM performance can be evaluated in terms of the contractors of goods and services, and The SCM components are service delivery realization and value for

money (National Treasury, 2015). Performance measurement is crucial for a bench-marking supply chain with market standards.

2.5. LIMITATIONS TO EFFECTIVE DEMAND MANAGEMENT IMPLEMENTATION

2.5.1. Total Cost of Ownership

The total cost of ownership (TCO) denotes a technique and attitude that looks beyond the procurement price includes other purchase-related costs (Deloitte, 2017). TCO is a valuation of all costs involved within a commodity over the useful life of that commodity (National Treasury, 2015). Habitually, TCO is used at the commencement of the procurement process to assess which is the best cost-effective choice (Aladejebi & Adedeji, 2015). It can be concluded that when TCO is calculated at the decision-making point, many of the included costs are projected, and therefore informed decision is taken because they have not yet been incurred. Most purchasers know that the quoted purchase price is not the only cost involved in obtaining and using an item (Twin, 2020). Although the price is and will always be a significant factor in the supplier decision process, it does not evaluate the hidden costs associated with it. The major unknown cost elements related to essential purchases can be identified by TCO (Rantanen, 2019).

2.5.2. Market analysis

During the demand management processes, officials are required to conduct proper market research to be able to implement demand management more effectively (National Treasury, 2017). As Shatanawi (2014) proposed, the purpose of market analysis is to understand markets, identify changes in the markets, improve market awareness, gain an understating of the needs, and reduce risk and uncertainty to forecast market trends. The knowledge of supplier markets, events, and technologies are critical to organisational success (Gargea 2012). Bizana et al. (2015) contend that a lack of integrated planning and market analysis results in poorly compiled specifications that may negatively impact evaluation and adjudication processes. The objective of conducting market analysis is to develop sound procurement strategies for necessary procurements (Ambe & Maleka, 2016).

Market analysis is a method used to detect market characteristics for particular goods or services (National Treasury, 2015). Market analysis is a vital element of every sourcing procedure. It facilitates selecting the precise sourcing strategy and provides a technique

for in-depth scrutiny of market characteristics. To a large degree, the realization of the procurement processes is dependent on the quality of detailed knowledge of the supply markets' features and a companies' position within them (Lobermeyer & Kotzab, 2010). During the demand management processes, officials are required to conduct proper market research to be able to implement demand management more effectively (National Treasury, 2017). Therefore, if the market is not adequately researched, the demand management process becomes ineffective.

2.5.3. Expenditure analysis

Expenditure management is an approach for a company to control and improve its expenses; it contains cutting operating costs. Expenditure management provides a company with a control over the money so that all business needs are satisfied in the most cost-efficient way (Zitha & Mathebula, 2015). A company's profit is the difference between total incomes and total expenses, so profit can be augmented either by raising the income side or by a reduction in expenditures (Marzic, 2014). While Badenhorst-Weiss et al. (2013) contend that financial figures are merely the results of yesterday's choices and do not indicate tomorrow's performance; however, determining the organisation's spending habits helps make informed decisions concerning tomorrow's spending patterns (National Treasury, 2017).

Razak et al. (2016) contend that procurement can include the significant extent of a national economy for the public sector as it is in the private sector as both face related issues concerning equating cost reduction and quality of goods and services supplied. Thus, the significance of procurement assumes a vital role inside the public sector as it does for the private. Once an organisation knows exactly where its money is going, it will be able to decide how and where it should be spent and categorize prospects for reducing costs (Saad, 2018). However, a problem that frequently emanates from expenditure analysis initiatives is low quality and the absence of verified data. This is where technology has a significant part to play (Softco, 2019). The expenditure analysis overview lesson defines expenditure analysis and identifies its critical benefits for helping organizations identify valuable strategic sourcing opportunities (Singh & Singh, 2019).

When conducted correctly, expenditure analysis allows the institutions to recognize prospects to control buying power, decrease costs, increase operational performance and

offer better administration and oversight of service providers while improving interactions with internal and external participants (Aimable et al., 2019). Unfortunately, expenditure management has been neglected by many public entities. It has been estimated that public institutions can improve on expenditures by improving procurement processes (Badenhorst – Weiss et al., 2013).

In contrast, preferential procurement regulations advocate for the procurement of goods and services with market-related prices. Provincial Internal Audit report (2019) claims that there is no evidence that the acquisition of goods and services within the department is market-related; this means that expenditure analysis is not adequately executed to determine market-related prices. Further, the AGSA (2019) claims that effective and appropriate steps are not taken to prevent irregular expenditure in the department. It is required by section 38(1) (c) (ii) of the PFMA and Treasury regulation 9.1.1 to prevent irregular expenditure. The majority of irregular expenditures in the department are caused by non-compliance with treasury regulations.

2.6. IMPEDIMENTS TO EFFECTIVE DEMAND MANAGEMENT AND SCPM

The concepts of demand management and SCPM originate from the value chain, and it suggests a different standpoint to look at the chains (Deshmukh & Mohan, 2016). They constitute and complete a value chain along with SCM (Mantzaris, 2017). Demand management and SCPM are significant in finding ways to reduce demand variability, improve performance and operational flexibility (Sehgal, 2017). Singh and Singh (2019) emphasize that service delivery challenges at various spheres of government are attributed to the insufficiency of strategically understanding the additive insights such as demand planning and strategic sourcing that is inherent in an attainable value chain for the betterment of citizens. According to Munzhedzi (2016), the commendable strategy framework introduced is habitually completely weakened by occurrences of:

- Lack of accountability,
- Political intrusion,
- Selection of inexperienced and unqualified staff and suppliers,
- Lack of technical expertise in respective bid committees,
- Lack of understanding of the appropriate regulatory framework, and
- Non-compliance with the policy framework.

According to Singh and Singh (2019), there is a need for a supply chain to be managed appropriately through the appropriate model and practices that will ensure superior supply chain performance to attain a competitive edge

2.7. FACTORS THAT IMPROVE THE IMPLEMENTATION OF DEMAND MANAGEMENT

Procurement in the government sphere functions in an atmosphere of progressively intense scrutiny driven by technology, reviews in programmes, and public and political anticipations for service delivery (Mantzaris, 2017). It is thus critical at this phase to understand the procurement needs for a particular organisation. Information systems for supply chain management must address the necessary supply chain processes consisting of activities that may include the decision-making on buying, making, moving, storing, or selling (Deasy et al., 2014). The mutilation of demand information suggests that the procurement officials who only observe the primary data will be deluded by the intensified demand patterns (Masete & Mafini, 2018).

According to Deasy et al. (cited by Razak et al., 2016), building up an efficient and strategic procurement function is ending up progressively a need for managers who perceive that it has a decisive role in a definitive achievement of the public sector. On the contrary, Bondarev (2012) contends that the pace of progress happening in business sectors, after the last global crisis in the economy, has to have new business methodologies and philosophies that will be able to reflect present as well as future market inclinations, and will also form the basis for the development of organizations that effectively use them. Bizana et al. (2015) posit that end-users' needs in local government must be assessed thoroughly using market and product analysis as well as the supply and demand procedure.

2.7.1. Supplier Database Development

Supplier management permits an organisation to choose its contractors cautiously and to be able to negotiate the best prices for the goods and services or works that it needs (Deasy et al., 2014). Supplier management includes purchasing, developing contracts and management thereof, transportation and logistics management, strategic planning, and supplier assessment (Mantzaris, 2017). Supplier administration also enables the buying institution to observe the suppliers' performance, ensure that it attains its

objectives; and minimize pre-tender stage violations (Ngobeni, 2016). Regarding government departments, the database has been centralized to the national treasury, and it is online-based, whereby suppliers are to use self-service registration. The DCSTM uses this database to source their suppliers. Though the database has eliminated a large number of discrepancies, it can still be manipulated by some. For this reason, the department is verifying the authenticity of every supplier through its demand management staff.

2.7.2. Annual Procurement Planning

The National Treasury (2017) articulates that there must be proper planning in line with the necessities identified in the institution's strategic plan. The NWP (2019) contends that a procurement plan should be developed out of the strategic plan's input and the various frameworks that give effect to the department's service delivery mandate. Equally, procurement planning is one of the critical sub-forms within Demand Management yet is commonly disregarded as a responsibility.

While procurement planning must be lined up with the spending cycle, budget holders become key drivers in improving these plans (National Treasury, 2015). Masete and Mafini (2018) argue that the lack of an unfaltering SCM implementation drive at the institutions focuses arrangement between institutional techniques, demand management, and SCM planning. In that situation, institutions do not value their money from a more significant part of SCM executions. Consequently, the demand management plan procedure is essential to any procurement procedure as it characterizes the necessary decision-making process that enables departments to acquire at the correct time/cost/place. This stage ensures that the organizational needs highlighted during the needs assessment activities are carried out according to the strategic plan of an organisation and are within a budget allocated (Bizana et al., 2015).

Possible suppliers are also identified during the procurement planning (National Treasury, 2017). The demand management unit executes forecasting and planning within the department, and therefore, they play a very significant role in spending public fund funds (Aimable et al., 2019). It is amid demand management processes, where SCM practitioners must ensure convenient planning and the administration of procedures and ensure economies of scale in procuring monotonous goods (Ambe & Maleka, 2016). A proper compiling of product specifications and undertaking formal industry investigation

and research to advance the development and increase technical advantages is performed at this phase (National Treasury, 2017). Ambe and Badenhorst–Weiss (2012) acclaim that cost-effective acquisition relies upon specialized skills to guarantee that procuring fundamentals are reliably decided, suitable contract systems are developed, contracts are all around overseen, and chances to verify best arrangements at the ideal time and cost. Bondarev (2012) suggests that forecasting's primary concern is to help an organization act proactively in client request expectation. The objective of forecasting is to decide, dissect, and gauge a possible future client request to empower an organization to expedite its ability standard with it (Ambe, 2014). Procurement planning is the principal task that sets the stage for succeeding in procurement activities (Aladejebi & Adedeji, 2015).

Poor planning has affected the implementation of SCM (Ambe & Badenhorst–Weiss, 2012). The ideals of planning suggest that procurement planning can be implemented in an atmosphere of complete harmony. Mholi (2016) contends that poor planning and poor budgeting amongst government entities result in the inadequate implementation of SCM processes. The importance of procurement planning is now recognized and increasingly plays a strategic role within public sector organisations (Razak et al., 2016). An organisation's competencies to accomplish its internal clients' needs are significantly influenced by proficient procurement planning that seeks to achieve cost-efficiency gains, enhanced quality, appropriate scheduling, and delivery of products and services (Singh & Singh, 2019).

This stage ensures that the organizational needs highlighted during the needs assessment activities are carried out according to the strategic plan of an organisation and are within a budget allocated (Bizana et al., 2015). Possible suppliers are also identified during the procurement planning (National Treasury, 2017). Public institutions should adequately plan for and accurately estimate the costs of the goods and services required (National Treasury, 2015).

According to Gordan (2016), procurement planning's fundamental importance is that it would allow departments to leverage on their procurement spending by attracting substantiate discounts. Brown (2016) agrees that leveraging government buying power guarantees that reasonable prices are acquired and valued discounts by obtaining appropriate quantities. According to Mantzaris (2017), public sector procurement is

directly related to state administrative activities, primarily concentrating on purchasing goods and services that the government needs from the private sector. PIA performed a detailed review of the department's demand management process in the financial years 2017/18 and 2018/19. Weaknesses in controls regarding the procurement plan and roll out of the procurement were highlighted.

2.8. FACTORS THAT IMPROVE THE IMPLEMENTATION OF SCPM

2.8.1. Alignment between supply chain partners

Alignment between performance and importance of procurement function in an organ of state is defined as the degree of leveling between the seven trust dimensions as determined buyers and suppliers (Manyathi, 2014). Performance management is a cyclic process within an institution that starts with strategic planning and moves through programme implementation and monitoring to performance measurement and, eventually, a performance management system. For relationships to be active and long-term, they have to be beneficial for all parties, the buying and supplier firms (Al- Abdallar, 2014).

Performance management effectively links supply chain partners to achieve breakthrough performance in satisfying end-customer needs and provide feedback regarding customer's needs and supply chain capabilities (Ambe 2014). SCPM creates an understanding of the supply chain processes, guides collaboration efforts, and optimizes supply chain performance. Over the past decades, the supply chain's role has been evolving from a cost center to a competitive advantage. That is why the measurement and management of supply chain performance became particularly essential (Lakri & Dallery, 2014). SCPM relates positively to financial and internal process performance (Kwamega & Abrokwah, 2018).

2.8.2. Performance Measurement

Supply chain performance management is a measurement system that can assess supply chain performance holistically. In crafting a performance measurement system based on the process, the crucial step that must be done is to define the central procedures in the supply chain, describe the core procedures into smaller portions, and calculate the resources involved in each of these procedure elements (Putri, Huda & Sinulingga 2019). According to Ossovski (2016), the effects of strategic analysis aligned

to the performance measurement system guide managers to focus on the future, encourage a more accurate communication flow, and optimize the coordination process as a whole. Furthermore, Ambe (2014) argues that supply chain performance measurement has an essential role in setting objectives, evaluating performance, and determining future action courses.

The performance and importance of procurement practices need to be integrated both at the front end – providing guidance and advice to the internal stakeholders in developing sourcing and procurement arrangements – and back end working with external stakeholders, mainly suppliers, and influence the decision-making process (Ambe & Maleka, 2016). To effectively align performance and importance of procurement practices, there has to be a dialogue between internal and external stakeholders concerning realistic goal setting, joint accountability, collaboration, and continuous improvement (Carvalho, Azevedo & Cruz, 2015).

Procurement function performance is essentially measured by its ability to source goods and services required by the state organ of the right quality, the right quantity, at the right time, in the right place, and from the right price (Human, 2016). Badenhorst-Weiss et al. (2013) reveal that earlier SCM focused on cost, but later performance measures also included customer responsiveness and activity time. The apparent importance of information flow in the performance of the supply chain necessitates proper management attention. Improving SCM units' performance requires more than learning from the client's perspective; it includes learning from others' experiences. Therefore, the SCM unit's procurement performance must be studied carefully and systematically (Yang & Fan, 2016). The supply chain management units' effectiveness during the delivery processes needs to be measured from procurement results to know whether they are achieving continuous improvement or not (Saad, 2018). In terms of the National Treasury framework, an SCM system implemented must provide a regular assessment of supply chain performance (National Treasury, 2015). Any evaluation of the degree of success achieved in providing social and economic deliverables is dependent on effective monitoring (National School of Government, 2017).

2.9. CHALLENGES TO THE IMPLEMENTATION OF DEMAND MANAGEMENT

2.9.1. Budget Linking

A study conducted by Motuba highlights that many government organisations are still faced with the problem of appropriate preparation and linking demand to budget (Motuba, 2017). Badenhorst-Weiss et al. (2013) highlight that lack of proper budgeting at the SCM planning can result in poor planning by programme managers. Lack of appropriate planning and alignment of needs to budget may sabotage the whole performance of supply chain management (National Treasury, 2015). Furthermore, from the related monetary point of view, resource planning and forecasting are vital and valuable business devices (Bizana et al., 2015). Budget linking has been a problem in the department for some years. The instances of unauthorized, irregular, fruitless, and wasteful expenditure in audit findings since the financial year 2014/15 clearly indicate that the department fails to plan and link the budget to their needs appropriately.

2.9.2. Specifications

The quality of research and analysis in both the market and the business needs informs specification development (NWP 2019). National Treasury (2015) concurs that item and specification management is crucial to the process of procurement as it provides the specifics of the goods, services, or construction works to be procured. Ngobeni (2016) argues that inadequate demand and procurement planning will result in meager development of specifications, a wrong decision regarding the items to be purchased, and ultimately impractical estimations concerning costs.

2.9.3. Strategic Sourcing

One benefit endorsed to a well-coordinated strategic sourcing initiative is understanding how competencies and procedures backup a clearly defined business strategy (Masete & Mafini, 2018). Strategic sourcing applies to almost every procurement activity. Strategic sourcing has been traditionally associated with the consolidation of opportunities. Technology advances such as online proposals or bids have created competitive environments that may have previously not existed but have caused suppliers to respond to an organisation's financial objectives. Strategic sourcing has a positive impact on organisational performance (Gargea, 2012). Strategic sourcing involves analyzing organisational needs for goods and services by ensuring that needs are optimized through reduced expenses, maximizing on the organisations buying efficiency and

decision making to give effect to strategic outcomes of an organisation (Singh & Singh, 2019). Hamid et al. (2017) argue that this perspective involves making a strategic choice to compete based on supply chain competencies and utilizing this strategic emphasis to drive the performance of strategic business units within the firm. Organisations can achieve cost realization by aggregating demands through the categorization of low-cost items.

This coerces organisations to drive their cost down due to volumetric and manages their procurement expenditure to achieve their strategic priorities. Badenhorst-Weiss et al. (2013) contend that SCM needs constant decision-making in five divergent information sharing areas. The sum of these decisions will describe the entire supply chain's competencies and efficiency (Aimable et al., 2019). Increasing demand management and procurement planning errors prompt decreasing information quality and cause inconsistencies between institutions' demand forecast and real demand at each phase of SCM processes (Hamid & Ibrahim, 2015).

Strategic sourcing is crucial for companies to remain competitive and manage their supplier base by identifying and selecting suppliers for long-term partnerships and developing effectively the already established buyer-supplier relationships (Rantanen, 2019). In light of these sentiments, it is clear that strategic sourcing plays a significant role in service delivery in public service as it contributes value to the planning of procurement of goods and services. By adopting a strategic sourcing model, strategic categories of commodities can be well managed by a specialized SCM team that would strive to establish key collaborative and strategic relationships with suppliers (Ibrahim and Hamid, 2015).

2.10. CHALLENGES TO THE IMPLEMENTATION OF PERFORMANCE MANAGEMENT

2.10.1. Internal Control deficiencies

Internal control refers to the utilization of policies, procedures, practices, and organisational structures implemented to provide reasonable assurance that an organisation’s objectives will be achieved and undesired risk events will be prevented or detected and corrected, based on either compliance or management initiated concerns (Boakye, 2016). According to Babalola (2020), internal control is a process for assuring that objectives are effectively and efficiently achieved, financial reporting is reliable, and

there is compliance with the law, regulations, and policies. In concurrence, Safina and Harisova (2018) state that the implementation of internal control and audit in organisations of the public sector is intended to increase modern public administration efficiency.

In the case of the department of CSTM, internal control is part of the broader function of managing expenditure on and payments for goods and services that are involved in delivering services to communities. According to NWP (2019) SCM, the internal control framework must provide for the entire virtuous cycle of SCM, risk identification, preventative, and corrective control activities.

2.10.2. Lack of contract management

Contract management is the process that enables organisations to a contract to meet their commitments to deliver the goals required from the contract. It also encompasses working relationships between customer and provider. Throughout the contract, it includes proactive management to anticipate future needs and react to situations that may arise. Contract management aims to achieve the goods and services as decided in the contract and achieve value for money. This means optimizing the productivity, efficiency, and the relationship described by the contract, balancing expenses against risks, and actively managing the customer-provider relationship. Contract management may also be involved in aiming for continuous improvements in performance throughout the contract. Contract management activities may broadly be clustered into three extents:

a. Service delivery management ensures that the service is being provided as agreed to the obligatory performance and quality level.
b. Relationship management keeps the association between the two organisations open and constructive, aiming to resolve and ease tension and identify problems early.
c. The contract administration handles the formal governance of the contract and changes to the contract documentation.

The management of DCSTM has already accepted the weakness identified in respect of contract management according to the audit report of Provincial Internal Audit (PIA) for 2019/20. The department has no contract management in place. The intervention strategy to source officials from various units to perform contract management functions does not suffice due to the shortfall of staff.

2.10.3. Non-Compliance with legislation

Various legislative frameworks govern supply chain management in the public sector and demand management and supply chain performance management. This legislation is outlined as follows:

Section 38(a) (iii) of the PFMA

Imposes a responsibility on the Accounting Officer of each Department by determining that:

"The Accounting Officer must maintain an appropriate procurement and provisioning system, which is fair, equitable, transparent, competitive, and cost-effective."

Treasury Regulation 16A:

The Accounting Officer or accounting authority of an organisation to which these regulations apply must develop and implement an effective and efficient supply chain management system for:

(a)The acquisition of goods and service

(b) The disposal and letting of state assets.

Instruction Note Number 32 of 31 May 2011

To improve accountability and provide supply chain management directives to accounting officers of departments and constitutional institutions and accounting authorities of public entities listed in schedules 3A and 3C to the Public Finance Management Act. (PFMA) 1999.

National Treasury Circular: Guidelines on the implementation of Demand Management.

This guide aims to assist institutions with planning for the procurement of goods, works, or services in a pro-active manner and to move away from merely reacting to purchasing requests.

Supply Chain Management: A Guide for heads / Authorities

This guide is intended to facilitate a general understanding of the changes to SCM. It must be seen as a step to assist Head /Authorities in the smooth implementation of supply chain management within their institutions.

In the case of DCSTM relating to the above legislation, there is a continuous non-compliance, according to AGSA's reports. According to the 2015/16 annual report, there

was no evidence that all the awarded contracts were in accordance with legislative requirements. Furthermore, the 2018/19 report states that there is a habit of procuring goods and services above R500 000, thereby resulting in contravention of Treasury regulations. Additionally, bid documentation for procurement of commodities designated for local content and production often does not stipulate the minimum threshold for local production content as required by the preferential procurement regulation (PPR) 2017.

2.11. CONCLUSION

This chapter aimed to review the literature from various authors concerning the topic under study. Insight from these authors has been provided. The section started with the definition of critical concepts that are being used throughout the study. Literature was reviewed firstly by looking at supply chain management in a broad sense. The discussion was narrowed down to demand management and supply chain performance management.

The chapter highlighted the different views concerning SCM in both the private and public sectors. It also noted that various activities are performed in demand management that is crucial to the overall supply chain's success. Factors that can improve SCPM, that is, Alignment between SCM partners and performance measurement, were also explained.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. INTRODUCTION

The purpose of this chapter is to outline the research methodology that was used to conduct this study. The methodology is a broad term used to refer to the research design, methods, approaches, and procedures used in an investigation that is well planned to find out something (Kivunja, 2016). As discussed in chapter one, the study aimed at evaluating demand management and supply chain performance management in the Department of Community Safety and Transport Management in Mahikeng. The preceding chapter unpacked these concepts and how they link and influence the overall supply chain management in the public sector. This chapter is an exploration of the methodology that was used to highlight key findings. The intention of this chapter, thus, is to:

- Deliberate on the research philosophy relative to other philosophies;
- Explain the research strategy, including the research methodologies implemented; and
- Present the research instruments that have been developed and utilized in the pursuit of the research goals.

3.2. RESEARCH METHODOLOGY

The methodology is the logical and theoretical analysis of approaches used in a field of study (Igwenagu, 2016). A research methodology is a collective term of the planned procedure of conducting research (Sharma, 2017). According to Zukauskas et al. (2018), research methodology strives to enlighten why a research study has been conducted, how the research problem has been formulated, what specific method has been applied, and why a particular method of analyzing data has been used. The research onion adopted from Saunders (Sahay, 2016) was used to explain is the study's research methodology.

This framework is illustrated in Figure 3 below. As highlighted by Zafeiti and Mohamad (2015), the onion is approached by peeling from the outer layer to the most inner of the research onion. This approach was chosen because it creates a series of phases under which the various data collection methods can be understood, and it illustrates the steps

by which a methodological study can be defined (Emmanuel, 2019). This approach's conveniences in its adaptability for almost any type of research methodology can also be used in various contexts (Bryman, 2012). This study's choice or this study was also influenced by the fact that it can provide explanations and justification for each methodological choice (Peersman, 2014).

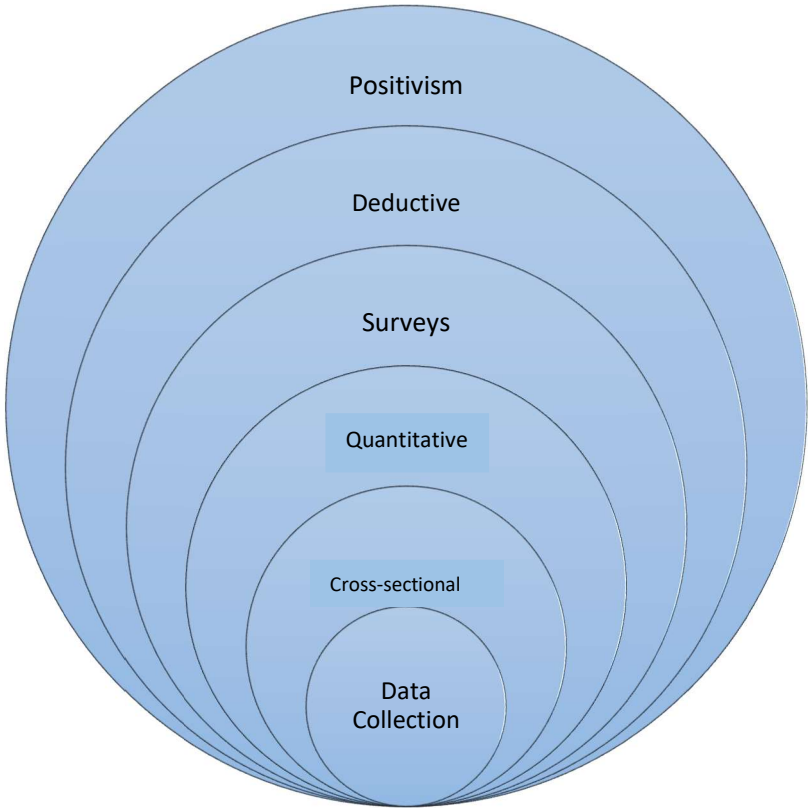

Figure 3 Research Onion (Adapted from Zafeiti & Mohamad, 2015)

3.2.1. Research philosophy

The outer layer of an onion is a research philosophy. The scientific investigation paradigm and philosophy are influenced by different factors, such as the individual's conceptual state, their worldview, assertiveness, and perception of reality (Sharma, 2017). Research paradigms may be Positivism, Interpretivism, Realism, and Pragmatism (Taherdoost, 2016). For this study, a positivist paradigm was followed. Researching without being involved seems almost impossible (Igwenagu, 2016). Positivists believe that realism is steady and can be detected and pronounced without interfering with the studied phenomena (Sileyew, 2019). According to Kivunja and Kuyini (2016), the positivist model outlines a worldview that is known in study methods as the scientific technique of exploration. It encompasses a process of investigation used to explore observations and

answer questions (Gaus, 2017). Furthermore, it is used to search for interconnections in nature (Melnikovas, 2018). Positivism involved the use of existing theory to develop hypotheses that were tested during the research process. Specifically, positivism relies on the scientific approach based on the supposition that X causes Y under certain situations. In the case of this study, the role of the researcher when following the scientific method was to discover the specific nature of cause and effect relationships based on the following hypothesis:

- There is a positive correlation between demand and supply chain performance management and SCM system.
- There is a negative correlation between poor implementation demand and supply chain performance management and SCM system.
- There are impediments in the effectiveness of demand and supply chain performance management
- Lack of understanding of supply chain practices and processes leads to poor implementation of demand and supply chain performance management.
- There are limitations affecting the effective implementation of demand and supply chain performance management
- There are challenges to the implementation of demand and supply chain performance management

Furthermore, positivism in this research was used instinctively to operationalize theory, where the application of the methodology involved the selection of a sample, measurement, analysis, and concluding hypotheses.

Positivism aims to provide justifications and make extrapolations based on the quantifiable outcome undergirded by four suppositions: determinism, empiricism, parsimony, and generalizability (Cohen, Manion & Morrison, 2000). Empiricism signifies gaining knowledge through systematic observation of the world (Kivunja & Kuyini, 2017). This method relies on observations. Determinism is the hypothesis that phenomena have an identifiable source. This is the notion that phenomena in the world occur naturally and have identifiable causes.

Parsimony assumes that the most straightforward description of the phenomenon is most likely to be modified (Igwenagu, 2016). Lastly, the generalizability theory tells the readers that the results attained from a research assignment conducted within the positivist

paradigm, in one framework, should be appropriate to other situations by inductive extrapolations (Sahay, 2016). Recognizing the deficiency of impartiality that is sometimes linked with interpretivism methods, this study adopted a quantitative positivism approach to develop research instruments.

The investigation submitted to the positivist paradigm since it was envisioned to test several *a priori* hypotheses to determine connections between the variables (Taylor & Milton, 2013). To test these relationships, a quantitative method was used, as this allows the generalization of the outcomes of the study to other public supply chains in various environments. A survey design, which involved the collection of data using questionnaires, was utilized for this study since it is related to representativeness, impartiality, being systematic, reliability, and objectivity (Creswell, 2014). The role of the researcher in this study was restricted to data collection and interpretation impartially. The research findings are visible and quantifiable. This study depended on quantifiable observations that led to statistical analysis. The different fundamentals of the research approaches for this study are further elaborated in the sections below.

3.2.2. Research approach

The second layer of Saunders's research onion is the research approach. This layer is divided into the deductive approach and the inductive approach. The deductive approach, according to Al Zafeiti and Mohamad (2015), focuses on using the literature to identify philosophies and concepts that the researcher is going to test. In contrast, the inductive approach includes the gathering of data and developing a philosophy grounded on the outcomes of the investigation (Emmanuel, 2019).

The deductive approach offers a grasp of a diverse understanding of corporate social obligation actions using literature data (Sahay, 2016). In agreement, Emmanuel (2019) alludes that the deductive approach utilizes questionnaires to generate an understanding of observation, which permits one to equate various perceptions of individuals through empirical data. For that reason, this approach became relevant for this study as it evaluated the usefulness of demand management and supply chain performance in the public sector. The deductive approach develops the hypotheses upon a pre-existing philosophy and then formulates the research approach to test it (Melnikovas, 2018).

The inductive approach permits research to create a concept rather than embrace a pre-existing one as is the case in the deductive (Melnikovas, 2018). This approach of

reasoning is frequently used when there is little literature existing on a particular research topic (Zefeiti & Mohamad, 2015). In contrast to the deductive approach, a researcher has to move in the opposite direction from the research question to observation and description to analysis before getting on to theory (Kivunja & Kuyini, 2017).

This study followed a deductive orientation as it was testing a hypothesis in a specific context (Zefeiti & Mohamad, 2015). The study started with proposing hypotheses, on paragraph 1.6 in Chapter 1 that will be confirmed or rejected by the findings of the research. This study's approach moved away from a generic to a specific area of research. A deductive approach was chosen for the reason that a researcher was, in the end, be able to derive finding from the collected data to reject or confirm the hypothesis (Antwi & Hamza, 2015).

3.2.3. Research strategies

The research strategy defines the way the researcher plans to transmit out their study (Emmanuel, 2019). The research strategy can contain various approaches such as experimental, case studies, interviews, surveys, or a systematic literature review (Zefeiti & Mohamad, 2015). Presenting research approaches, Saunders et al. (2016) propose experimental, survey, case study, and action research to be key strategies in any research study.

- **Experimental** research, according to (Melnikovas, 2018) is a scientific design aimed at testing causal effects of phenomena on a group. The data that has been gathered through this method can be analyzed statistically (Emmanuel, 2019).
- A **Survey** design often results from a deductive approach and is capable of collecting a large volume of data that is appropriate for statistical analysis (Melnikovas, 2018). The collected data helps answer the research question or hypothesis in a cost-effective manner (Antwi & Hamza, 2015).
- **A case study** is a research design that gives unique cases in real circumstances (Sahay, 2016). A case study surveys a phenomenon in its natural situation, using various approaches of data collection to gather information from different objects. The case study is deliberated by Benbasat et al. (1987:372) to be practical for three motives:
    - *It is necessary to study the phenomenon in its natural setting,*

- *The researcher can ask "how" and "why" questions, to understand the nature and complexity of the processes taking place, and*
- *Research is being conducted in an area where few if any, previous studies have been undertaken.*

- **Action** research is a study related to a specific project and problem. This strategy aims to find an immediate solution to a problem faced in a society (Emmanuel, 2019). Therefore we can say that an action study is concerned with real-life because it studies the 'what,' 'how,' and 'why' of real-life (McLeod, 2018). In short, it is an attempt to understand the present issues and help to predict future changes.

For this study, a survey questionnaire was used. The strategy was chosen simply because the research followed a quantitative research method. A questionnaire consists of a series of questions to gather information from respondents. Closed questions structure that allows ordinal data were developed (McLeod, 2018). This often includes using a continuous rating scale to measure the strength of attitudes or emotions (McLeod, 2018). For example, strongly agree/ agree / neutral / disagree / strongly disagree was used in structuring the questionnaire used for the study. The sample was composed of the managers drawn from the department of community safety and transport management. The management was deemed appropriate because they are in a position to be knowledgeable about the processes of SCM, subsequently demand management and SCPM.

The goal of sampling strategies in this research was to obtain a sufficient sample that represents the entire population of interest. It was not feasible to collect data from an entire population of interest. Therefore, a subset of the population was used to estimate the population responses. To accurately conclude the population, the sample included those with characteristics similar to the population. Fujimori et al. (2014) argue that using various recruitment strategies can aid to improve the size of the sample and help guarantee adequate coverage of the intended population. With the survey, the study wanted to obtain a sample of individuals in managerial positions in the department. The sample ideally included individuals with the knowledge and understanding of the SCM processes in the public administrations.

3.4. RESEARCH METHOD

The purpose of a research method is to make sure that the substantiation achieved enables a researcher to effectively discourse the research problem as unmistakably as possible (Peersman, 2014). There are two major types of methods, quantitative and qualitative methodology. According to Antwi and Hamza (2015), a qualitative approach is concentrated on the interpretivism paradigm, and the quantitative approach is grounded positivism paradigm. Quantitative methodology endeavors to compute social phenomena, gather and analyze data, and focus on a smaller number of characteristics across many circumstances (Peersman, 2014).

Quantitative methodology is focused on understanding the significance of social phenomena and focuses on links among a more significant number of characteristics across relatively few circumstances (Strydom et al., 2011). Methodological choice, according to Zukauskas et al. (2018), ought to be correlated to the philosophical stance of the researcher and the studied social science phenomenon. The study used a quantitative investigation method. This choice of research was followed because the researcher adopted positivism and collected and analyzed both data using statistical methods. Quantitative research needs vigilant experimental design and the capability for anybody to replicate both the test and the results (Antwi & Hamza, 2015). For this study. it made data gathering more reliable and less open to argument. As a result, interpretation of data and presentation of the findings is straightforward and less exposed to error and subjectivity (Igwenagu, 2016). Research that involves complex statistics and data analysis is considered valuable and impressive because many people do not understand the mathematics involved. One other benefit of using the quantitative method for this study is that data collection was able to be automated via digital surveys, thus allowing people to respond at their convenient time and place.

3.5. RESEARCH OUTLINE (TIME HORIZON)

The time horizon details the total required time for the conclusion of a particular project. There are two types of time horizons specified in the research onion.

3.5.1. Cross-Sectional

The cross-sectional time horizon is the approach whereby the area of data collection is already established. It is used when the study is concerned with a specific phenomenon at a particular time. A cross-sectional strategy, which involved the collection of data from

respondents once within a particular period (Denscombe, 2014), was used to conduct the research. The data was collected over three weeks starting from 05 September until 25 September 2020. The study sample was composed of the managers drawn from the department of community safety and transport management. The management was deemed appropriate because they are considered as appropriate to possess the knowledge about the processes of SCM, subsequently demand management and SCPM.

3.5.2. Longitudinal

A longitudinal time horizon denotes a collection of data repeatedly over a lengthy period and is used when there is a change over time to an important factor of research. As stated above in 3.5.1 the study followed a cross-sectional approach to collect data.

3.6. RESEARCH TECHNIQUES

3.6.1. Data Collection

The data collection methods in quantitative research rely on random sampling and structured data collection tools that fit various experiences into predetermined feedback groupings (Rimando et al., 2015). A cross-sectional study with a self-administered questionnaire was conducted to answer the research questions and test the hypotheses. A Likert scale was used since it reaches the higher edge of the scale reliability (Allen & Seaman, 2007).

3.6.1.1. Data Collection Tools

The questionnaires were used to collect quantitative data, which is the popular means of collecting data. The questionnaire was used in this study is included in Appendix A. Given the current situation caused by COVID-19, and restrictions on physical contact, the questionnaire was developed into an online survey questionnaire (Google Forms) and distributed to the participants. The paper-based questionnaire was dropped off at the respective offices of the respondents and collected at a later stage, whereas the link for Google Forms was sent through emails obtain from the GroupWise database. According to Regmi, Waithaka, Paudyal, Simkhada and Van Teijligen (2019), an online survey is an emerging internet-based data collection tool that is cost-effective.

After permission to conduct a study was granted, emails were used to distribute questionnaires to the participants. The researcher uploaded the questions on Google forms, and the link was sent through email to the population of the study. A paper version of survey questionnaires was also distributed in which participants can tick their answers

and email them back to the researcher. An online survey followed the same characteristics as the paper version of the survey. This study considered the target respondents having managerial skills and presumably knowledge of the concepts under study.

3.6.1.2. Data Coding and Analysis

The purpose of data analysis is to decrease data to a comprehensible and interpretable form so that the relationships of research problems can be studied tested and conclusions drawn (Strydom et al., 2011). Interpretation took the result of the analysis, made inferences pertaining to the research relations studied, and made conclusions about these relations. The aim was to study more about the population from which the sample is drawn.

The researcher worked with a sample and had a form of sample error from data. Quantitative data in professional research can be analyzed by a computer. Collected data was computed on Statistical Package for Social Sciences (SPSS). Data coding is one of the critical steps taken during analysis to organize and make sense of collected data in research. For this research, data was collected through both paper and digital surveys, and a primary data check was conducted before it was carried out through data cleaning. The number of rows was matched to the number of respondents surveyed to ensure data completeness. For example, this survey involved 140 participants, the first step was to ensure that the number of rows in the data set equals 140. This is a good first check. However, it did not discount instances of simultaneous exclusion and duplication of a certain number of participants. Thus, data duplicates were taken out through Microsoft excel using the remove duplicates function on excel.

3.6.2. Population and Sampling

The study population refers to the set of characters carefully chosen based on inclusion and exclusion criteria (Etikan & Bala, 2017). The whole set of cases from which the sample of research is drawn is referred to as the population (Taherdoost, 2016). For a researcher to answer the research questions, it is difficult able to gather data from all cases (Gaus, 2017). Thus, there is a necessity to select a sample. The sample size and techniques is further explained in section 3.6.2.2 below.

3.6.2.1. Population

The population of the study is the Department of Community Safety and Transport Management in Mahikeng. The department boost of the following key programmes:

- Provincial Secretariat for Police Services: its mandate is to ensure that the communities of the North West province are and feel safe.
- Transport Regulations: its mandate is traffic law enforcement, revenue collection, safety promotions, and regulatory entities.
- Transport Operations: is concerned more with ensuring that the province has an integrated, effective, and efficient transport system. It also deals with transport infrastructure development and the advancement of the local as well as the global economy.

These programmes cannot be able to achieve their goals without the administration's support of financial and supply chain management. Demand management and supply chain performance management are critical in supply chain management and thus directly affect the abovementioned programmes. The programmes as well as administration, are broken down into twenty-six (26) manageable directorates. The population for this study is defined as all senior and middle management staff of the department. Senior and middle managers in government consist of personnel from the assistant directors' position upwards.

3.6.2.2. Sampling Technique and Size

The population sample consisted of senior and middle management staff who are responsible for a day to day running of the department. As alluded above, the Department of Community Safety and Transport Management has key programmes which are broken down into a total number of twenty-six directorates. Each directorate has a director as a senior manager, which computes to 26 directors in the department. For example, according to the organizational structure, the HOD support has one deputy director, whereas the SCM directorate has four deputy directors. In that light, when observing the organizational structure, it has 59 deputy directors and 86 assistant directors.

There are two major types of sampling techniques:

- **Probability Sampling Method**: each part of the population has the probability of being selected. Probability sampling encompasses Simple random, stratified random, cluster random, and multi-stage random (Sharma, 2017).

- **Non-Probability Sampling**: encompasses: Quota Sampling, Snowball Sampling, Judgement Sampling, and Convenience Sampling (Sharma, 2017). According to Wager, Kawulich and Garner (2013), non-probability sampling is a technique where the chance of each subject being included in a sample is unknown. This method can be risky, and its findings may be difficult to generalize.

As explained above, the sample of this study was drawn from the senior and middle management staff of the Department of Community Safety and Transport Management. To select the sampling elements from the target population, this study used the non-probability sampling approach using the convenience sampling technique. The convenient sampling approach was deemed appropriate for the study because there was no single sample frame or list from which the names and details of managers from the department of community safety and transport management be obtained. The sample size was pegged at n = 140 respondents. The sample size determination was derived from Krejcie and Morgan (1970) table. The size was derived using the formula of statistical calculations below as explained in the preliminary research methodology:

$s = \chi^2 NP (1-P) \div d^2 (N-1) + \chi^2 P (1-P)$

where:

s = required sample size

χ = the value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size (171)

P = the population proportion (0.5)

d = Degree of accuracy expressed as a proportion (0.05)

Therefore $s = 3.841^2 (171) (0.5) (1-0.5) \div 0.05^2 (171-1) + 3.841^2(0.5) (1-0.5)$

= 140

The study had a sample size of one hundred and forty (140) participants based on the calculations of sample determination using the above formula. The choice of this particular sample was driven by the fact that these participants are in management positions and, therefore, often participate in strategic and procurement planning of respective directorates.

3.7. DELIMITATION OF THE STUDY

Delimitations, in a nutshell, are limitations set by the researchers themselves (Theofanidis & Fountouki, 2018). The study concentrated only on the department of community safety and transport management at Mahikeng and not the entire province. The study also did

not include data from other government departments; therefore, generalization should be avoided when analyzing the findings of the study.

This study's primary focus once again is on the Demand Management, and supply chain performance part, and not on the entire supply chain management system. Although some of the elements were mentioned (Acquisition, Logistics, Asset and Disposal, and Risk Management), they were however not discussed in detail as they do not form part of the subject matter of this research.

3.8. VALIDITY AND RELIABILITY

Salkind (2012) highlights that the foremost lines of defense against bogus and inappropriate conclusions involve validity and reliability. If the instruments fail, then everything down the line fails as well. Reliability occurs when an investigation measures the same thing multiple times and results in the same outcomes (Mohajan, 2017). The reliability of measurement stipulates the amount to which it is without partiality and hence guarantees consistent measurement across time and across diverse items in the instruments (Taherdoost, 2016). Validity in research means that a researcher's findings genuinely represent the phenomenon they are claiming to investigate (Taherdoost, 2016). As thus, validity refers to the test results, not a test itself. Validity is the honesty or accurateness within the scope of a test or interpretation of a test (Salkind, 2012). While reliability is crucial to any study, alone, it is not sufficient. For a test to be reliable, it also needs to be valid.

To ensure credibility, a pilot study was conducted to test the validity and reliability of a similar approach used by Pule and Kalinzi (2014). A pilot study entails an administration of instruments to a selected number of individuals from the same population (Welman, Kruger & Huysamen, 2005). Mhelembe and Mafini (2019) followed the same approach in the study they conducted. According to Saunders et al. (2007), a pilot test allows the researcher to obtain a certain valuation on the validity and the possible reliability of the data that will be collected. After a pilot test, a researcher can modify the questions to ensure that they are generally understood by individuals (Pule & Kalinzi, 2014). In their studies, Pule and Kalinzi (2014) as well as Mhelembe and Mafini (2019) utilized the scale purification recommended by Nunnally and Bernstein (1994). This was also used to test reliability in this study.

Further, Cronbach's alpha test to study the internal stability of each construct (Raykov, 2012) was utilized. Content validity is ascertained by selecting a few individuals/items from the population of the study (Welman et al., 2005). Feedback obtained from the pilot study was used to adjust the questionnaire and improve its content validity. Furthermore, a reliability test of the pilot study was conducted, which ensured that all data fell within endorsed thresholds. This study copied the same approach (Pule & Kalinzi, 2014; Mhelembe & Mafini 2019) for its validity and reliability test. To ensure reliability and validity, the statistical procedures were followed. Cronbach's alpha was used to assess the internal consistency of a questionnaire that is will made up of multiple Likert-type scales and items. This is indicated in section 4.2 of chapter four of this paper.

The nature of quantitative data analysis makes it hard for a researcher to separate themselves from data (Adams, 2018). However, there are ways to maintain objectivity and avoid biasness in data collection and analysis (Eljunisi, 2020). For this study the researcher observed the research ethics to ensure that biasness is avoided and temptation to fall for it is delt away with.

3.9. ETHICAL CONSIDERATIONS

It is imperative for the researcher to be considerate when conducting a study (Peersman, 2014). As a forerunner to ethical research principles, access to the department was requested and granted by the head of the department of DCSTM (See Appendix B and C). Additionally, ethical clearance was obtained from the ethics committee with ethic number: NWU-00742-20-A4 (See Appendix D). The researcher adhered to, and informed the participants of the following conditions:

3.9.1. Permission and informed consent

Involvement in this study was voluntary, and therefore, participants were at liberty to participate or not, and where they chose to participate, they had a choice to withdraw at any stage of the research if they were not comfortable.

3.9.2. Anonymity and Confidentiality

Participants remained anonymous, and the information they provide was treated with confidentiality.

3.10. CONCLUSION

This chapter presented the methodology which the study followed. It broadly explained the philosophy, method, outline, and techniques that were used in this research. This chapter also highlighted the delimitations, validity, and reliability as well as the ethical considerations followed by the study.

CHAPTER 4

DATA PRESENTATION, ANALYSIS, AND FINDINGS

4.1. INTRODUCTION

The purpose of this chapter is to discuss quantitative data using descriptive analysis and correlations. This chapter discusses the total number was distributed to 140 respondents through Google forms (91) and paper-based (49). The paper-based questionnaire was handed over to respondents and collected at a later stage. The data was collected over three weeks starting from 05 September until 25 September 2020. The study sample was composed of the managers drawn from the department of community safety and transport management. As indicated in chapter 3, the management was deemed appropriate because they are considered suitable to possess the knowledge about SCM processes, subsequently demand management, and SCPM in the department of community safety and transport management.

The research objectives as well as the research question of the study intended to answer are highlighted in chapter one. This chapter presents the results of the study which was analyzed through the Statistical Package for Social Sciences (SPSS) and Microsoft excel. The chapters analyses the demographics (age, years of service, and units of employment) through frequency tables and pie chart for gender. The choice for frequency tables was based on the fact that there are too many variables and it was difficult to present data in charts. The chapter also presents the results of the constructs based on sections A to E through charts, followed by correlations between constructs. Finally, the chapter presents the findings of the results of a study and conclusion.

4.2. RELIABILITY TEST

Table 1 Reliability Test

	Reliability Statistics	
	Cronbach's Alpha	**N of Items**
A1.1	.754	6
A1.2	.845	6
B2.1	.768	5
B2.2	.862	3
C3.1	.633	9
C3.2	.600	7
D4.1	.761	5
D4.2	.635	2
E5.1	.611	4
E5.2	.601	8

The Cronbach's Alpha test results in table 4.1 show that for all the constructs, any alpha at 0.6 or more indicates that the items in each of the constructs are reliable (Taherdoost, 2016). A test is seen as being reliable when it can be used by a number of different researchers under stable conditions, with consistent results and the results not varying (Bryman, 2012). Reliability reflects consistency and replicability over time. Furthermore, reliability is seen as the degree to which a test is free from measurement errors since the more measurement errors occur the less reliable the test.

Some items needed to be removed to improve the reliability of E5.1 where "Benchmarking best practices lead to improved implementation of demand management" was excluded, D4.2 where "Non-adherence to legislative framework is a challenge to the implementation of supply chain performance management" and "Lack of feedback from end-users on goods and service provided results in poor execution of supply chain performance management" were excluded, E5.2 where "Recommendation of improvements needed to enhance efficiency across supply chains" was excluded. These items were excluded because they had negative item-total correlations which imply that they were not consistent with the other items in the construct. (See appendix D)

4.3. DATA PRESENTATION

This section presents an analysis of data gathered with a sample size of N = 140. The section comprises the demographics, sections A to E, and the correlation.

4.3.1. Demographic statistics

Table 2: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	29	2	1.4	1.4	1.4
	30	1	.7	.7	2.1
	31	1	.7	.7	2.9
	32	1	.7	.7	3.6
	33	6	4.3	4.3	7.9
	34	7	5.0	5.0	12.9
	35	3	2.1	2.1	15.0
	36	8	5.7	5.7	20.7
	37	18	12.9	12.9	33.6
	38	11	7.9	7.9	41.4
	39	6	4.3	4.3	45.7
	40	2	1.4	1.4	47.1
	41	13	9.3	9.3	56.4
	42	5	3.6	3.6	60.0
	43	7	5.0	5.0	65.0
	44	3	2.1	2.1	67.1
	45	7	5.0	5.0	72.1
	46	8	5.7	5.7	77.9
	47	2	1.4	1.4	79.3
	48	2	1.4	1.4	80.7
	49	2	1.4	1.4	82.1
	51	4	2.9	2.9	85.0
	52	6	4.3	4.3	89.3
	53	2	1.4	1.4	90.7
	54	3	2.1	2.1	92.9
	55	3	2.1	2.1	95.0
	56	1	.7	.7	95.7
	57	4	2.9	2.9	98.6
	58	2	1.4	1.4	100.0
	Total	140	100.0	100.0	

Table 3 above aimed to determine the age categories of the respondents. The age demographics show that there 2(1.4%) respondents of each age group who are 29, 40, 47, 48, 49, 53, and 58 years old, there is 1 (0.7%) who are 30, 31, 32, and 56 respectively, there are 6 (4.3%) who are 33, 39, and 52 years of age, there are 7 (5%) who are 34, 43, 45 years, there are 3 (2.1%) who are 35, 44, 54 and 55, there are 8 (5.7%) who are 36, and 46 respectively, there are 18 (12.9%) who are 37 years old, there are 11 (7.9%) who are 38 years old, there are 13 (9.3%) who are 41 years old, there are 5 (3.6%) who are 42 years and finally there are 4 (2.9%) who are 51 and 57 years respectively. The findings indicate that most of the respondents are 37 years old (18 – 12.9%) followed by those

who are 41 at (13 – 9.3%). The least respondents per age are 30, 31, 32, and 56 with only 1 of these age categories responding.

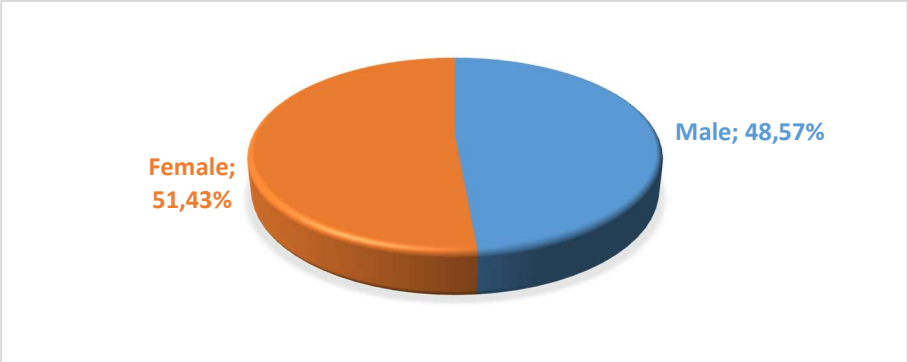

Figure 4: Gender

Figure 4 above aimed to understand the gender of the respondents. The gender demographics indicate that there are 72 (51.43%) and 68 (48.57%) of the respondent. The female respondents are more represented in this study than males.

Table 3: Year of Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	8	5.7	5.7	5.7
	7	2	1.4	1.4	7.1
	8	12	8.6	8.6	15.7
	9	6	4.3	4.3	20.0
	11	26	18.6	18.6	38.6
	12	15	10.7	10.7	49.3
	13	7	5.0	5.0	54.3
	14	26	18.6	18.6	72.9
	15	6	4.3	4.3	77.1
	16	10	7.1	7.1	84.3
	17	1	.7	.7	85.0
	18	1	.7	.7	85.7
	20	7	5.0	5.0	90.7
	21	1	.7	.7	91.4
	23	6	4.3	4.3	95.7
	25	1	.7	.7	96.4
	26	1	.7	.7	97.1
	31	4	2.9	2.9	100.0
	Total	140	100.0	100.0	

Table 4 above, indicated the years of service of the respondents. It shows that 8 (5.7%) of the respondents have 6 years of service at the department of community safety and transport management, 2 (1.4%) have 7 years, 12 (8.6%) have 8 years, 6 (4.3%) have 9 years, 26 (18.6%) have 11 years, 15 (10.7%) have 12 years, 7 (5%) have 13 years, 26 (18.6%) have 14 years. 6 (4.3%) have 15 years, 10 (7.1%) have 16 years, 1 (0.7%) has 17 years, 1 (0.7%) has 18 years, 7 (5%) have 20 years, 1 (0.7%) has 21 years, 6 (4.3%) has 23 years, 1 (0.7%) has 25 years, 1 (0.7%) has 25 years, and 4 (2.9%) has 31 years. The findings indicate that there are more respondents who have 11 (18.6%) and 14 (18.6%) years of experience.

Table 4: Unit of employment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CFO	2	1.4	1.4	1.4
	Civilian Secretariat for Police	3	2.1	2.1	3.6
	Communication	4	2.9	2.9	6.4
	Corporate Services	4	2.9	2.9	9.3
	Crime Prevention	10	7.1	7.1	16.4
	Finance	10	7.1	7.1	23.6
	HOD Support	4	2.9	2.9	26.4
	HRM	18	12.9	12.9	39.3
	Legal Service	5	3.6	3.6	42.9
	MEC Support	4	2.9	2.9	45.7
	Monitoring and Oversight	8	5.7	5.7	51.4
	Operator Licenses and Permits	1	.7	.7	52.1
	Policy and Research	2	1.4	1.4	53.6
	Public Transport Services	6	4.3	4.3	57.9
	Risk Management	3	2.1	2.1	60.0
	Road Safety	3	2.1	2.1	62.1
	Road Traffic	3	2.1	2.1	64.3
	SCM	16	11.4	11.4	75.7
	Security Services	3	2.1	2.1	77.9
	Strategic Planning	6	4.3	4.3	82.1
	Strategic Support Services	5	3.6	3.6	85.7
	Transport Admin and Licensing	5	3.6	3.6	89.3
	Transport Operations	4	2.9	2.9	92.1
	Transport Planning	2	1.4	1.4	93.6
	Transport Terminals	9	6.4	6.4	100.0

Total	140	100.0	100.0	

Table 5 above presented the unit of employment of the respondents. The findings indicates that there are 2 (14%) respondents from office of Chief Financial Officer (CFO), 3 (3%) from civilian secretariat for police (CSP), 4 (2.9%) from communication, 4 (2.9%) from Corporate Services, 10 (7.1%) from Crime Prevention, 10 (7.1%) from Finance, 4 (2.9%) from HOD support, 18 (12.9%) from Human resource Management (HRM), 5 (3.6%) from Legal Services, 4 (2.9%) from MEC support, 8 (5.7%) from monitoring and oversight, 1 (0.7%) from Operator Licenses and Permits (OLP), 2 (1.4%) from Policy and Research (PR), 6 (4.3%) from Public Transport Services (PTS), 3 (2.1%) from Risk Management and Internal Control, 3 (2.1%) from Road Safety Management (RSM), 3 (2.1%) from Road Traffic Management (RTM), 16 (11.4%) from Supply Chain Management (SCM), 3 (2.1%) from Security Services, 6 (4.3) from Strategic Planning, 5 (3.6%) from Strategic Support Service (SSS), 5 (3.6%) from Transport Admin and Licensing, 4 (2.9%) from Transport Operations, 2 (1.4%) from Transport Planning and Policy Development (TPPD), 9 (6.4%) from Transport Terminals. The findings indicate that there are more respondents from HRM with 18 followed by 16 from SCM, the least was from OLP with only 1 respondent.

4.3.1. Section A: The impact of demand management and SCPM

The purpose of this section was to determine the impact that demand management and supply chain performance management have on the supply chain management system.

The Impact of demand on supply chain management system

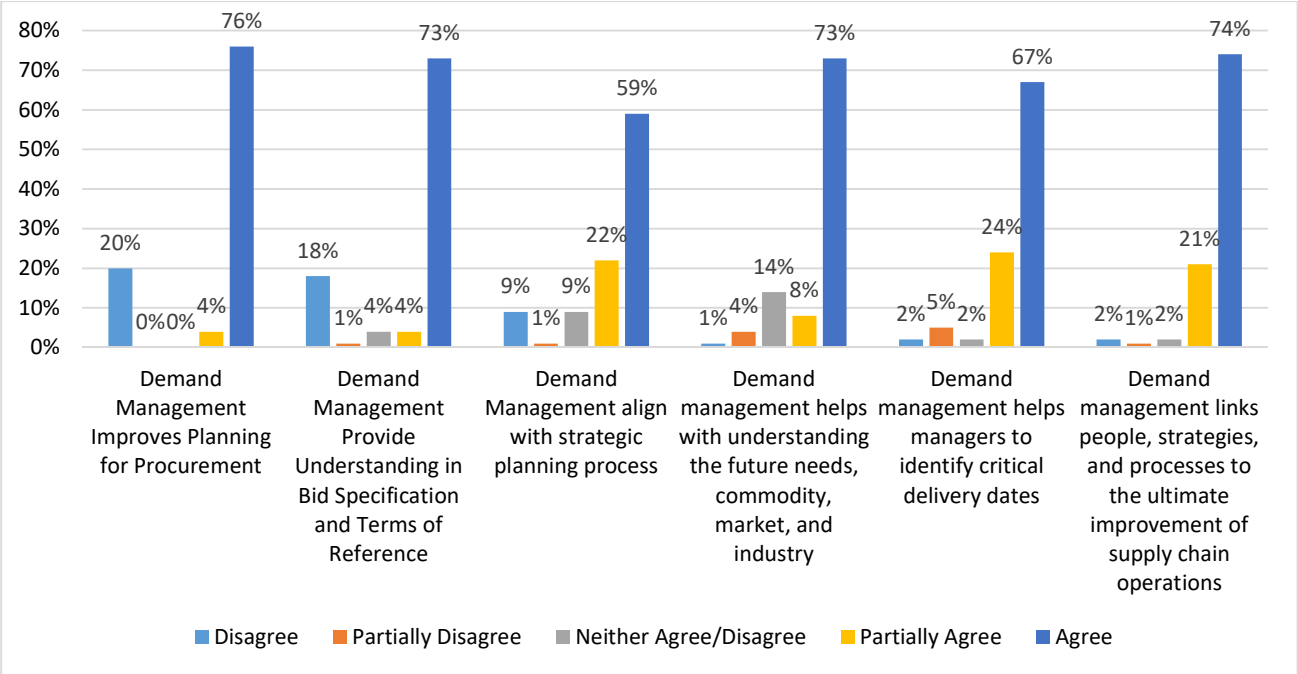

Figure 5: The impact demand management on SCM System

The above chart, Figure 4.2 indicates that (106)76% of the respondent agree that demand management improves procurement planning, while 6 (4%) partially agree and 28 (20%) disagree. The figure indicates that 102(73%) agree that demand management provides understanding in the development of Bid specifications and Terms of reference and 6 (4%) partially agree. A total of 6 (4%) respondents neither agree nor disagree, while 25 (18%) disagree and 1 (1%) partially disagree.

The figure also shows that 82 (59%) agree that demand management aligns well with the strategic planning process and 31 (22%) partially agree. The figure shows that 13 (9%) disagree that demand management aligns with the strategic planning process, 1 (1%) partially disagree while 13 (9%) disagree. The chart further indicates that 102 (73%) of the respondents agree that demand management helps with understanding the future needs, commodity, market, and industry while 11 (8%) partially agree, 20 (14%) neither agree nor disagree, 6 (4%) partially agree and 1 (1%) of the respondents disagree.

On the statements that demand management helps managers to identify critical delivery dates, 94 (67%) of the respondents agree, 34 (24%) partially agree, 3 (2%) neither agree nor disagree, while 7 (5%) partially disagree and 3 (2%) disagree. The statement was also made that demand management links people, strategies, and processes to the ultimate improvement of supply chain operations, to which 104 (74%) agree, 29 (21%) partially agree, 3 (2%) neither agree nor disagree, 1 (1%) partially disagree and 3 (2%)

disagree. The clustered bar chart in Figure 4.2 shows that the majority of the respondents were in agreement (partially agree to agree) that overall demand management has a significant impact on supply chain management.

The impact of SCPM on Supply Chain Management system

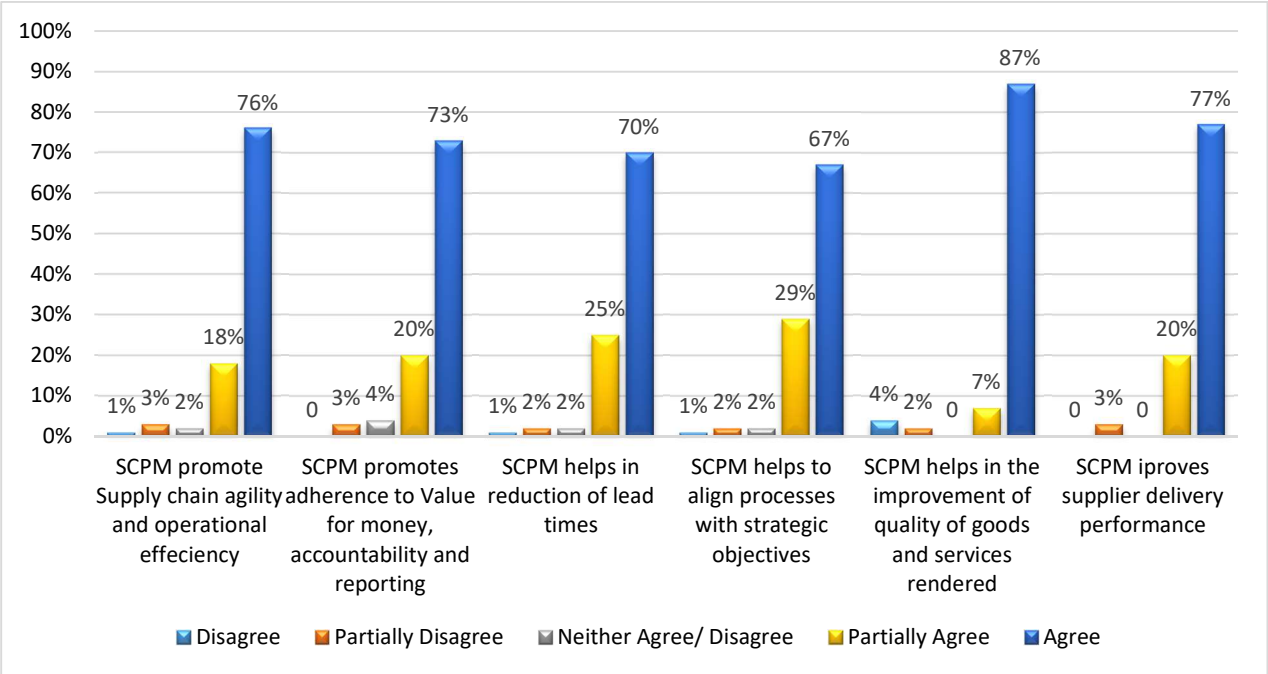

Figure 6: The Impact of SCPM on SCM System

Figure 6 above indicates the population of the study responded to the different claims that were made with regard to the impact of SCPM on the SCM system. The questionnaire suggested that SCPM promotes supply chain agility and operational efficiency, to which

106 (76%) of the respondents agree, 25 (18%) partially agree, 3 (2%) neither agree nor disagree, 4 (3%) partially agree and 2 (1%) disagree.

There were 102 (73%) of respondents who agree that SCPM promotes adherence to the two pillars of SCM which are value for money, and accountability and reporting, while 28 (20%) partially agree, 6 (4%) neither agree nor disagree, and 4 (3%) partially disagree. There were no respondents who disagree. The figure also indicates that 98 (70%) of the respondents agree that performance measurement helps to reduce lead-times while 35 (25%) partially agree, 3 (2%) neither agree nor disagree, 3 (2%) partially agree and 1 (1%) disagree.

Further, on the statement that performance management helps SCM to align processes with strategic objectives 94 (67%) agree, 41 (29%) partially agree, 3 (2%) neither agree nor disagree, 3 (2%) partially disagree and 1 (1%) disagree. The questionnaire also suggested that SCPM helps in the improvement of goods and services rendered, 122 (87%) of the respondents agree, 10 (7%) partially agree, 5 (4%) disagree, and 3 (2%) partially disagree. Lastly 108 (77%) of the respondents agree that SCPM improves supplier delivery performance, 28 (20%) partially agree, and 4 (3%) partially disagree. The findings of the study indicate that SCPM has a significant impact on SCM.

4.3.2. Section B: Limitations affecting effective implementation of demand management and SCPM

This section aimed to determine the limitations affecting the effective implementation of demand management and supply chain performance management on the supply chain management system.

Limitations affecting effective implementation of demand management

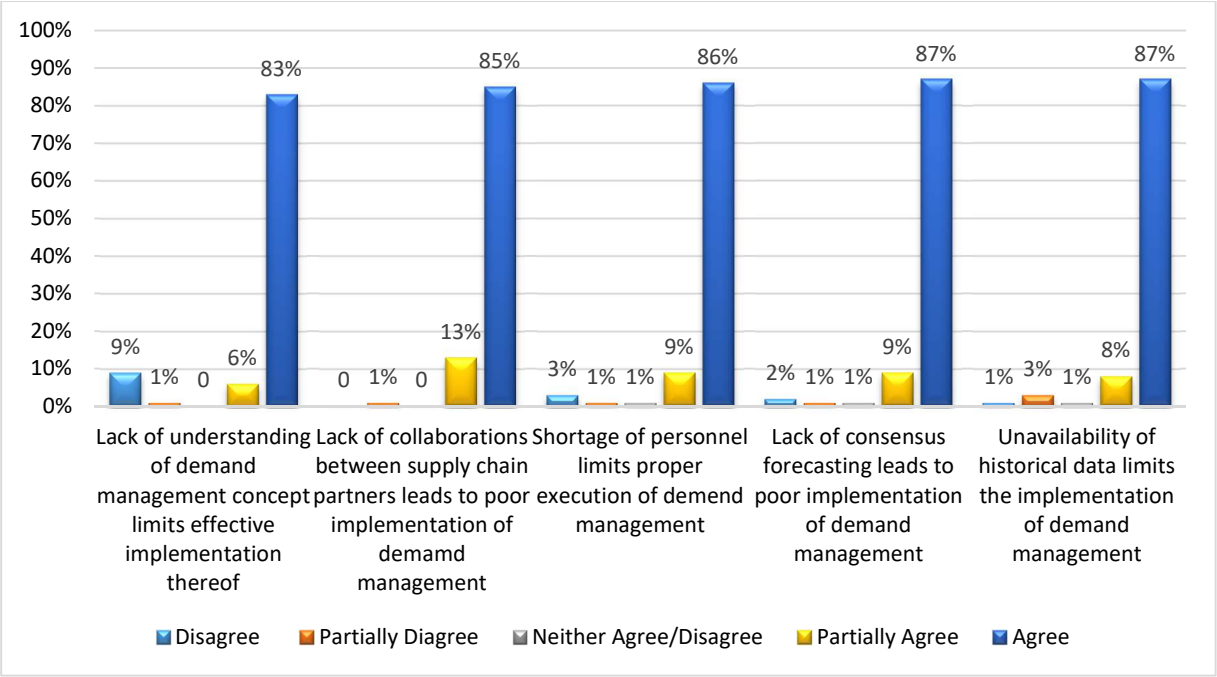

Figure 7: Limitations affecting effective implementation of demand management.

Figure 7 above indicates different limitations affecting the effective implementation of demand management in the SCM system. The questionnaire suggested that lack of understanding of the demand management concept limits effective implementation thereof, to which 116 (83%) of the respondents agree, 8 (6%) partially agree, 2 (1%) neither agree nor disagree, 1 (1%) partially agree and 13 (9%) disagree.

There were 119 (85%) of respondents who agree that lack of collaboration between supply chain partners leads to poor implementation of demand management, while 18 (13%) partially agree, 1 (1%) partially disagree, and 1 (1%) disagree. There were no respondents who indicated that they neither agree nor disagree. The figure also indicates that 98 (86%) of the respondents agree that shortage of personnel limits proper execution of demand management while 13 (9%) partially agree, 1 (12%) neither agree nor disagree, 1 (1%) partially agree and 4 (3%) disagree.

Further, on the claim that lack of consensus forecasting leads to poor implementation of demand management 122 (87%) agree, 13 (9%) partially agree, 1 (1%) neither agree nor disagree, 1 (1%) partially disagree and 4 (3%) disagree. Lastly, the questionnaire suggested that unavailability of historical data limits the implementation of demand management, 122 (87%) of the respondents agree, (8%) partially agree, 1 (1%) disagree, and 4 (3%) partially disagree. These results indicate there are limitations to the effective implementation of demand management as indicated above.

Limitations affecting effective implementation of SCPM

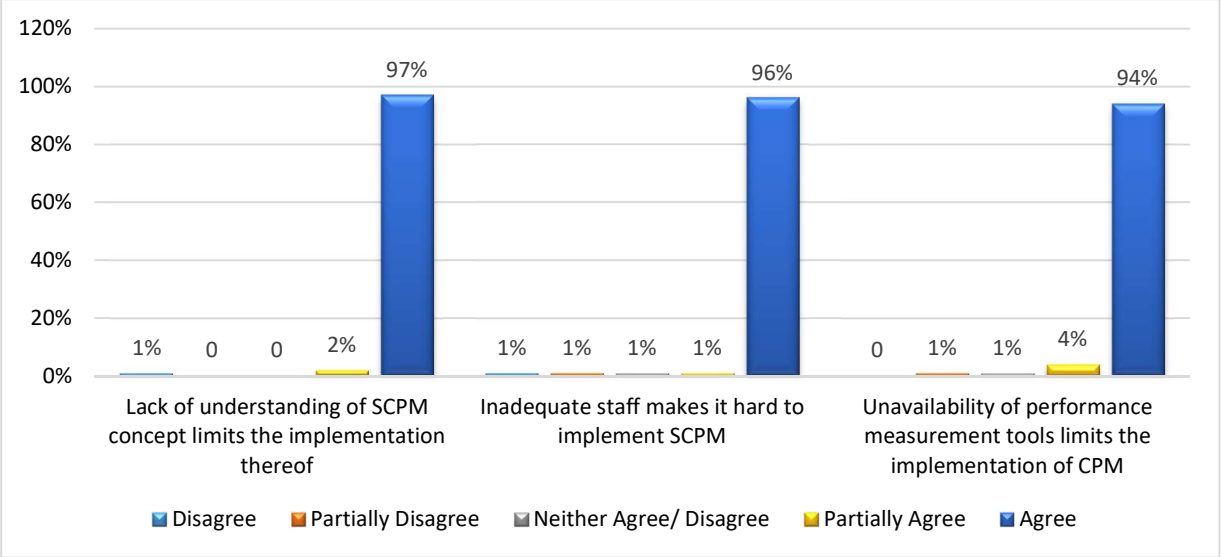

Figure 8: Limitations affecting effective implementation of SCPM.

Figure 8 above indicates the different limitations affecting the effective implementation of SCPM on the SCM system. It was suggested that lack of understanding of the SCPM concept limits the implementation thereof, to which promotes 136 (97%) of the respondents agree, 3 (2%) partially agree, and 1 (1%) disagree. On the notion that inadequate staff makes it hard to implement SCPM, There were 134 (96%) of respondents who agree, 2 (1%) partially agree, 1 (1%) neither agree nor disagree, and 1 (1%) partially disagree, and 2 (%) disagree. Lastly, 132 (94%) of the respondents agree that the unavailability of performance measurement tools limits the implementation of SCPM, 6 (4%) partially agree, 1 (1%) neither agree nor disagree, and 1 (1%) partially disagree. The results presented in Figure 4.5 above affirm there are different limitations to effective implementation of SCPM.

4.3.3. Section C: The impediments to effective demand and SCPM

The purpose of this section was to determine the impediments to effective demand management and supply chain performance management. The results are presented in Figures 9 and 10 below.

Impediments to effective demand management

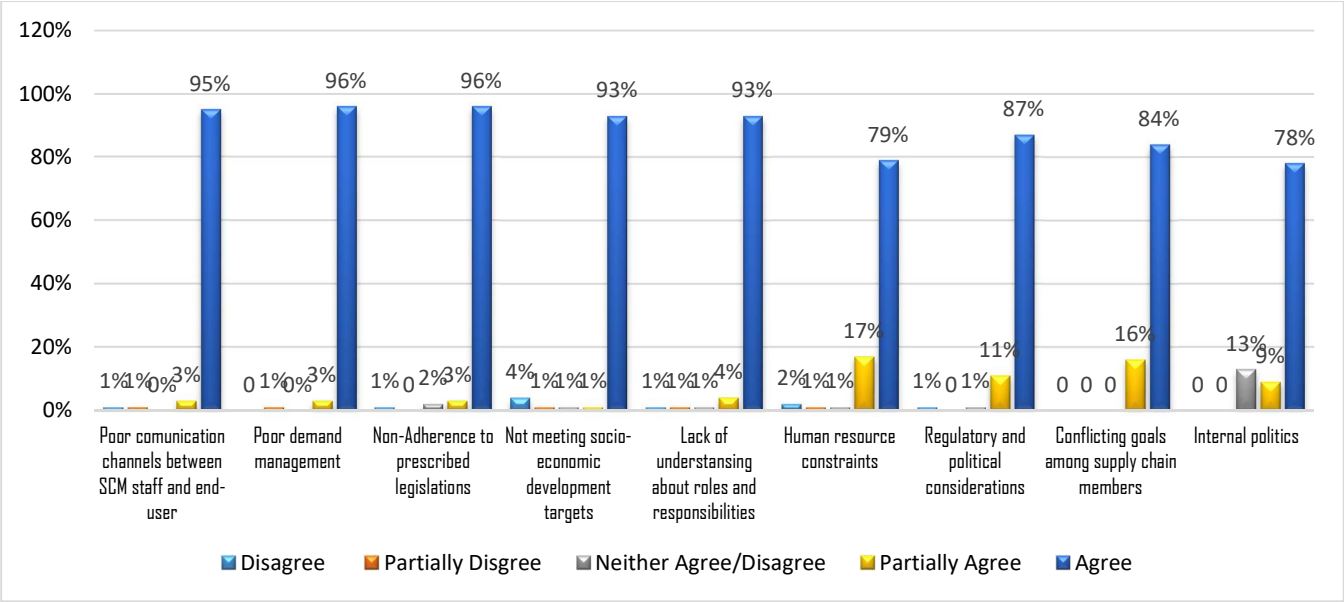

Figure 9: Impediments to effective demand management.

Figure 9 above shows the different kinds of impediments to effective demand management in the SCM system. The questionnaire suggested the following as impediments to effective demand management:

- Poor communication channels between SCM staff and end-users, 133 (95%) agree, 4 (3%) partially agree, 1 (1%) partially disagree, and 2 (1%) disagree.
- Poor demand management affects service delivery negatively, 134 (96%) agree, 4 (3%) partially agree, and 2 (1%) partially disagree.
- Non-adherence to prescribed legislations, 134 (96%) agree, 4 (3%) partially agree, and 2 (1%) disagree.
- Not meeting socio-economic targets, 130 (93%), 1 (1%) partially agree, 1 (1%) neither agree nor disagree, 1 (1%) partially disagree, and 6 (4%) disagree.
- Lack of understanding about the roles and responsibilities of staff members, 130 (93%) agree, 6 (4%) partially agree, 2 (1%) neither agree nor disagree, 1 (1%) partially disagree, and 1 (1%) disagree.
- Human resource constraints, 111 (79%) agree, 24 (17%) partially agree, 1 (1%) neither agree nor disagree, 1 (1%) partially disagree, and 3 (2%) disagree.
- Regulatory and political considerations, 123 (87%) agree, 15 (11%) partially agree, 1 (1%) neither agree nor disagree, and 1 (1%) disagree.
- Conflicting goals among supply chain members, 118 (84%) agree, and 22 (16%) partially agree.

- Internal politics, 109 (78%), 13 (9%) partially agree, and 18 (13%) neither agree nor disagree.

The results presented in Figure 4.6 above indicate that there are impediments to effective demand management in the operation of SCM.

Impediments to effective SCPM

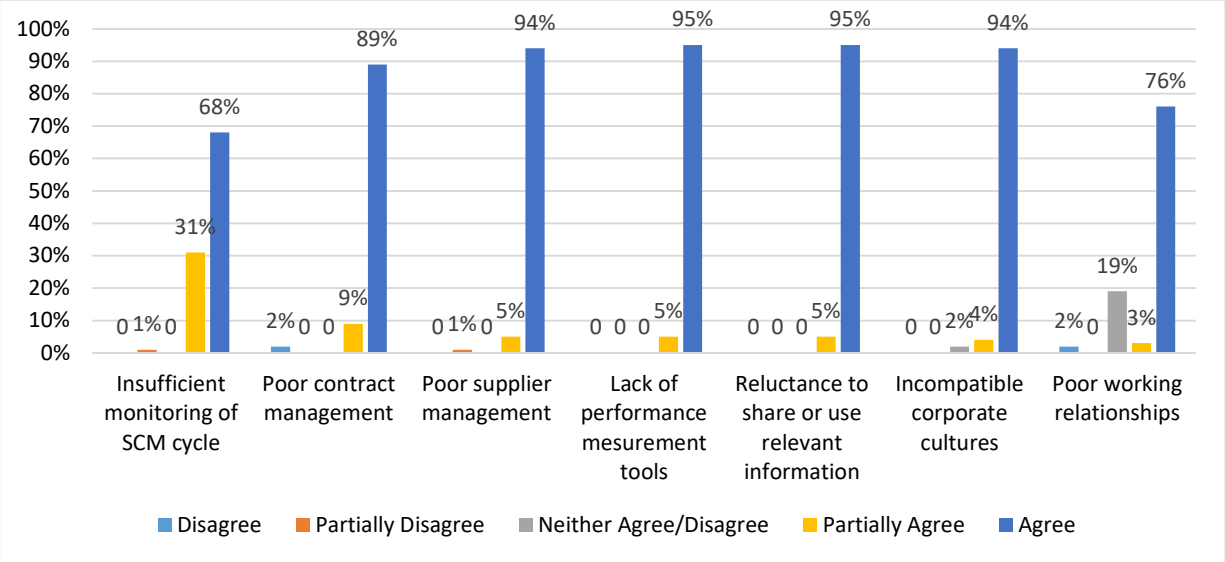

Figure 10: Impediments to effective SCPM.

Figure 10 above shows forms of impediments to effective SCPM in the SCM system. The questionnaire respondents suggested the following as impediments to effective demand management:

- Insufficient monitoring of the SCM cycle, 95 (68%) agree, 43 (31%) partially agree, 1 (1%) partially disagree, and 1 (1%) disagree.
- Poor contract management, 125 (89%) agree, 12 (9%) partially agree, and 3 (2%) disagree.
- Poor supplier management, 132 (94%) agree, 7 (5%) partially agree, and 1 (1%) partially disagree.
- Lack of performance measurement tools, 133 (95%) and 7 (5%) partially agree.
- Reluctance to share or use relevant information, 133 (95%) and 7 (5%) partially agree.
- Incompatible corporate cultures, 132 (94%) agree, 6 (4%) partially agree, and 3 (2%) neither agree nor disagree.
- Poor working relationships, 106 (76%) agree, 4 (3%) partially agree, 27 (19%) neither agree nor disagree, and 3 (2%) disagree.

The findings of the study indicate that there are impediments to effective SCPM in SCM.

4.3.4 Section D: Challenges to demand management and SCPM

This section tries to determine challenges to demand management and supply chain performance management (SCPM).

Challenges to demand management

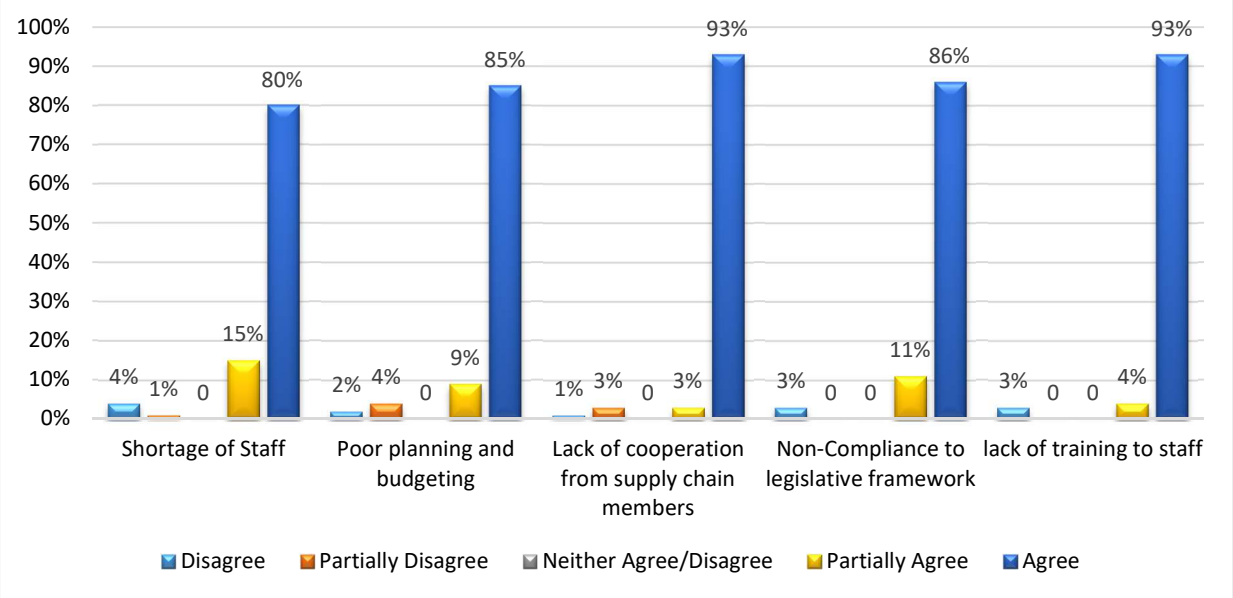

Figure 11: Challenges to demand management.

Figure 11 above highlights how the population of the study responded to different factors that were posed as challenges to demand management and the results are presented as follows:

- Shortage of staff, 112 (80%) agree, 21 (15%) partially agree, 1 (1%) partially disagree, and 6 (4%) disagree.
- Poor planning and budgeting, 119 (85%) agree, 13 (9%) partially agree, 6 (4%) partially disagree, and 3 (2%) disagree.
- Lack of cooperation from supply chain members, 130 (93%) agrees, 4 (3%) partially agree, 4 (3%) partially disagree, and 2 (1%) disagree.
- Non-compliance to legislative framework, 121 (86%) agree, 15 (11%) partially agree, and 4 (3%) disagree.
- Lack of training to staff on the implementation of demand management, 130 (93%) agree, 6 (4%) partially agree, and 4 (3%) disagree.

The presentation in the above Figure 4.8 indicates that the majority of the respondents confirm that the challenges to demand management are the shortage of staff, poor

planning and budgeting, lack of cooperation from supply chain members, non-compliance to the legislative framework, and lack of training to staff members.

Challenges to SCPM

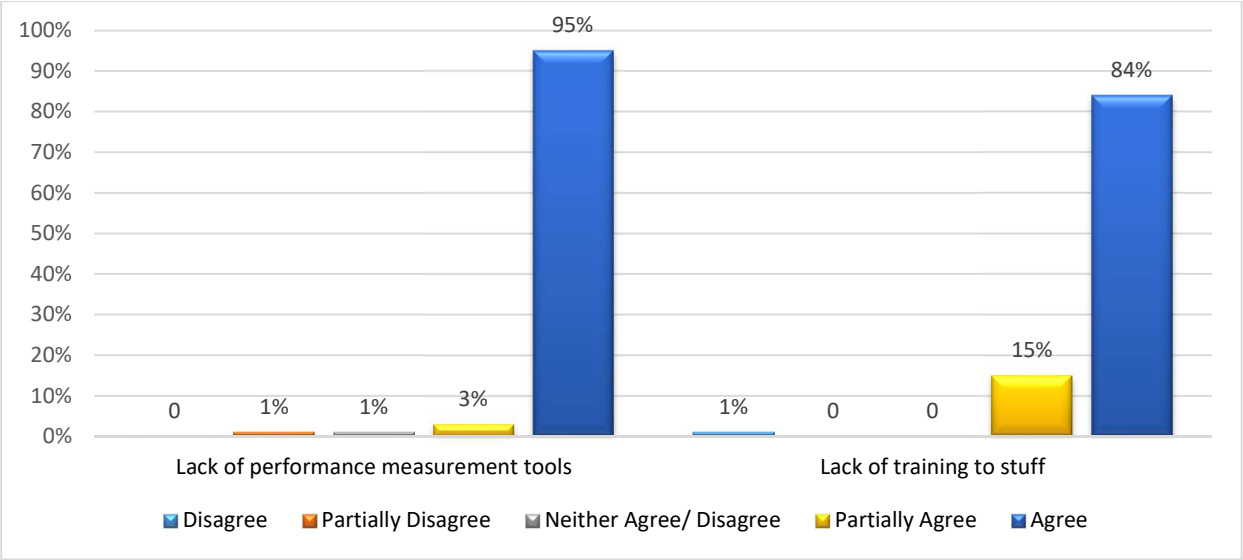

Figure 12: Challenges to SCPM.

Figure 12 above highlights how the population of the study responded to different factors that were posed as challenges to demand management and the results are presented as follows:

- Lack of performance measurement tools, 134 (95%) agree, 4 (3%) partially agree, 1 (1%) neither agree nor disagree, 1 (1%), there were no respondents who disagree.
- Lack of training of staff on the implementation of SCPM, 118 (84%) agrees, 21 (15%) partially agree, and 1 (1%) disagree.

The majority of respondents agree that there are challenges to SCPM which are lack of performance measurement tools and training of staff are main challenges to the SCPM.

4.3.5. Section E: Factors that can improve the implementation of demand management and SCPM.

This section seeks to determine the factors that can improve the implementation of demand management and supply chain performance management (SCPM).

Factors that can improve the implementation of demand management

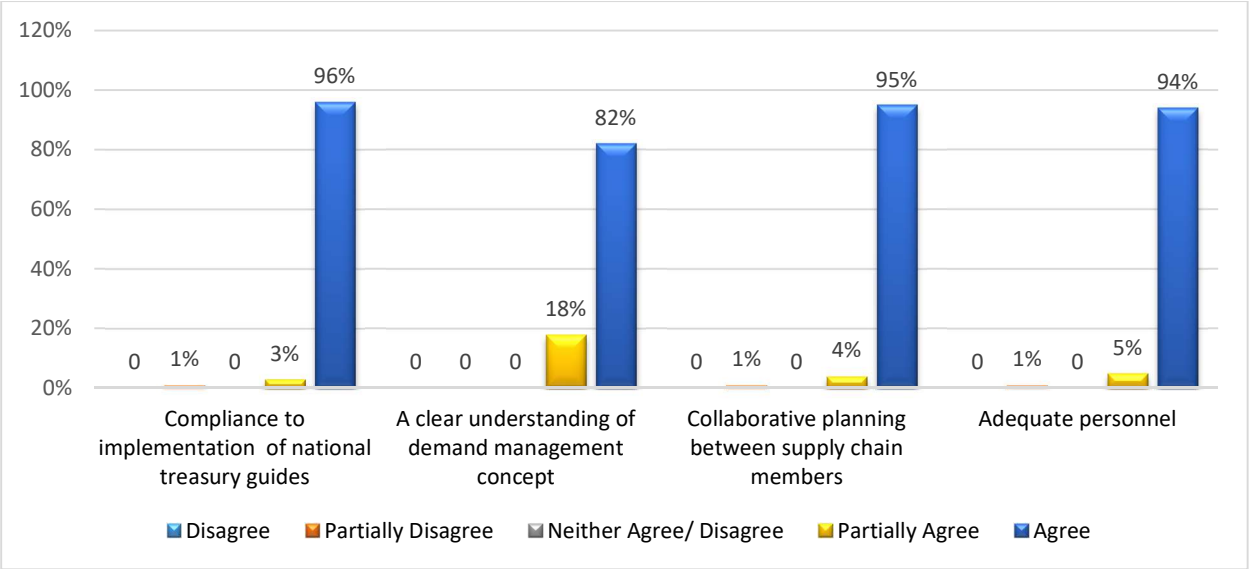

Figure 13: Factors that can improve the implementation of demand management.

Figure 13 above highlights how the population of the study responded to different factors that can improve the implementation of demand management and the results are presented as follows:

- Compliance with the implementation of National Treasury guides, 134 (96%) agree, 4 (3%) partially agree, and 2 (1%) partially disagree.
- A clear understanding of demand management indicates that the majority are in agreement, with 115 (82%) agree, and 25 (18%) partially agree.
- Collaborative planning between supply chain members, 133 (95%) agree, 6 (4%) partially agree, 1 (1%), and partially disagree.
- Adequate personnel, 132 (94%) agree, 7 (5%) partially agree, and 1 (1%) partially disagree.

The majority of respondents agree that demand management can be improved by the following factors: compliance to national treasury guides, a clear understanding of the concept of demand management, collaborative planning, and adequate personnel in demand management.

Factors that can improve the implementation of SCPM

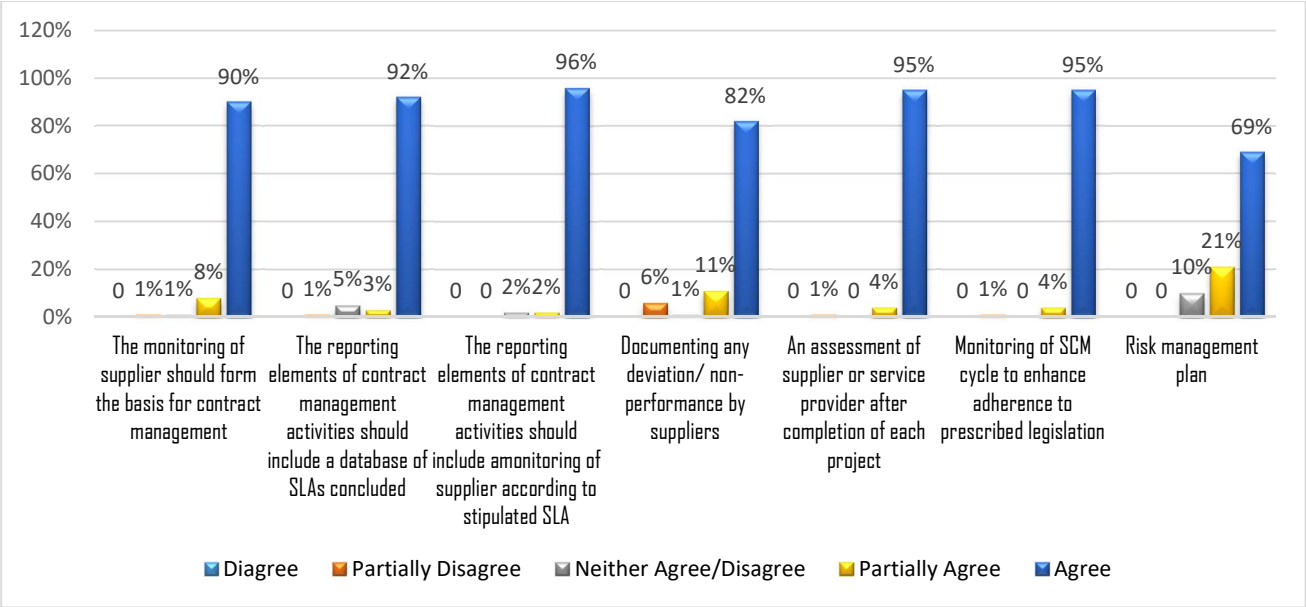

Figure 14: Factors that can improve the implementation of SCPM.

Figure 14 above highlights how the population of the study responded to different factors that can improve the implementation of SCPM and the results are presented as follows:

- The monitoring of supplier should form the basis for contract management activities, 126 (90%) agree, 11 (8%) partially agree, 2 (1%) neither agree nor disagree, and 1 (1%) disagree.
- The reporting elements of contract management activities should include the following:
- A database of Service Level Agreement (SLA), 129 (92%) agree, 4 (3%) partially agree, 7 (5%) neither agree nor disagree.
- Monitoring of supplier according to stipulated SLA, 134 (96%) agree, 3 (2%) partially agree, and 3 (2%) neither agree nor disagree.
- Documenting any deviations/ non-performance by suppliers, 115 (82%) agree, 15 (11%) partially agree, 2 (1%) neither agree nor disagree, and 8 (6%) partially disagree.
- An assessment of a supplier or service provider after completion of each project, 133 (95%) agree, 6 (4%) partially agree, and 1 (1%) partially disagree.
- Monitoring of SCM cycle to enhance adherence to prescribed legislation, 133 (95%) agree, 6 (4%) partially agree, and 1 (1%) partially disagree.
- Risk management plan, 97 (69%) agree, 29 (21%) partially agree, and 14 neither agree nor disagree.

The results of the study presented on Table 14 above identified that there are factors that can improve the implementation of demand management and SCPM.

4.4. THE CORRELATIONS

This section analyses the power and significance level of Spearman's Rank Correlation test of the research constructs. In a study of relationship between variables, the use of measures of correlation assumes that neither functionally dependent upon the other (Schober, Boer & Schwarte, 2018). According to Glen (2020), a correlation is a statistical methods used to assess a possible linear association between two continuous variables.

Table 5: Spearman's Rank Correlation Interpretation.

Correlation Coefficient	Interpretation
.00 - .19	Very Weak
.20 - .39	Weak
.40 - .59	Moderate
.60 - .79	Strong
.80 – 1.0	Very Strong

Spearman's correlation coefficient is a statistical method of testing the strength and direction (positive or negative) of monotonic relationship between two pairs of variables (Black, Babin & Anderson, 2014). It interpretation is highlighted in Table 6 above. Several approaches have been suggested to translate the correlation coefficient into description like "very weak," "weak," "moderate," "strong," or "very strong." Table 6 above shows the spearman's rank correlation. All correlation coefficients with p-values ≤ 0.05 are significant at a 5% level of significance, indicating a significant correlation between the variables (Schober et al., 2018). A negative sign indicates that one variable improves when the other one nears poor in the correlated pair. The opposite applies for positive correlations, where both variables. The highlighted sections (in red colour) in Table 7 indicate the p-values considered in the study. They were considered because of the impact in the study in showing an appropriate significant correlation between variables.

Table 6: Correlations

		The impact that demand management have on the supply chain management system	The impact that supply chain performance management have on the supply chain management system	The limitations affecting an effective implementation of demand management on the supply chain	The limitations affecting an effective supply chain performance management on the supply chain	Impediments to effective demand management	Impediments to effective supply chain performance management	Challenges to demand management	Challenges to supply chain performance management.	Determine the factor that can improve the implementation of demand management	Determine the factor that can improve the implementation of supply chain performance management
The impact that demand management have on the supply chain management system	Correlation Coefficient	1.000	.166*	.260**	-.066	-.036	.005	-.068	.040	-.013	.375**
	P-value	.	.050	.002	.439	.674	.954	.424	.640	.880	.000
	N	140	140	140	140	140	140	140	140	140	140
The impact that supply chain performance management have on the supply chain management system	Correlation Coefficient	.166*	1.000	.219**	.157	.173*	.223**	.210*	.100	.398**	-.103
	P-value	.050	.	.009	.064	.041	.008	.013	.241	.000	.225
	N	140	140	140	140	140	140	140	140	140	140
The limitations affecting an effective implementation of demand management on the supply chain management system	Correlation Coefficient	.260**	.219**	1.000	.119	.236**	.303**	.306**	.125	.396**	-.061
	P-value	.002	.009	.	.161	.005	.000	.000	.141	.000	.473
	N	140	140	140	140	140	140	140	140	140	140
The limitations affecting an effective supply chain performance management on the supply chain management system	Correlation Coefficient	-.066	.157	.119	1.000	.717**	.189*	.179*	.284**	.380**	-.062
	P-value	.439	.064	.161	.	.000	.025	.034	.001	.000	.469
	N	140	140	140	140	140	140	140	140	140	140
Impediments to effective demand management	Correlation Coefficient	-.036	.173*	.236**	.717**	1.000	.364**	.333**	.243**	.444**	.040
	P-value	.674	.041	.005	.000	.	.000	.000	.004	.000	.639
	N	140	140	140	140	140	140	140	140	140	140

Impediments to effective supply chain performance management	Correlation Coefficient	.005	.223**	.303**	.189*	.364**	1.000	.702**	.180*	.544**	.005
	P-value	.954	.008	.000	.025	.000	.	.000	.034	.000	.956
	N	140	140	140	140	140	140	140	140	140	140
Challenges to demand management	Correlation Coefficient	-.068	.210*	.306**	.179*	.333**	.702**	1.000	.187*	.423**	-.093
	P-value	.424	.013	.000	.034	.000	.000	.	.027	.000	.273
	N	140	140	140	140	140	140	140	140	140	140
Challenges to supply chain performance management.	Correlation Coefficient	.040	.100	.125	.284**	.243**	.180*	.187*	1.000	.459**	.185*
	P-value	.640	.241	.141	.001	.004	.034	.027	.	.000	.028
	N	140	140	140	140	140	140	140	140	140	140
Determine the factor that can improve the implementation of demand management	Correlation Coefficient	-.013	.398**	.396**	.380**	.444**	.544**	.423**	.459**	1.000	.031
	P-value	.880	.000	.000	.000	.000	.000	.000	.000	.	.717
	N	140	140	140	140	140	140	140	140	140	140
Determine the factor that can improve the implementation of supply chain performance management	Correlation Coefficient	.375**	-.103	-.061	-.062	.040	.005	-.093	.185*	.031	1.000
	P-value	.000	.225	.473	.469	.639	.956	.273	.028	.717	.
	N	140	140	140	140	140	140	140	140	140	140

Table 7: Multivariate Correlations.

Research Construct	Correlation	P-Value	Interpretation	Level of Significance
Impact of demand management on SCM/ Impact of SCPM on SCM	.166*	.050	Weak positive	Significant
Impact of demand management on SCM/ Limitation affecting effective demand management	.260**	.002	Moderate	Significant
Impact of demand management on SCM/ Limitation affecting effective SCPM	-.066	.439	Very weak negative	Significant
Impact of demand management on SCM/ impediments to demand management	-.036	.674	Very weak negative	Significant
Impact of demand management on SCM/ impediments to SCPM	.005	.954	Very weak positive	Significant
Impact of demand management on SCM/ Challenges to demand management	-.068	.424	Very weak negative	Significant
Impact of demand management on SCM/ Challenges to SCPM	.040	.640	Very weak positive	Significant
Impact of demand management on SCM/ Factors that improve demand management	-.013	.880	Very weak negative	Significant
Impact of demand management on SCM/ Factors that improve SCPM	.375**	.000	Weak	Significant
Impact of SCPM on SCM/ Limitation affecting effective demand management	1.000	.	Very strong positive	Significant
Impact of SCPM on SCM/ Limitation affecting effective SCPM	.219**	.009	Weak positive	Significant
Impact of SCPM on SCM/ impediments to demand management	.157	.064	Very weak positive	Significant
Impact of SCPM on SCM/ impediments to SCPM	.173*	.041	Very weak positive	Significant
Impact of SCPM on SCM/ Challenges to demand management	.210**	.013	Weak positive	Significant
Impact of SCPM on SCM/ Challenges to SCPM	.100	.241	Very weak positive	Significant
Impact of SCPM on SCM/ Factors that improve demand management	.398**	.000	Weak positive	Significant
Impact of SCPM on SCM/ Factors that improve SCPM	-.103	.225	Very weak negative	Significant
Limitation affecting effective demand management/ Limitation affecting effective SCPM	.199	.161	Very weak positive	Significant
Limitation affecting effective demand management / impediments to demand management	.236**	.005	Weak positive	Significant
Limitation affecting effective demand management / impediments to SCPM	.303**	.000	Weak positive	Significant
Limitation affecting effective demand management / Challenges to demand management	.306**	.000	Weak positive	Significant
Limitation affecting effective demand management / Challenges to SCPM	.125	.141	Very weak positive	Significant
Limitation affecting effective demand management / Factors that improve demand management	.396	.000	Weak positive	Significant
Limitation affecting effective demand management / Factors that improve SCPM	-.061	.473	Very weak negative	Significant
Limitation affecting effective SCPM / impediments to demand management	.717**	.000	Strong positive	Significant
Limitation affecting effective SCPM / impediments to SCPM	.189*	.025	Very weak positive	Significant
Impact of demand management on SCM/ Challenges to demand management	.179*	.034	Very weak positive	Significant
Impact of demand management on SCM/ Challenges to SCPM	.284**	.001	Weak positive	Significant
Impact of demand management on SCM/ Factors that improve demand management	.380**	.000	Weak positive	Significant
Impact of demand management on SCM/ Factors that improve SCPM	-.062	.469	Very weak negative	Significant

Impediments to demand management/ impediments to SCPM	.364**	.000	Weak positive	Significant
Impediments to demand management/ Challenges to demand management	.333**	.000	Weak positive	Significant
Impediments to demand management/ Challenges to SCPM	.243**	.004	Weak positive	Significant
Impediments to demand management/ Factors that improve demand management	.444**	.000	Moderate	Significant
Impediments to demand management/ Factors that improve SCPM	.040	.639	Very weak positive	Significant
Challenges to demand management/ Challenges to SCPM	.187*	.027	Very weak positive	Significant
Challenges to demand management/ Factors that improve demand management	.423**	.000	Moderate	Significant
Challenges to demand management/ Factors that improve SCPM	-.093	273	Very weak negative	Significant
Factors that improve demand management / Factors that improve SCPM	0.31	.717	Very weak positive	Significant

Table 7 and 8 above shows that there is a positive and significant correlation between the impact that supply chain performance management has on the supply chain management system and the limitations affecting effective implementation of demand management on the supply chain management system, the limitations affecting effective implementation of demand management, and the factors that can improve the implementation of SCPM. This implies that when the impact that demand management has on SCM prevails the impact of SCPM, limitations affecting implementation of SCPM as well as the factors that improve the implementation of SCPM tend to move at the same direction.

Table 7 also shows that there is a negative correlation between Impact of demand management on SCM and Limitation affecting effective SCPM, impediments to effective SCPM, and challenges to demand management. The results further indicate that there is a positive and significant relationship between impact that SCPM has on SCM and limitations affecting effective implementation of demand management, impediments to effective demand management, impediments to effective SCPM, and challenges to effective demand management as well as factors that can improve implementation of demand management.

Furthermore, the table indicates that there is a positive and significant correlation between limitations affecting an effective implementation of demand management and the impact that SCPM has on SCM, impediments to effective demand management, impediments to effective SCPM, and challenges to demand management, and factors that can improve the implementation of demand management. The results also indicate that there is a positive and significant correlation between impediments to

effective demand management, impediments to SCPM, challenges to demand management, challenges to SCPM, and factors that affect demand management. As indicated above the sign of the correlation coefficient indicates the direction of the correlation with a positive correlation indicating that as one variable increases, so does the other, and a negative correlation indicating that as one variable increases, the other decreases. The strength of the relationship is given by the numeric value 1 indicating a perfect relationship and 0 indicating no relationship between the variables.

4.5. DISCUSSIONS

The general aim of this study was to evaluate demand management and SCPM in the department of community safety and transport management. The findings of the study are based on the objectives of the study in paragraph chapter 1, section 1.5, the research questions and pre-determined hypotheses in section 1.6.

4.5.1. The impact of demand management and SCPM on SCM system

The results presented in section 4.3.1 above shows that demand management and SCPM has a significant impact on SCM. The study revealed that when implemented effectively demand management will improve procurement planning and provide clarity on bid specifications and Terms of Reference (TOR) as the majority of the respondents in the population of the study agree. This is in consistence with the notion raised by Bolton (2016) in chapter two, that proper demand management will eliminate indecisiveness and unnecessary inventory level. Further, NWP (2019) supports this by highlighting that clear specification and TOR helps organisation to choose optimum method of procurement to satisfy the need. The majority of the population concur that demand management aligns with strategic planning of the department with greater percentage in agreement.

The study revealed that demand management provides a clear understanding of the future needs of the department, what commodities should be purchase, from which setup of the market and what are the trends in the industry. Lastly, regarding demand management it was revealed that it helps manager to identify critical delivery dates in the SCM process and links people and strategic processes to the ultimate improvement of supply chain operations. On contrary, Bizana et al. (2015) believes that it is the responsibility of the demand manager to come up with strategies that will

mitigate interruptions on supply chains. In agreement NWP (2019) highlights that this can be achieved by surveying the market, and identifying effective method of procurement. The study further revealed that SCPM promotes supply chain agility and operational efficiency, as well as adherence to the pillars of SCM. This is supported by section 216 of the constitution of South Africa, which states that National Treasury should introduce uniform standards within government to ensure best practices related to SCM. This sentiment is also shared by National Treasury (2015) with the notion that SCPM should be measure through pillars of SCM. It was also revealed that SCPM helps the department in reducing lead times while aligning the SCM processes with strategic objectives. Finally, in relation to SCPM the study revealed that it can improve quality of goods and services rendered to ultimate improvement of service delivery.

4.5.2. Limitations affecting an effective implementation of demand management and SCPM

The study revealed that there are limitation to effective demand management and SCPM as predetermined in the research hypothesis in section 1.6 of chapter 1. In chapter two, Bizana et al. (2015) noted that lack of integration often leads to poor compilation of specification. This is confirmed by the results of the study in with majority of the respondents agree that lack of collaboration between supply chain partners is a limitation in implementation of demand and SCPM. However, Ellram (n.d.) in chapter two noted that what will help institution to arrive at the best purchasing decision is the calculation of TCO. In agreement, Rantanen (2019) highlights that TCO helps in identifying unknown cost related to critical procurement.

The results of the study also revealed that the limitation that affect effective implementation of demand management are lack of understanding of the concept of demand management, lack of collaboration between supply chain partners, shortage of personnel, and unavailability of historical data. On contrary, Badenhorst – Weiss et al. (2013) argues that financial figures do not provide any help because they are historic and do not have impact on the future. However, National Treasury (2017) highlights that analyzing spending patterns will help institutions to make projections and ultimately informed decision. The study also revealed limitations to effective implementation of SCPM to be lack of understanding the concept of SCPM, this is confirmed by Gargea (2012) who insinuate that the knowledge of suppler market, and

technologies are critical to organisational support. Inadequate staff to execute the function and the unavailability of performance measurement tools.

4.5.3. The impediments to effective demand management and SCPM

As highlighted by Deshmukh & Mohan (2016) literature review, the concept of demand management and SCPM originated from value chain and it suggests looking at SCM from a different perspective. The results of the study revealed the impediments to effective demand management and SCPM. The study revealed the impediments related to effective demand management are mainly poor communication channels between SCM staff and end-users, Non-adherence to prescribed legislations, human resource constraints, regulatory and political considerations, conflicting goals among supply chain members, and internal politics.

Additional to that Munzhedzi (2016), reveals that the impediments also include: lack of accountability, political intrusion, inexperienced and unqualified staff, lack of technical expertise, lack of understanding of legislative framework, and non-adherence to policy framework. The study further revealed that impediments to SCPM to be insufficient monitoring, poor contract management, poor supplier management, lack of performance measurement tools, reluctance to share or use relevant information, incompatible corporate cultures and poor working relationships. This is a direct conflict to the assertion made by National School of Government (2017) in chapter one that, SCPM should include appropriate contract management and performance measurement tools to address the shortfalls in achieving organisational objectives (Bizana et al., 2015).

4.5.4. Challenges to demand management and SCPM

The study revealed the challenges to demand management in department are shortage of staff, poor planning and budgeting, lack of cooperation from supply chain members, non- compliance to legislative framework and lack of training to staff. The results of the study are in consistence with the notion by National Treasury (2015) which indicated that inappropriate planning and budgeting result in poor performance of SCM. This was also highlighted by Motuba (2017), who agreed that organisations are still faced with demands that are not linked to the budget. Furthermore, the challenges to SCPM were revealed to be lack of performance measurement tools and training to staff. The literature review however, notes that challenges in SCPM are

internal control deficiencies, lack of contract management and contravention of legislations. As revealed in chapter two the management of the department conceded to the finding from PIA that there is no contract management in the department.

4.5.5. Factors that can improve the implementation of demand management and SCPM

Against the backdrop of limitations, impediments, and challenges to demand management and SCPM. In chapter two, literature review Mantzaris (2019) argues that procurement in government spheres function in an atmosphere of progressively intense scrutiny which is driven by technology reviews in public and political setup. The results of the study as presented in section 4.3.5 also revealed the factors that can improve the effective implementation of demand management and SCPM.

In relation to the improvement of the implementation of demand management, the factors are compliance to implementation of National Treasury guides, a clear understanding of demand management concept, and collaborative planning between supply chain members as well as adequate personnel. Mholi (2016) agrees that there must be a harmonious procurement planning in the organisations. This will help to achieve cost effective gains, and improve quality of goods and service offered. Regarding the improvement of SCPM, the study revealed the following:

- The monitoring of supplier should form the basis for contract management activities,
- These contract management activities' reporting elements should include a database of Service Level Agreements (SLA) concluded,
- The reporting elements of contract management should also include:
    - Monitoring of suppliers according to stipulated SLA,
    - Documentation of any deviation or non-performance from suppliers,
    - An assessment of supplier or service providers after completion of every projects,
    - Monitoring of SCM cycle to enhance adherence to prescribed legislation, and
    - Risk management plan.

4.9. CONCLUSION

The purpose of this chapter was to present data collected through questionnaire from the respondents. Analysis and interpretation were done in this chapter based on the research objectives and questions highlighted in chapter one. The general results of the study revealed that demand management and SCPM have a positive impact of the SCM system if implemented effectively. The study further revealed that there are challenges with regard to the implementation of these elements in department of community safety and transport management. Lastly, the factors that can improve and demand management and SCPM. The following chapter will outline the recommendation to address the key findings of the study and provide a conclusion to the research.

CHAPTER 5

RESEARCH CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

This chapter aims to discuss the study's summary, provide the research conclusion, and present the recommendations to the research findings presented in the previous chapter (chapter 4).

5.2. SYNOPSIS OF THE RESEARCH

Chapter One

The aim of this chapter was to present a road map to be followed towards conducting this study. An introduction was provided, a brief literature review was done; the research question, objective and hypotheses were developed. The chapter also presented a straightforward research methodology as well as an ethical clearance procedure to be followed.

Chapter Two

This chapter reviewed the literature on the topic under study. An expansion of the concepts of demand management, supply chain performance management, and supply chain management was provided.

Chapter Three

This chapter elaborated further on the methodology of research to be followed. The expansion of a brief explanation that was provided in chapter one was provided. The chapter went further to explain the sampling techniques, data gathering methods, and data analysis methods.

Chapter Four

The chapter dealt with the data presentation, analysis, and highlighting research findings in relation to the data collected. The methods of analysis we utilized, as explained in chapter three.

Chapter Five

The chapter dealt with a discussion of the study's summary; it further provided the research conclusion and presented the recommendations to the research findings as explained in chapter four.

5.3. SUMMARY OF THE STUDY

This study aimed to evaluate the two elements of supply chain management in department of community safety and transport management, namely demand management and supply chain performance management. Even though supply chain management in the public sector is not limited to only two elements, the research deemed it necessary to study these two based on the critical roles they play toward the whole supply chain management.

In the public sector, SCM is a critical function promoting service delivery through the timeous acquisition of goods and services (Singh & Singh, 2019). According to the National Treasury (2015), supply chains need to be managed through the correct model and activities to guarantee higher supply chain performance to accomplish a competitive edge. SCM's primary concern in the public sector is to add value at each stage of the procurement process in the chain (Ambe & Maleka, 2016).

Ambe and Badenhorst-Weiss (2012) describe demand management as the first procedure of the SCM system that includes planning and overseeing resources, setting up objectives and targets, for example, addressing the need assessment of the end-users. While, SCPM indicates the extended supply chain's activities in meeting end-customer requirements, including product accessibility, on-time supply, and all the required inventory and capacity in the supply chain to distribute that performance responsively (Kluwer, 2014).

The study followed a quantitative research approach whereby data was collected through Google Forms and paper-based questionnaires. The study drew its sample from the senior and middle manager of the department of community safety and transport management in Mafikeng with N=140. The data collected was presented through Microsoft Excel and SPSS. The finding of the study confirmed the predetermined hypotheses presented in chapter one of the study. The findings of the study revealed that demand management and SCPM have a positive impact of the

performance of the supply chain. Demand management as the first element of SCM improves planning for procurement by providing a clear understanding of what needs to be procured to fulfil organizational objectives and goals. The findings further revealed that SCPM leads to agile supply chain by reducing turnaround times in SCM operations. While there positive impact of demand management and SCPM the findings also reveal that there are limitations to the effect of these two elements. The findings reveal that if there is no integration between the partners in the supply chain ultimately the demand management and performance of supply chain will be limited.

The findings also highlight the impediments to effective demand management and SCPM, which are generally associated with desertion of prescribed legislation. This impediment is also revealed to be a challenge by the findings of the study. The findings of the study conclude with the factors that can improve the implementation of demand management and SCPM. Generally these challenges are the counter strategies to the limitation, impediments, and challenges to demand management and SCPM. They include devotion to the legislation, working together, and cooperation between the supply chain members. Finally, the study presented recommendations to address these findings.

5.4. RECOMMENDATIONS OF THE STUDY

Supply chain management is a vital part of the administration in the public sector and an overall business strategy. An adequate supply chain helps the organization maximise funds and improve service delivery by decreasing lead times for on-demand products and services. Thus, SCM gives an organization a competitive advantage over others in a particular industry. On contrary, an ineffective SCM can be a colossal channel on the organization's resources, so it is imperative to strategically plan so that the supply chain is as lean and practical as could be expected under the circumstances. Furthermore, the role demand management and SCPM is essential in managing the effective functions of SCM. The role of demand management and SCPM were studied through the study objectives.

The study objectives to:

- Determine the impact of demand and performance management on the SCM system in the North West Department of Community Safety and Transport

Management in the North West Department of Community Safety and Transport Management.

- Determine the limitations affecting effective implementation of demand and performance management on the SCM system in the North West Department of Community Safety and Transport Management.
- Understand the impediments to effective demand and supply chain performance management in the North West Department of Community Safety and Transport Management.
- Determine the factors that improve the implementation of demand and performance management on SCM in the North West Department of Community Safety and Transport Management.
- To determine the challenges in the implementation of demand and supply chain performance management in the North West Department of Community Safety and Transport Management.

The following sections present the recommendation to address the finding s of the study presented in section 4.8. Above. The results presented in section 4.3.1 shows that demand management and SCPM has a significant impact on SCM.

As highlighted in literature review, in chapter 2, demand management is the first element of SCM (National Treasury, 2017). As thus, processes should be implemented correctly from the first phase of the chain. In consistence with the notion made by (Bizana et al., 2015), the manager within the department of community safety and transport management must develop a contingency plan to deal with supply chain interruptions. The finding in 4.8.1 above revealed that demand manage can improve the planning for procurement when implemented correctly. As thus, the department should work towards the effective implementation of demand management.

The key factor to consider toward achieving effective implementation are highlighted in the literature review paragraph 3.2. According to NWP (2019), these activities include Conducting industry and market analysis, confirmation of funds, consideration of optimum procurement methods. In consistence with the argument raised by Manyathi (2014) in chapter 2, demand management should incorporate supplier and consumers' needs across through the management of the entire value chain.

The findings of the study in section 4.8. Further revealed the discrepancies associated with SCPM as predetermined in the research hypothesis in section 1.6 of chapter 1. In section 1.3 of this dissertation, Deloitte (2017) highlights that SCPM is a unified approach to improve the effectiveness and efficiency of all supply chain processes. This suggests that no member of the supply chain should be treated in isolation from others. Maestrini et al. (2017), agrees that all member of the supply chain must be kept under check for an institution to fulfill its goals. The research therefore recommends the following implementation strategies to address the findings of the study in relation to demand management and SCPM at the department of community safety and transport management. Further, the following points will guide managers and other stakeholders implementing demand management and SCPM in a SCM the department.

Demand analysis

Any demand management procedure should begin with the analysis and understanding of the department's purchase and delivery of service history. The department should identify which processes need to be reviewed. Conducting a consumer-product/service segmentation before the demand planning implementation is a great help in this respect.

Strive for a collaborative demand planning implementation process

Demand can be influenced by a myriad of factors as highlighted in the study's findings in section 4.8; however, statistics alone cannot do the job. The department needs to rely on a collaborative process within and beyond the organization's limitations to receive crucial demand information such as product launches, substitutions, and end-of-life products.

Align supply and demand management

Balancing and aligning demand management with supply management allows the capabilities of rapidly and acclimatising to the new reality, regardless of whether it's an abrupt demand surge or startling supply interruption. It is t imperative to ensure that all the bits of the departmental supply chain puzzle fit cozily together.

Reduce Variability and Increase Flexibility

In many instances, variability is perceived as a rival to planning. It is easy to plan for the average, yet it is the deviations from the standard that cause issues. Managers should spend and invest considerable energy and cash in managing the results of demand variability. There are two things managers can do to minimize the negative impact of variability. One is to lessen the variability itself, and the other is to increase the flexibility to respond to it. A critical segment of demand management is a continuous exertion pointed toward doing both these activities. Increasing flexibility helps the organization respond rapidly to internal and external events, and reducing demand variability helps inconsistent planning and reduces costs. Also, management should first try to reduce variability and then manage the unavoidable variability by building-in flexibility.

The study further revealed that when demand management is implemented effectively it will improve procurement planning and provide clarity on bid specifications and Terms of Reference (TOR). To achieve this, the department should, in terms of implementation of demand management, incorporate the following into its system:

- **Data collection/ Information gathering:** When designing the forecasting system at the strategic level, important input comes from the strategic planning, monitoring, and evaluation team. At the operational level, it is the service delivery standards that provide the most relevant information on anticipated demand.
- **Forecast:** With all the necessary information in hand, the department will be able to forecast. It is significant to follow and dissect the forecast error and incorporate this feedback to fine-tune the forecasting strategies. This is a significant part of the learning cycle related to excellent forecasting. This analysis involves tracing and tracking the source of the unexpected demand (or shortage of demand).
- **Synchronizing:** The forecast contributes to balancing demand with supply. This synchronization cycle will follow the strategies decided at the strategic level. This will be where the forecast is turned into a demand execution plan, that is, an arrangement for how the department will fulfil the needs.

Measure Performance

To guarantee that the department satisfies its long-term objective, the management must gain insight into how its supply chain performs and understand the vital areas of development. Supply chain measurement guarantees control over organizational practices, subsequently sparing the firm from income misfortune and poor long term development.

Invest in training the role players

The finding of the study revealed that a lack of understanding of the concepts of demand and SCPM impede the implementation thereof. It is therefore recommended that the department should invest in educating role players in the supply chain about these two concepts.

5.5. SUGGESTIONS FOR FUTURE STUDY

The study highlighted that the previous research work gave more attention to the entire SCM system in public sector. It is therefore suggested that future studies should concentrate more on individual elements of SCM, and their role towards SCM agility. Furthermore, the corporate world is transitioning towards technology based operations. The future studies should explore the SCM in industry 4.0 revolution and identify improvement opportunities for the South African public sector.

5.6. CONCLUSION

This chapter presented the synopsis of the study whereby a summary that highlighted what each chapter is all about. The chapter also discusses the summary of the research work. Finally, the chapter provides the recommendations to the research findings presented in chapter four.

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Appendix A: Survey Questionnaire

Research Project Booklet



Ethics clearance reference number: [To be determined]

Thank you for your willingness to consider participating in this research project.

The purpose of this research:

This questionnaire aimed to understand the impact of **selected supply chain management (SCM) elements in the department of community safety and transport management in Mahikeng.** The SCM elements are demand and performance management. There is a total of **56 questions,** and it should take no more than about **20 minutes** of your time to complete.

Inclusion criteria for participation:

- Only senior and middle management staff who are responsible for a day to day running of the department.
- Your only responsibility as a *willing* participant will be to complete this survey honestly.

Important notices, terms, and conditions:

- Any personal identifying information, such as demographics, will remain confidential.
- This survey is voluntary, and you are under no obligation to complete it.

- There will be no negative consequences for you if you do not complete the survey.
- Results will only be used and presented in an anonymized format from the total sample. Therefore your individual results will not be shown or released at any time.
- By completing this survey, you agree that the information you provide can be used for research purposes, specifically for potential academic publications and conferences.
- There are no correct or incorrect answers to any of the questions in this booklet.
- This study has been approved by the Economic and Management Sciences Research Ethics Committee (EMS-REC), which reserves the right to audit this study to ensure compliance.
- The booklets and data will be securely stored at the University when collected.

If you have **ANY** questions or concerns, you are welcome to contact the researchers:

Researcher:
Mr. LM Mojaki
North-West University
Faculty of Economic and
Management Sciences
Cell: 067 731 5970
Email: MoetapeleMJ@gmail.com

IF YOU DO NOT WISH TO PARTICIPATE NO ACTION FURTHER ACTION IS REQUIRED

Demographic Information

This information is asked for the researcher to be able to describe the total sample to future readers of our eventual reported results. That is, to provide information on how representative it was of the general staff in the department. Therefore, your information will only be used on a group level, and no individual information will be released at any time. For example, the results will contain text that looks something like this:

The average (mean) age of all the participants was 39.82 years, with a standard deviation (SD) of 10.57 years. The majority of the sample comprised female employees (n = 216; 54.27%) with the overall group consisting of mostly African* (n = 235; 59.05%) and White* (n = 97; 24.37%) employees.*

* *Note:* Designations are used in line with the terminology of the Employment Equity Act, 55 of 1998 for designated and non-designated groups. No offense is intended.

1. Please enter your current age (in years) in the block below. For example

22 Years

2. Gender

☐ Male ☐ Female ☐ Other

3. Please enter your years of service in the department. For example 3

4. Please enter the section or unit you are currently working in.

Section A

1. This section tries to determine the impact that demand management and supply chain performance management have on the supply chain management system. You are therefore requested to answer the following questions as honestly as possible by ticking the appropriate block (1 = Disagree, 2= partially disagree, 3= neither agree/disagree, 4=partially agree, 5= agree)

1.1.	**Demand Management**					
1.1.1.	Demand management improves planning for procurement	1	2	3	4	5
1.1.2.	Demand management provides understanding in the development of Bid specifications and Terms of reference	1	2	3	4	5
1.1.3.	Demand management align with the strategic planning process	1	2	3	4	5
1.1.4.	Demand management helps with understanding the future needs, commodity, market, and industry	1	2	3	4	5
1.1.5.	Demand management helps managers to identify critical delivery dates	1	2	3	4	5
1.1.6.	Demand management links people, strategies, and processes to the ultimate improvement of supply chain operations	1	2	3	4	5
1.2.	**Supply Chain Performance Management**					

1.2.1.	Supply chain performance management promote supply chain agility and operational efficiency	1	2	3	4	5
1.2.2.	Supply chain performance management promotes adherence to these pillars SCM - value for money, and - accountability and reporting	1	2	3	4	5
1.2.3.	Performance management helps in reduction of lead-times	1	2	3	4	5
1.2.4.	Performance management helps SCM to align processes with strategic objectives	1	2	3	4	5
1.2.5.	Supply chain management helps in the improvement of quality of goods and services rendered	1	2	3	4	5
1.2.6.	Supply chain performance management improves supplier delivery performance	1	2	3	4	5

Section B

2. This section tries to determine the limitations affecting an effective implementation of demand management and supply chain performance management on the supply chain management system. You are therefore requested to answer the following questions as honestly as possible by ticking the appropriate block (1 = Disagree, 2= partially disagree, 3= neither agree/disagree, 4=partially agree, 5= agree)

2.1.	**Demand Management**					
2.1.1.	Lack of understanding of the demand management concepts limits effective implementation thereof	1	2	3	4	5
2.1.2.	Lack of collaboration between supply chain partner leads to poor implementation of demand management	1	2	3	4	5
2.1.3.	Shortage of personnel limits proper execution of demand management	1	2	3	4	5
2.1.4.	Lack of consensus forecasting leads to poor implementation of demand management	1	2	3	4	5
2.1.5.	Unavailability of historical data limits the implementation of demand management	1	2	3	4	5
2.2.	**Supply Chain Performance Management**					
2.2.1.	Lack of understanding of supply chain performance management concept limits the implementation thereof	1	2	3	4	5

2.2.2.	Inadequate staff makes it hard to implement supply chain performance management	1	2	3	4	5
2.2.3.	Unavailability of performance measurement tools limits the implementation of supply chain performance management	1	2	3	4	5

Section C

3. This section tries to determine the impediments to effective demand management and supply chain performance management. You are therefore requested to answer the following questions as honestly as possible by ticking the appropriate block (1 = Disagree, 2= partially disagree, 3= neither agree/disagree, 4=partially agree, 5= agree)

3.1.	**Demand Management** In my opinion the following are the impediments to effective demand management					
3.1.1.	Poor communication channels between SCM staff and end-user	1	2	3	4	5
3.1.2.	Poor demand management affects service delivery negatively	1	2	3	4	5
3.1.3.	Non-adherence to prescribed legislations	1	2	3	4	5
3.1.4.	Not meeting socio-economic development targets	1	2	3	4	5
3.1.5.	Lack of understanding about roles and responsibilities of staff members	1	2	3	4	5
3.1.6.	Human resource constraints represent serious hurdle in demand management implementation efforts	1	2	3	4	5
3.1.7.	Regulatory and political considerations impede effective demand management	1	2	3	4	5
3.1.8.	conflicting goals among supply chain members	1	2	3	4	5
3.1.9.	internal politics leads to ineffective implementation of demand management	1	2	3	4	5
3.2.	**Supply Chain Performance Management** In my opinion the following are the impediments to effective supply chain performance management					
3.2.1.	Insufficient monitoring of SCM cycle	1	2	3	4	5
3.2.2.	Poor contract management	1	2	3	4	5
3.2.3.	Poor supplier management	1	2	3	4	5
3.2.4.	Lack of performance measurement tools	1	2	3	4	5
3.2.5.	Reluctance to share, or use, relevant information	1	2	3	4	5
3.2.6.	Incompatible corporate cultures	1	2	3	4	5
3.2.7.	Poor working relationships	1	2	3	4	5

Section D

4. This section tries to determine challenges to demand management and supply chain performance management. You are therefore requested to answer the following questions as honestly as possible by ticking the appropriate block (1 = Disagree, 2= partially disagree, 3= neither agree/disagree, 4=partially agree, 5= agree)

4.1.	**Demand Management**					
4.1.1.	Shortage of staff makes it hard to implement demand management	1	2	3	4	5
4.1.2.	poor planning and budgeting for all procurement and service delivery needs are caused by poor demand management	1	2	3	4	5
4.1.3.	Lack of cooperation from supply chain members makes it difficult to implement demand management	1	2	3	4	5
4.1.4.	Non-compliance to legislative framework makes it difficult to implement demand management	1	2	3	4	5
4.1.5.	Lack of training to staff on the implementation leads to poor demand management execution	1	2	3	4	5
4.2.	**Supply Chain Performance Management**					
4.2.1.	Lack of performance measurement tool results in poor supply chain performance management	1	2	3	4	5
4.2.2.	Lack of feedback from end-users on goods and service provided results in poor execution of supply chain performance management	1	2	3	4	5
4.2.3.	Lack of training to staff on the implementation leads to poor performance management execution	1	2	3	4	5
4.2.4.	Non-adherence to legislative framework is a challenge to the implementation of supply chain performance management	1	2	3	4	5

Section E

5. This section tries to determine the factor that can improve the implementation of demand management and supply chain performance management. You are therefore requested to answer the following questions as honestly as possible by ticking the appropriate block (1 = Disagree, 2= partially disagree, 3= neither agree/disagree, 4=partially agree, 5= agree)

5.1.	**Demand Management**					
5.1.1.	Benchmarking best practices lead to improved implementation of demand management	1	2	3	4	5
5.1.2.	Compliance to implementation national treasury guides leads improved demand management	1	2	3	4	5
5.1.3.	A clear understanding of demand management concept leads to proper implementation	1	2	3	4	5
5.1.4.	Collaborative planning between supply chain members leads to improved demand management	1	2	3	4	5
5.1.5.	Adequate personnel leads to proper implementation of demand management	1	2	3	4	5
5.2.	**Supply Chain Performance Management**					
5.2.1.	The monitoring of supplier should form the basis for contract management activities	1	2	3	4	5
The reporting elements on these activities should include the following						
5.2.2.	A database of Service Level Agreements (SLA) concluded	1	2	3	4	5

5.2.3.	Monitoring of supplier according to stipulated SLA	1	2	3	4	5
5.2.4.	Documenting any deviations/ non- performance by suppliers	1	2	3	4	5
5.2.5.	An assessment of a supplier or service provider after completion of each project	1	2	3	4	5
5.2.6.	Recommendation of improvements needed to enhance efficiency across supply chains	1	2	3	4	5
5.2.7.	Monitoring of SCM cycle to enhance adherence to prescribed legislation	1	2	3	4	5
5.2.8.	Risk Management Plan	1	2	3	4	5

Appendix B: Request to conduct a study

No. 40038 Vryburg Road
Mooseng Village
Mahikeng
North West
2745
30 July 2020

Head of Department
Department of Community Safety and Transport Management
Tirelo Building
Albert Luthuli Drive
Mmabatho
2745

Request for a permission to collect data for a purpose of my research

I am an employee of the department of Community Safety and Transport Management attached to Supply Chain Management Directorate as an Assistant Director Acquisition Management.

I hereby submit a request for a permission to collect data in the department for my research. I am currently studying towards a degree Master of Business Administration at North West University: Business School.

The topic of my research is: **Evaluation of selected Supply Chain Management elements in the Department of Community Safety and Transport Management In Mahikeng.**

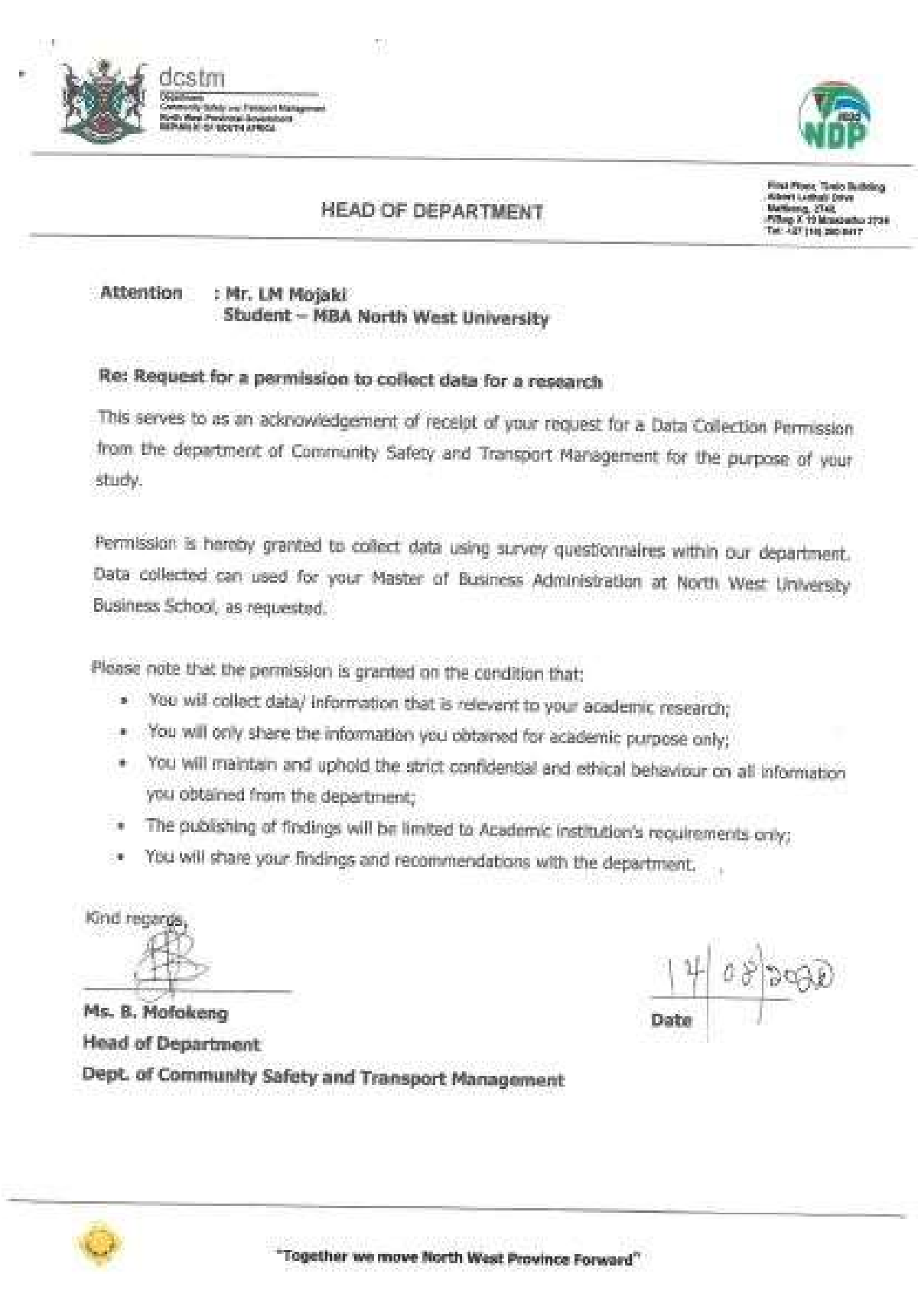
This is a quantitative research and therefore survey questionnaires will be used to collect data. The Data collected will be used strictly for academic purposes and confidentiality and ethical behaviour will practices at all times. The research findings and recommendations will be made available to the department upon your request.

Hope you find the above in order.

Sincerely,

Lawrence Moetapele Mojaki
Candidate: Master of Business Administration
North West University: Business School
067 731 5970
018 200 8085
moetapelemj@gmail.com

Appendix C: Permission to conduct study



dcstm

HEAD OF DEPARTMENT

Attention : Mr. LM Mojaki
Student – MBA North West University

Re: Request for a permission to collect data for a research

This serves to as an acknowledgement of receipt of your request for a Data Collection Permission from the department of Community Safety and Transport Management for the purpose of your study.

Permission is hereby granted to collect data using survey questionnaires within our department. Data collected can used for your Master of Business Administration at North West University Business School, as requested.

Please note that the permission is granted on the condition that:

- You will collect data/ information that is relevent to your academic research;
- You will only share the information you obtained for academic purpose only;
- You will maintain and uphold the strict confidential and ethical behaviour on all information you obtained from the department;
- The publishing of findings will be limited to Academic institution's requirements only;
- You will share your findings and recommendations with the department.

Kind regards,

Ms. B. Mofokeng
Head of Department
Dept. of Community Safety and Transport Management

14/08/2020
Date

"Together we move North West Province Forward"

Appendix D: Ethical Clearance

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Web: http://www.nwu.ac.za

Economic and Management Sciences Research
Ethics Committee (EMS-REC)

19 June 2020

Prof J Chukwuere
Per e-mail
Dear Prof Chukwuere,

EMS-REC FEEDBACK: 19062020
Student: Mojaki, LM (17035201)(NWU-00742-20-S4)
Applicant: Prof P J Chukwuere - MBA

Your ethics application on, *Evaluation of selected supply chain management elements in Department of Community Safety and Transport Management in Mahikeng,* which served on the EMS-REC meeting of 19 June 2020, refers.

Outcome:

Approved as a minimal risk study. A number NWU-00742-20-A4 is given for one year of ethics clearance.

Due to the Covid-19 lock down ethics clearance for applications that involve data collection or any form of contact with participants are subject to the restrictions imposed by the South African government.

Kind regards,

Prof Mark Rathbone
Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC)

Appendix E: Excluded Constructs

4.2.4. Non-adherence to legislative framework is a challenge to the implementation of supply chain performance management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	2	1.4	1.4	1.4
	5	138	98.6	98.6	100.0
	Total	140	100.0	100.0	

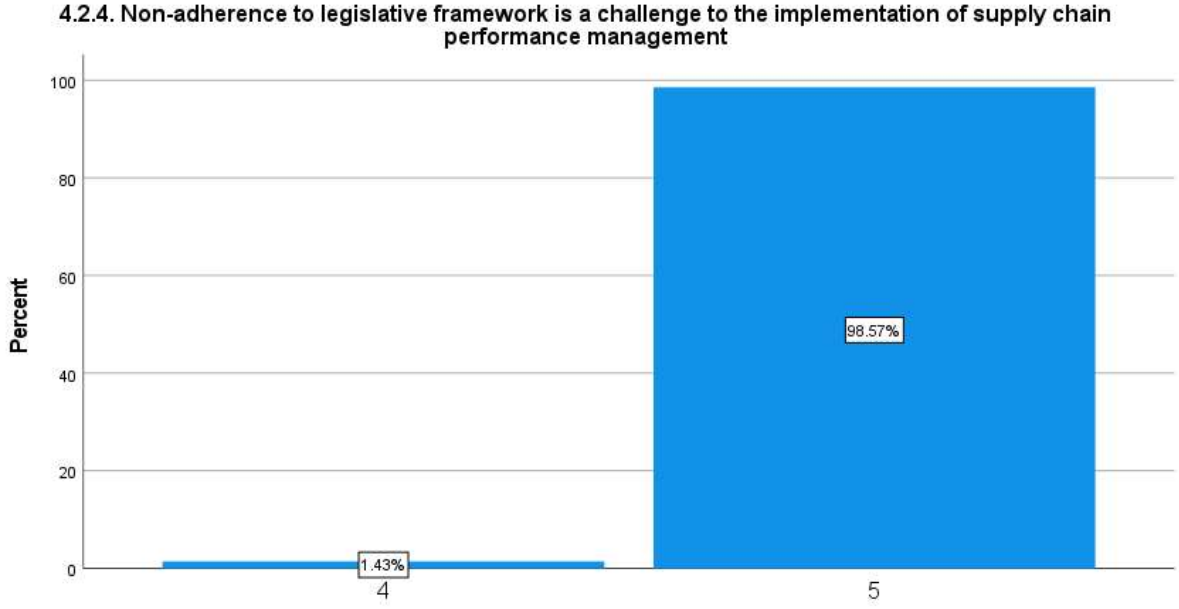
5.2.6. Recommendation of improvements needed to enhance efficiency across supply chains

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	.7	.7	.7
	4	22	15.7	15.7	16.4
	5	117	83.6	83.6	100.0
	Total	140	100.0	100.0	

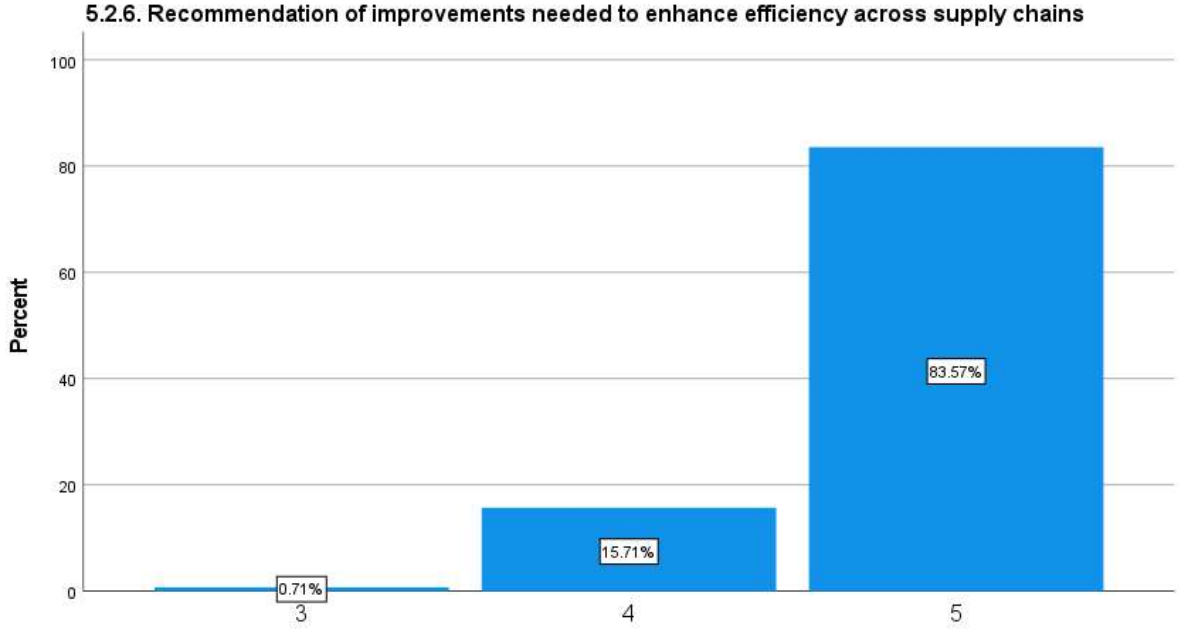
5.1.1. Benchmarking best practices lead to improved implementation of demand management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.7	.7	.7
	2	3	2.1	2.1	2.9
	4	8	5.7	5.7	8.6
	5	128	91.4	91.4	100.0
	Total	140	100.0	100.0	

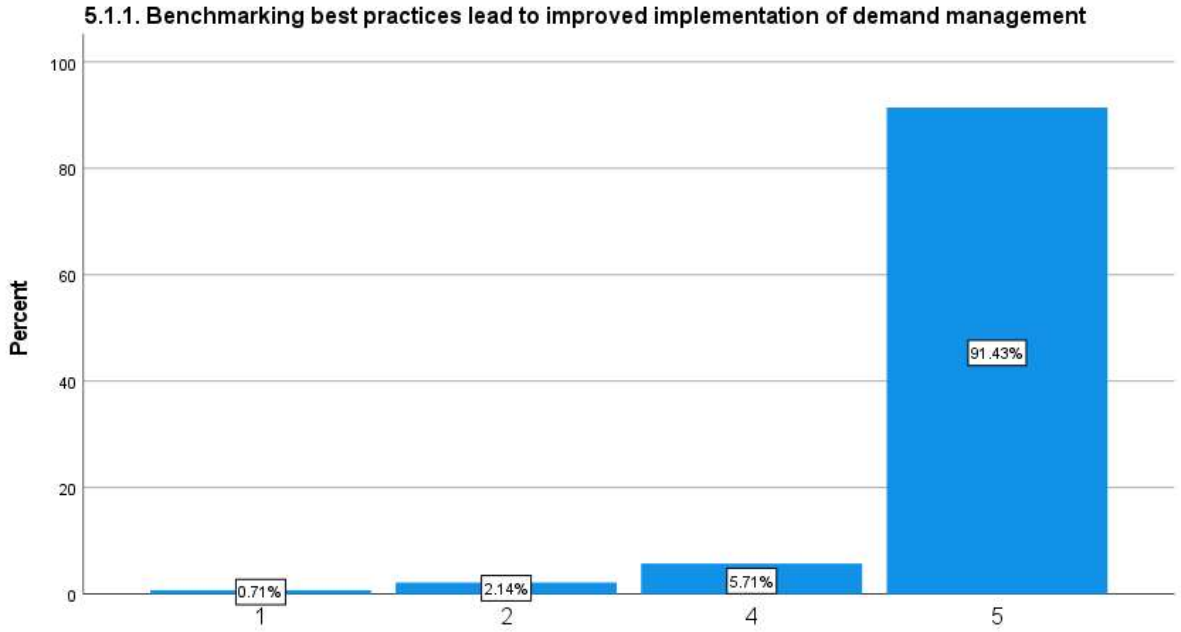
Bar Chart



4.2.4. Non-adherence to legislative framework is a challenge to the implementation of supply chain performance management



5.2.6. Recommendation of improvements needed to enhance efficiency across supply chains



5.1.1. Benchmarking best practices lead to improved implementation of demand management

Appendix F: Language Editor

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
MAFIKENG CAMPUS

Department of Academic Literacy

17th December 2020
Private Bag X2046
Mmabatho
2735

CERTIFICATE OF EDITING A DISSERTATION

TO WHOM IT MAY CONCERN

This serves to confirm that I have read and edited Mr L.M. Mojaki's dissertation titled: **A Evaluation of selected Supply Chain Management Elements in Department of Community Safety and Transport Management in Mahikeng.**

The candidate corrected the language errors identified. The document is of an acceptable linguistic standard.

Thank you

Yours Faithfully



J.R. Moletsane (Academic Literacy)
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Appendix G: Turnitin Report



17035201:Mini-Dissertation_17_December_2020.docx

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