

A REVIEW OF THE EFFECTIVENESS OF SUPPLY CHAIN MANAGEMENT PRACTICES IN LIMPOPO DEPARTMENT OF PUBLIC WORKS, ROADS AND INFRASTRUCTURE, LIMPOPO PROVINCE.

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**A REVIEW OF THE EFFECTIVENESS OF SUPPLY CHAIN MANAGEMENT
PRACTICES IN LIMPOPO DEPARTMENT OF PUBLIC WORKS, ROADS AND
INFRASTRUCTURE**

BY

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RESEARCH REPORT

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DECLARATION

I declare that the research report hereby submitted to the University of Limpopo for degree of Masters in Business Administration has not previously been submitted by me for degree at this or any other university, that it is my work in design and in execution and that all material contained herein has been duly acknowledged.

Letschedi KR

Date



DEDICATION

I dedicate this research report to my beloved parents, Gilbert and Annah Ramohlale for their inspiration and trusting me.

To my dearest sister Lizzy Ramohlale for your continued love and support throughout the writing of this thesis.

To my family, brothers and sisters for all your support, love, care and motivation. Lastly I would like to express my sincere gratitude to my husband, two sons and daughter, for your understanding, financial sacrifices and support I was at school.

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CHAPTER ONE: INTRODUCTION OF THE STUDY

1.1 Outline of the Chapter

This chapter sets the basis on which the whole study is premised. The aim of the study, its implications to the field of supply chain management and the problem the study seeks to address form part of Chapter 1's outline. In addition, the contextual definitions of key operational terms like supply chain, supply chain management, institutional factors and service delivery performance are also highlighted.

1.2 Introduction

The Limpopo Department of Public Works, Roads and Infrastructure's vision is that it want to be the leader in the provision and management of provincial land, buildings and road infrastructure. This the department can do through optimal utilization of resources in the provision and management of sustainable social and economic infrastructure including implementation and coordination of Expanded Public Works Programme. The Limpopo Department of Public Works, Roads and Infrastructure's past performance has been characterized by corruption and mismanagement, evidenced by disclaimers in the past two financial years conducted by the Auditor General and a reason for the national government to put the Department under administration. Furthermore this was sparked by the public protests for service delivery issues that are affecting their lives daily. Some of this service delivery protests issues raised included collapsed bridges, untarred roads, poor infrastructure for schools, clinics and hospitals as well as job creation through the Expanded Public Works Programme as this are the capital projects for the Department of Public Works, Roads and Infrastructure.

The root causes of this deteriorating situation can be attributed to a lack of controls in Supply Chain Management (SCM) practices, poor lease management, lack of accountability of the department, as well as lack of an appropriate accounting platform. The researcher has viewed the capacity of the Department to process tenders, perform Supply Chain Management and project management construction, maintenance and lease contracts as being severely eroded by fraud and corruption. The resultant lack of financial controls and mismanagement has provided fertile ground for fraud and

corruption. This can be attributed by media reports highlighting the plight of the public in quest of efficient service delivery.

Supply chain management is a concept that has gained lots of interest lately (Miao, Xi, and Yu 2010: 031). This may be due to firms realizing the detrimental effect of having poor SCM practices that cannot make the firms to be productive. Even government entities now prioritise SCM practices for efficient service delivery because government views supply chain management as the cornerstone of effective service delivery. Miao *et al* (2010: 034) asserted that SCM is a set of practices aimed at managing and coordinating the entire chain from raw material suppliers to customers. According to Leenders and Fearon (2004: 12) SCM is the systems approach to managing the entire flow of information, materials and services from the raw materials suppliers through factories and warehouses to the end customer.

SCM occupies a center stage in the context of the ongoing financial management reform process in the South African public sector (Ambe and Badenhorst-Weiss, 2011:11004). SCM builds on, and in some ways completes the cycle of financial management reforms initiated in the mid-nineties. Ismay (2013: 11) asserted that SCM was introduced in the South African public sector in 2003, in order to move from a rule-based procurement system to an integrated SCM system. The aim was to promote the new public management model by means of improved financial management and to provide value-added goods and services to government customers. Furthermore it aimed to implement a SCM function across all spheres of government, which would be an integral part of financial management and would conform to international best practices (South Africa 2005a:33).

In any government entity good supply chain management practices will enhance the delivery of services to be prompt, responsive and efficient. For example if a government department is not having correct supply chain management policies and guidelines , service delivery will not be effective as there will be no reasons to procure what services as well as to manage such processes. Government entities are guided by the treasury

regulations to ensure that efficient supply chain practices are in place and are monitored regularly.

The national treasury department has introduced a supply chain management policy for all government entities with the view that it will be implemented to ensure that all practices are in line with set regulations. The SCM policy framework aimed to do the following : promote uniformity and consistency in the application of SCM processes throughout government entities; facilitate the standardisation and uniform interpretation of government`s preferential procurement legislation and policies; and complete the cycle of financial management reforms introduced by the PFMA by devolving full responsibility and accountability for SCM related functions , in addition to financial management functions , to accounting officers and authorities (South Africa: 2005b: 67) The framework for the SCM system constitutes demand management, acquisition management, logistics management, disposal management, risk and performance management. The framework is guided by the preference point system to achieve redistribution of wealth through ensuring equal opportunities (South Africa: 2005b: 68).

SCM is built upon ensuring value for money, open and effective competition, ethics and fair dealing, accountability and reporting, and equity (Van Gruenen and Van Niekert, 2010:77). Ensuring these values will achieve the ultimate goal of uniformity in procurement processes, good governance and economic development (South Africa 2005a:33). According to Ronald, Michael and Rodger (2004:2) if properly implemented SCM can positively impact many functions and outcomes of the organisation, including product quality, customer responsiveness and resultant satisfaction, manufacturing cost control, product and market flexibility, and macro performance outcomes including market share.

Ireland and Webb (2007: 482) reflected that the strategic role of SCM in the South African public sector as the medium for creating and sustaining a competitive advantage cannot be underscored. Effective public sector SCM has potential benefits such as inventory reduction, improved service delivery and cost reduction across supply chain.

However despite these benefits, the South African public sector continues to encounter challenges in the supply chain (Hendricks and Singhal 2013: 695). Hendricks *et al* (2013:699) alluded that some of the challenges of supply chain management include poor implementation of SCM practices, lack of skills and capacity in the implementation and execution of SCM, quality of services and products in the supply chain, poor collaborative planning and conflict of interest in the composition of tender committees. The researcher will seek to understand whether the above mentioned challenges are unique to the Department of Public Works, Roads and Infrastructure. It may be that such challenges affect the effectiveness of the supply chain management practices in the department.

It is well known that public sector SCM in South Africa is imperfect. (South Africa 2015:5) There are constant allegations of corruption and inefficiency. Service delivery protests are a sign that people feel that they are not receiving the quantity or quality of services they need. Schools sometimes open at the start of the year without learner support materials, hospitals and clinics running out of medications and basic equipment to render effective service. This is general problems alluding to the challenges of having inefficient supply chain management practices in the public sector. An efficient and intelligent public sector SCM system can help to overcome these problems. The vision is one of a South African public sector SCM system staffed by people who have skills, knowledge and enthusiasm to ensure that every decision is well- informed and appropriate, and who have the technical and organisational support that they need in order to carry out this important work in line with the country `s Constitution, laws and regulations (South Africa 2015:5).

South Africa (2015: 6) indicated that a number of issues prevent public sector SCM from performing as well as it should:

- The strategic importance of SCM is not well understood. Those working in the system need to understand the economic and social power of the purchasing decisions that they make. These should not only be of maximum value to the intended beneficiaries- whether these are hospital patients who receive the medication they need or commuters with access to good public transport- but

also give expression to government`s policies and strategies and support business development .Translating budgets and strategic plans into deliverables requires an efficient public SCM system which is well – resourced, functions efficiently and whose central importance is recognised.

- The organizational structures and systems within which SCM takes place are in too many cases not ideal, with inexperienced or under- skilled leadership, high staff turnover and lack of motivation. There may also be a lack of suitable equipment, such as computers with dependable internet connections, or information such as databases giving up-to- date details of available products and services.
- The lack of clarity about the roles and responsibilities of technical staff and of political officer bearers creates scope for interference, and this gives rise to allegations or instances of corruption.
- SCM practitioners frequently do not have the skills, knowledge and experience that they need. While the system contains many excellent people, competency assessments show significant gaps in SCM skill and knowledge.
- Procedures and policies that stand in the way of this, and which are also difficult for officials to interpret and implement.
- On the other hand, suppliers often take advantage of the current weak public sector SCM environment. This is evident in high prices paid for goods and services; contracts that favour certain suppliers; collusion; unethical behavior; non-performance; and poor quality products and services rendered. To overcome these problems, the public sector needs to develop long-term strategic supplier relationships.
- An effective SCM system must also have as an objective to ensure that goods and services are available at the best price, in the right qualities, at the right time and in the right place. Constantly having to make decisions about how to balance these objectives is demanding and difficult. It needs a cohort of SCM professionals with the right skills, experience, social awareness, ethical

standards and dedication; and a regulatory and organizational environment that supports and monitors their work in the public interest.

The Limpopo Public Works, Roads and Infrastructure department is one of the five departments in Limpopo province to be placed under national administration for the greater part of 2012 and 2013. The burden of ensuring that the Limpopo Public Works, Roads and Infrastructure department delivers quality socio-economic infrastructure to the public rests on the shoulders of the department's supply chain management directorate. A robust Supply Chain Management (SCM) directorate is essential in the quest of the department to champion the accelerated delivery of crucial infrastructure needed by South Africa's ailing economy. A dysfunctional supply chain management directorate within the provincial public works, roads and infrastructure department will not help South Africa build a capable state envisioned in the National Development Plan.

1.3 Background of the Study

In 2003, the South African government adopted an integrated supply chain management approach. This policy mandated all spheres of government and public entities to immediately realign their procurement systems, procedures and practices with the new framework (Jacobson 2007:13).

The new initiative aimed to forge a binding supply chain code of practice, foster preferential procurement practices, underscore the principle of transparency and accountability in the procurement process and provide the basis on which government will effectively monitor adherence to set performance standards. At provincial government level, supply chain activities are guided and informed by the Public Finance Management Act (PFMA) of 1999. This Act directs the way provincial departments administer their revenues and expenditure activities (Ministry of Finance 1999:17)

Despite all these measures, South Africa has a fair share of its own "service delivery protests" which often turn violent and destructive. Television scenes of communities

looting shops, burning tyres and barricading roads are now a common feature in many local municipalities. Citizenry activism against poor service delivery in local government is rapidly turning South Africa into a war zone (Van Wyk 2009:11). Most of these protests take place at provincial and local government level. Although it is irrational to directly link all service delivery protests to supply chain management deficiencies in provincial government, Mathoho (2013:34) point out that a proportion of these protests can be directly linked to ineffective supply chain practices of government departments.

Mathoho (2013:36) indicated that since provincial government departments are entry points of consumers of government services at community level, capacity constraints often exert immense pressure on their infrastructure. A study on supply chain management done by Peterson (2008:45) concluded that winning organisations are those whose supply chain management practices are integrated with the organisation's overall business plan and strategy. This study explores ways on how the Limpopo Public Works, Roads and Infrastructure department can employ effective supply chain management practices to improve the effectiveness of their service delivery frameworks.

1.4 Problem Statement

As far as can be determined, very little research has been done within the Limpopo Department of Public Works, Roads and Infrastructure to extensively investigate the effectiveness of its supply chain management practices. With this research, the current SCM practices will be critically reviewed and recommendations will be made if necessary to improve them.

Peterson (2008:16) also cited by Mathoho (2013:37) cautions that supply chain employees in government lack the right mix of skills to translate PFMA policy guidelines into key performance targets. This study investigated the effectiveness of supply chain practices that have a bearing on the effectiveness of service delivery performance of the department of public works, roads and infrastructure.

1.5 Aim of the study

The purpose of this study was to extensively evaluate the effectiveness of existing supply chain management practices employed by the Limpopo Department of Public Works, Roads and Infrastructure.

1.6 Research Objectives

The following objectives were pursued;

- To identify factors that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure
- To measure the effectiveness of supply chain practices employed by the Limpopo Department of Public Works, Roads and Infrastructure on service delivery
- To propose improvements guidelines for the implementation of an effective supply chain management framework within the department.

1.7 Research Questions

- What internal factors hinder the directorate's ability to effectively deliver services?
- What is the effect of the department's supply chain practices on its service delivery performance?
- What improvements can be adopted to improve the directorate's capability to effectively deliver services?

1.8 Definition of Variables

In this section, key terms namely supply chain; supply chain management and integrated supply chain management are contextually defined below:

1.8.1 Supply chain

According to Chopra and Meindl, (2004: 44) a supply chain consists of all parties involved directly or indirectly in fulfilling a customer request. The supply chain does not only include manufacturers and suppliers but also transporters, warehouses, retailers and customers themselves.

1.8.2 Supply chain management

The Institute of Supply Management (ISM) defines supply chain management as the design of a seamless, value added processes across organisational boundaries to meet the real needs of the end customer (ISM 2003:3). According to the Policy Strategy Paper, supply chain management is an integral part of financial management that seeks to introduce internationally accepted best practices whilst at the same time addressing government's preferential procurement policy objectives (National Treasury 2003:4). The ISM (2003:3) definition advocates for an integrated approach to supply chain management where the end goal is to focus on satisfying the clients' needs.

1.8.3 Integrated supply chain management

Accordingly, integrated supply chain management is concerned by the coordination of internal and external business processes, the development of close linkages between channel partners, the management of products and information as they move across organisational and enterprise boundaries. A more operational view of integrated supply chain management involves the management of operational activities like customer service, control of inbound and outbound flows of materials and information and elimination of channel inefficiencies, costs and redundancies (Underhill, 1996:9). In this study, supply chain management is defined as an integrated supply chain management framework that fosters service delivery effectiveness by improving cost efficiency and timely delivery of superior quality products and services to citizens.

1.8.4 Supply chain practices

In this study, supply chain practices are embodied in the department's supply chain culture or the most distinct way it handles or manage its supply chain operations, decisions and activities.

1.8.5 Service delivery performance

Service delivery performance relates to the degree or extent to which the supply chain directorate quantitatively or qualitatively meets its service delivery objectives or targets on how well it is satisfying the needs of its clientele base or stakeholders.

1.8.6 Institutional factors

Institutional factors represent those organisational variables like culture, value and belief systems, decision making styles, leadership philosophies, business processes, procedures, policies that have a bearing on how the department administers its supply chain management function.

1.9 Significance of the study

According to King III Report, (2009:16) executive management is responsible for integrating procurement issues into the overall business strategy of the organisation. The study may equip the department's executive management with tools crucial in enhancing the performance of the department's supply chain management directorate.

Further, other provincial departments may access value-add knowledge and lessons that may be used to address fault lines existing in their supply chain frameworks as well. Further, this study may help in sensitising Bid Committees across government department of their fiduciary responsibilities when making critical supply chain management decisions. In this light, this study may trigger evolutionary changes in the way supply chain issues are managed and governed within all spheres of government.

As such, the study may inform the basis on which turnaround strategies to improve the effectiveness of supply chain management within provincial government departments may be crafted and implemented. Policy making structures in the public finance management cluster may use the findings of this study to develop sound capacity building strategies for supply chain management staff. On the other hand, the study may reaffirm the critical role played by supply chain management in improving the quality of service delivery in local government. Finally, the study may also be used to benchmark similar studies or theoretical work of other researchers in the supply chain management sector in South Africa.

1.10 Layout of the report

The report is structured as follows:

- Chapter 1: Introduction of the study

- Chapter 2: Literature Review
- Chapter 3: Research Methodology
- Chapter 4: Results of the study
- Chapter 5: Conclusions and Recommendations of the study

1.11 Conclusion

This chapter outlined the pivotal role of winning supply chain management practices in enhancing service delivery effectiveness from a provincial government perspective. The heavy price that is paid when local government structures fail to deliver vital services outweighs the costs of fixing those structural challenges. The chapter advises government entities to continuously invest in initiatives that improve the performance of their supply chain management units. According to the chapter, a weak supply chain management unit is the least thing any responsible public entity will ever need. The next chapter lays the foundation on which literature view will be laid.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

In order to give context to the review of the effectiveness of Supply Chain Management (SCM) practices in the Limpopo Department of Public Works, Roads and Infrastructure, a review of available literature pertaining to this topic was made. This review included the following topics:

- Overview of Supply Chain Management
- Supply chain management concept in the South African public sector
- Factors that influence effective delivery of services
- Factors at strategic level and operational level
- Measurement of supply chain performance
- Supply Chain Management Practices
- Measurement of service delivery Performance
- Guidelines for the implementation of an effective supply chain management

Supply chain management (SCM) is one of the key mechanisms enabling government to implement policy (South Africa 2005:a33). Traditionally, SCM has been misunderstood and undervalued. Its strategic importance has not been recognised, and it has been under-capacitated (South Africa 2005:a33). The negative effects of inefficient public sector SCM, particularly in the procurement phase of the chain, are well documented (South Africa 2005:a33). Suppliers charge excessive prices; goods and services contracted for and delivered are of poor quality and unreliable; and there is corruption and waste. The private sector, by contrast, has tended to invest astutely in SCM in order to maximize shareholder value and ensure that its products and services match clients' needs. In South Africa, government is starting to value the strategic importance of SCM to service delivery, value creation, socio-economic transformation and fiscal prudence. The establishment of the Office of the Chief Procurement within the National Treasury reflects government's commitment to quality service delivery at the right place and time.

Public expenditure nevertheless continues on a large and necessary scale. In 2013/14, the South African public sector spent R500 billion on goods and services and on construction work (South Africa 2015: 12). These supported and enabled the delivery of services to the country's residents. This is an enormous amount of money. Wisely and efficiently spent, it can be a great force for good. It can ensure that those in need receive services, that infrastructure such as roads and ports is built and maintained, that schools are well-equipped and that health services are widely available. It can also spread wealth to hard-working entrepreneurs who successfully tender for government contracts and, in doing so, create jobs. Even those not directly involved in the public sector supply chain can benefit, as suppliers to government source their supplies and materials from manufacturers, farmers and many others. It is well known that public sector SCM in South Africa is imperfect (South Africa 2015: 12).

There are constant allegations of corruption and inefficiency (South Africa 2015: 12). Service delivery protests are a sign that people feel that they are not receiving the quantity or quality of services they need. Schools sometimes open at the start of the year without learner support materials. An efficient and intelligent public sector SCM system can help to overcome these problems. The vision is one of a South African public sector SCM system staffed by people who have the skills, knowledge and enthusiasm to ensure that every decision is well-informed and appropriate; and who have the technical and organisational support that they need in order to carry out this important work in line with the country's Constitution, laws and regulations (South Africa 2015: 12). A number of issues as noted by (South Africa 2015 : 15) that prevent public sector SCM from performing as well as it should are mentioned as follows:

2.2 Overview of Supply Chain Management (SCM)

As competition intensifies and markets becomes global, so is the challenges associated with getting a product and service to the right place at the right time and at the lowest cost. As a result many organisations have come to realise that it is not enough to improve efficiencies within an organisation, but the whole supply chain has to be made competitive. Fierce competition in today's global markets, the introduction of products with shorter life cycles, and the heightened expectations of customers have forced business enterprises to invest in, and focus attention on, their supply chains (Wisner 2011: 12). This, together with continuing advances in communications and transportation technologies (e.g., mobile communication, internet, and overnight delivery), has motivated the continuous evolution of the supply chain and of the techniques to manage it effectively.

This is evident by the role that foreign nationals have assumed in most townships and rural areas in our country. Previously local chain stores and supermarkets that were owned by locals have been transformed into spaza shops by foreign nationals such that they are too competitive for a neighbor to make a choice to go to a local chain store or cafes as they were previously named to a spaza shop where one can get right product at a lower cost. This relates to the evolution of supply chain management. As such the understanding and practicing of supply chain management has become an essential prerequisite for staying competitive in the local and global race and for enhancing profitability. Supply chain management enhances competitive performance by closely integrating the internal cross-functions within a company and effectively extending them to the external operations of external partners to be successful (Monzcka and Morgan, 2010: 88).

Council of Logistics Management (2000: 22) defines SCM as the systematic, strategic coordination of the traditional business functions and tactics across these business functions within a particular organisation and across businesses within the supply chain for the purposes of improving the long term performance of the individual organisations and the supply chain as a whole. SCM has been defined to explicitly recognise the strategic nature of coordination between trading partners and to explain the dual purpose of SCM: to improve the performance of the whole supply chain (Muller 2010:13). The goal of SCM is to integrate both information and material flows seamlessly across the supply chain as an effective competitive weapon (Feldmann 2012: 11). The concept of SCM has been considered from different points of view such as purchasing and supply management , logistics and transportation, operations management, marketing, organisational theory, and management information systems (Croom 2013: 89). In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage, and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain (Jones 2011: 25).

The focus of supply chain management can differ from government, sector-to-sector, and from industry. An example of a government sector-to-sector focus area could be in the health sector, where the focus may be more on logistics and the effective movement of goods and services in and out of hospitals whereas SCM in the education sector may focus on streamlining the chain through which teaching materials are delivered to students. The shape of the supply chain and the SCM processes employed will vary considerably depending on a range of different considerations (South Africa 2005a:32).

SCM focuses on how firms utilise their suppliers' processes, technology, and capability to enhance competitive advantage. Klemencic (2009: 112) asserted that although the definitions of SCM differ to some extent, they can be classified in two categories: a management philosophy and as a set of management processes. The following definitions are discussed as per Klemencic (2009: 112)

- **Supply Chain Management as a Management Philosophy**

Supply chain management as management philosophy takes a system approach to viewing the supply chain as a single entity. This means that the partnership concept is extended into a multi firm effort to manage the flow of goods from suppliers to the ultimate customer. Each firm in the supply chain directly or indirectly affects the performance of other supply chain members, as well as the overall performance of the supply chain.

- **Supply Chain Management as a Set of Management Processes**

Supply chain management is increasingly being recognised as the integration of key business processes across the supply chain. Implementation is carried through by three primary elements; the supply chain network structure, the supply chain processes and the management components. In terms of supply chain network structure, it is important to integrate decisions related to purchasing, manufacturing, stocks, warehousing and distribution. On the other hand, it is important to design a set of standard processes which will assure rational behaviour of the individuals or companies that are part of the supply chain.

2.3 Supply Chain Management Concept in the South African Public Sector

On 18 November 2003, the Minister of Finance approved the promulgation of the Regulatory Framework for Supply Chain Management which applies to all national and provincial departments and trading entities, constitutional institutions and public entities listed in Schedules 3A and 3C Public Finance Management Act (PFMA). The Framework for Supply Chain Management was published in the Government Gazette No 25767 dated 5 December 2003 as Government Notice Number 7837 issued in terms of section 76(4) of the PFMA. This Framework serves as a formal requirement to accounting officers /authorities to ensure the implementation of the supply chain management process as an integral part of their financial systems (South Africa 2005a: 11).

In 2003, the South African Cabinet adopted a SCM policy to replace outdated procurement and provisioning practices. The aim was to implement a SCM function

across all spheres of government, which would be an integral part of financial management and would conform to international best practices (South Africa 2005a: 9). The SCM policy framework aimed to do the following: promote uniformity and consistency in the application of SCM processes throughout government; facilitate the standardisation and uniform interpretation of government's preferential procurement legislation and policies; and complete the cycle of financial management reforms introduced by the PFMA by devolving full responsibility and accountability for SCM related functions, in addition to financial management functions, to accounting officers and authorities (South Africa 2005a: 11).

Migiro (2008: 39) views public sector supply chain management as a concept that offers a reference framework for the composition of public sector supply chains and multilevel networks. Actors in public sector supply chain comprise (1) private firms which receive orders from public sector agents, (2) accounting officers and (3) policy makers (Essig and Dorobek, 2009:19). The SCM in the public sector not only concentrates on the question 'which institutions cooperate in goods and services', but also how these enterprises are involved with enterprises operating at other levels (Migiro 2008: 39). Thus, analyses of intra-network-relationships as well as analyses of inter-network-relationship are essentially necessary elements of the concept.

In the public sector, supply chain management is concerned with the co-ordination of all parties involved in delivering the combination of inputs, outputs or outcomes that will meet a specified public sector requirement. These parties include external suppliers, partner organisations, and internal corporate service units both inside and outside (outsourced services) the organisation. The supply chain consists of an inbound part and an outbound part. Inbound supply chain is the operational requirement for internal customers and outbound supply chain involves placing wider organisational objectives to provide services for delivery to citizens, or a combination of both (Ambe et al 2011: 15).

The shape of the supply chain and the supply chain management processes employed will vary considerably depending on a range of different considerations. (South Africa 2005a:11) Public supply chain may be inbound into the public sector that is an operational requirement for internal customers and may be outbound from the public sector to deliver wider organisational objectives to provide services for delivery to citizens, or a combination of both. Supply chain is inbound to the public sector where suppliers deliver goods and services into the public sector departments to support their operational objectives e.g. office furniture provision. While it is outbound from the public

sector – directly supporting the needs of the public e.g. suppliers delivering training services for public sector funded projects.

Government action is primarily driven by legislation (South Africa 2005a:32). According to the SCM policy, accounting officers of government departments, management teams and other levels of staff need to have a sense of understanding regarding values or principles entrenched in the legislative framework that affect SCM (South Africa 2005a:32). SCM aims to add value at each stage of the process – from demand for goods or services to their acquisition, managing the logistics process and finally, after use, in their disposal. In doing so, it addresses deficiencies related to procurement, contract management, inventory and asset control and obsolescence planning (Matthee, 2012:2).

SCM is built upon ensuring value for money, open and effective competition, ethics and fair dealing, accountability and reporting, and equity (Van Gruenen *et al* 2010: 68). Ensuring these values will achieve the ultimate goal of uniformity in procurement processes, good governance and economic development (South Africa 2005a: 23). The framework for the SCM system constitutes demand management, acquisition management, logistics management, disposal management, risk and performance management. The framework is guided by the preference point system to achieve redistribution of wealth (ensuring equal opportunities). As indicated, the elements of the SA government SCM and their activities are explained as follows (South Africa 2005a: 23).

- **Demand management**

Need assessment (demand) precedes the implementation of supply chain management. The objective is to ensure that goods and services delivered comply with specifications of the identified needs. It also ensures that resources required to fulfil needs identified in the strategic plan of any government department is delivered at the correct time, price and place and that the quantity and quality satisfies the needs.

- **Acquisition management**

This is the management of procurement. Each government entity decides on the manner in which the market should be approached, establishes the total cost of ownership of assets, ensures that bid documentations are complete including evaluation criteria, evaluates bids in accordance with published criteria and ensures that proper contract documents are signed.

- **Logistics management**

Logistics is the process of strategically managing acquisition, movement and storage of materials (inventory) through the organisation and its marketing channel in such a way that profitability is maximized through cost effective fulfilment of orders. It forms part of the supply chain process that implements, controls and ensures an effective flow of stored goods, services.

- **Disposal management**

Disposal management is the letting away of assets that are no longer needed, including unserviceable, redundant or obsolete assets. It gives due consideration to obsolescence planning, creation of a database of redundant material, inspecting material for potential reuse, determining a disposal strategy and executing the physical disposal process.

- **Risk management**

Risk refers to unintended or unexpected outcome of a decision or action. Risk management is the provision of an effective system for identification, consideration and avoidance of potential risks. It includes the identification of risks on a case-by-case, allocation of risks to the party that is best suited to manage it, acceptance of the cost of the risk, the management of risk in a pro-active manner and provision of adequate cover for residual risk as well as the assignment of relative risks to the contracting parties through clear and unambiguous contract documents.

Supply chain performance

Supply chain performance is a monitoring process undertaking a retrospective analysis to determine whether the proper processes have been followed and whether the desired objectives were achieved. The South African Government's national treasury has developed a reporting template that is used by provincial treasuries to monitor SCM implementation process at all government entities. To continuously improve the supply chain performance, government entities are expected to adopt the template to enhance their supply chain performance. With reference to the SCM policy, each government entity has to adapt the policy to suit its needs. The structures for management of supply chain activities within the country are unique. The treasury template prescribes roles and duties for those who put SCM into action. The SCM policy requires the creation of bid committees. The various committees to be created include: the bid specification committee, bid evaluation committee and the adjudication committee (South Africa 2005a: 56). According to the SCM guide, role players in supply chain management are the executors in the implementation of SCM regulations and policies. These include the

national treasury, provincial treasury, municipalities and municipal entities, which include the municipal council, the accounting officer and the municipal SCM units as well as all government entities (South Africa 2005a: 6).

Legislative requirement of supply chain management (SCM) in the public sector

Supply chain management policies are complex and impact significantly on the smooth functioning of the government and its competitive position. Numerous variables and large body of information influence SCM policymaking. Without a legislative framework, political representatives will not be able to make informed and intelligent decisions. The legislative requirement of SCM warrants each government entity to create a SCM unit and to implement SCM policy (South Africa 2005a: 6). Some of the legislations that guide SCM implementation include the Constitution, PFMA, MFMA, PPPFA and the BBBEE. This will be outlined hereunder:

- **Constitutional provisions**

Section 217 (1) of the constitution of the Republic of South Africa, 1996 (Act No 108 of 1996) provides the basis for procurement and determines that “When an organ of state in the national, provincial or local sphere of government, or any other institution identified in national legislation, contracts for goods or services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost-effective (Van Gruenen *et al* 2010:).

- **Public finance management act (PFMA) (Act No. 1 of 1999)**

South Africa PFMA, 1999 (Act No. 1 of 1999) (as amended by Act No. 29 of 1999) is one of the most important pieces of legislation passed by the first democratic government in South Africa. The act promotes the objective of good financial management in order to maximize service delivery through the effective and efficient use of the limited resources. The key objectives of the Act may be summarized as being to: modernize the system of financial management in the public sector; enable public sector managers to manage, but at the same time be held more accountable; ensure timely provision of quality information; and eliminate waste and corruption in the use of public assets.

- **Municipal finance management act (MFMA); (Act No 56 of 2003)**

Local government, MFMA 2003 (South Africa 2005a: 35) aims to modernize budget and financial management practices in order to maximize the capacity of municipalities to deliver the services to all its residents, customers, users and investors. It places a

sound financial framework, clarifying and separating the roles and responsibilities of the mayor, executive and non-executive councillors and officials. It empowers mayors to political leadership of policy and outcomes, municipal managers and other senior managers to ensure that the municipality has and implements SCM policies and regulations in accordance with chapter 11 of the Act (South Africa 2005a: 36). The principles and reforms encourage a strong, better and more accountable local government sphere, one that is better placed to meet the emerging demands and new challenges of the different communities that it serves in a more consistent and sustainable manner (South Africa 2005a: 36).

- **Preferential procurement policy framework act(PPPFA) (No. 5 of 2000)**

Parliament approved the PPPFA in February 2000 to adhere to the requirement of the constitution. The Act is a step forward in the process of procurement reforms. It contains a framework for the application of preferences in the public sector bidding system. The framework is applicable to the public sector procurement system of all organs of the state in the national, provincial and local spheres of the government. Any organ of the state that implements the policy of preferences may only implement preferences within the framework of the Act. The preferences points system must be applied to all procurement. PPPFA and its associated regulations promote historical disadvantage individuals (HDI's) and a broad-ranging set of development objectives by means of allocating preferences points to these various policy objectives (South Africa 2005a: 37).

- **Broad-based black economic empowerment act(BBBEE) (Act 53 of 2003)**

The act was signed on the 9 of January 2004, among other things. It provided a broad-based charter to promote BEE and issue codes of practice that could include qualification criteria for preferential procurement and other economic activities (South Africa 2005a: 39).

- **Anti-corruption measures and practices**

The constitution provides for rights such as just administration and access to information, and requires high standards of ethics within public administration. Recent legislation dealing with transparency and anticorruption has strengthened government's ability to combat corruption, and also protects employees making disclosures against their employers in both the public and the private sectors (South Africa 2005a: 39)

The Limpopo Department of Public Works, Roads and Infrastructure is also governed by the same principles and guides in implementing the supply chain management

practices. It is in view of the same guidelines that the researcher will review the effectiveness of the supply chain management practices for the Limpopo Department of Public Works, Roads and Infrastructure.

2.4 Factors that influence effective delivery of services

Supply chain management is applied by companies across the globe due to its demonstrated results such as delivery time reduction, improved financial performance, greater customer satisfaction, building trust among suppliers, and others (Titus, Mburu, Koror and Muathe 2012: 42) According to Ronald, Michael and Rodger (2011: 23) if properly implemented SCM can positively impact many functions and outcomes of the organisation including product quality, customer responsiveness and resultant satisfaction, manufacturing cost control, product and market flexibility, and macro performance outcomes including market share. In order to understand how a supply chain works, it is important to identify the factors affecting supply chain management. The generic supply chain management factors and sub-factors that might affect supply chain management activities are listed by Quesada and Meneses (2010:22) as follows:

2.4.1 Environmental uncertainty

Environmental uncertainty refers to the environmental issues in the product chain (Dwivedi and Butcher, 2009: 23). Ettlir and Reza (2011: 37) described environmental uncertainty as the unexpected changes of customer, supplier, competitor, and technology. Paulraj and Chen (2011: 23) mentioned that environmental uncertainty is an important factor in the realization of strategic supply management plans. The increase of outsourcing activities in the industry had augmented the awareness of the importance of strategic supply management, which leads to better relationship among organisations. Under this factor, three sub-factors were identified: company environment, government support, and uncertainty aspects from overseas.

❖ Company environment

This sub-factor is related to the company's relationship with suppliers and their level of trust and commitment. Company environment is also related to the company's expectations of quality, on time delivery, competition in the sector, and the level of rivalry among firms. In order to respond effectively to demand, companies realise that imports are a good option for obtaining flexibility in response, even though working with countries from overseas implies working with uncertainty (Wu, 2009:34). According to a study carried out by Ambrose (2010: 88), uncertainty negatively affects company performance. But this can be reduced if a strategic relationship with critical suppliers is established (Chen 2012: 34). Thus, companies need to implement new strategies that

allow them to deal with environmental uncertainties in the supply chain in order to perform in a proficient manner (Wu, 2009: 37).

❖ **Government support**

Elzarka (2012:55) reflected that the level of support that the company receives from the government when importing raw materials or products from overseas or using domestic materials is important. It includes the use of norms, regulations, policies, and advice for the sector. Government can make a series of reforms to encourage exporters by increasing manufacturing sector's competitiveness in the international market through logistics competency (McHale 2010: 120). The increase of international trade for acquiring resources from other countries introduces complicated matters such as language barriers, transportation, transportation costs, exchange rates, tariffs, and administrative practices (Quayle 2010: 55).

❖ **Uncertainty aspects from overseas**

When requiring the outsourcing of raw materials or products, it is important to acknowledge the existence of environmental factors such as political uncertainties in other countries that can increase risk for suppliers, provoke decisions of no investment, change business strategies, and in general influence business decisions. Social uncertainties such as religion, environment, language, cultural issues, limitations of communication and also the technology used in other countries might interfere with supply chain planning and function ((Bhattacharyya 2010: 54).

2.4.2 Information technology

Telecommunications and computer technology allow all the actors in the supply chain to communicate among each other. The use of information technology allows suppliers, manufacturers, distributors, retailers, and customers to reduce lead time, paperwork, and other unnecessary activities. It is also mentioned that managers will experience considerable advantages with its use such as the flow of information in a coordinated manner, access to information and data interchange, improved customer and supplier relationships, and inventory management not only at the national level but also internationally (Handfield 2009: 17).

❖ **Communication tools**

Communication tools are used to facilitate data transfer and communication between the trading parts and this might include electronic data interchange (EDI), electronic fund transfer (EFT), intranet, internet, and extranet (Li 2010:2). Electronic Data Interchange (EDI) is used for procurement (purchase orders, order status, and order follow-up). EDI serves as electronic catalogs for customers who can get information, dimensions, and cost about a specific product. EFT provides trading partners with an effective way to transfer funds from one account to another through a value added network (VAN) or the internet. Intranets are corporate local area networks (LAN) or wide area networks (WAN) that communicate through the internet and are secured by firewalls.

On the other hand, extranet allows business to communicate and share business with external collaborators with a certain degree of security and privacy. Another type of communication tool is the internet, a uniform interface that allows global communication with the use of browsers (Bowersox 2012:7). According to O'Neill (2010:8) the advances in information technology have made communication tools easier for users, allowing its presence in components to extend in the supply chain. Another significant communication tool is the internet based information and communication technology (ICT), mentioned by Tan (2009:17) and he further indicated that the use of ICT is a strategic communication tool that improves the organisation's competitiveness, allowing cost reduction and permitting the company's effectiveness.

❖ **Planning tools**

Supply chain management planning tools are intended to integrate the resource planning activities in a firm or organisation. Some of the most common planning tools are: material requirement planning (MRP), manufacturing resources planning (MRP II), and Enterprise Resource Planning (ERP). A MRP is a tool that allows an organisation to schedule production activities to meet specific deadlines based on the bill of materials, inventory levels, and master production schedule (Bowersox 2012:11). Some other IT tools exist that can be used to execute or manage the various activities and relationships in the entire supply chain (Kumar 2011:55). These may include: data warehouse (DW), vendor managed inventory (VMI), distribution requirement planning (DRP), and customer service management (CRM).

2.4.3 Supply chain relationships

Supply chain relationships play an important role in achieving the firm's goals. The coordination and integration of activities with suppliers and understanding of customer's needs results in greater benefits for companies. According to Fraza (2011:88), supply chain management is directly related to relationship management, which includes

suppliers and customers. Strategic supplier partnerships and customer relationships are main components in the supply chain management practices leading to information sharing, which is one of the five pillars in achieving a solid supply chain relationship ((Li 2010: 15),). Two sub-factors are considered in the model and that is relationship with suppliers and customers.

❖ Relationships with suppliers

Companies are inclined to work with different suppliers in different ways. It is important that the relationship with suppliers satisfies their company needs. Hines (2014:22) mentioned that in commodity products, it is common to find an adversarial relationship mainly based on price between buyer and supplier. This type of relationship with suppliers does not allow for cost reduction in the supply chain. It may be beneficial to network the supplier, to develop partnerships and alliances that will benefit both partners. This could be based on production, personal, and or symbolic networking that will turn on strategic alliances allowing the information sharing, risk sharing, obtaining mutual benefits and coordinating plans, permitting the improvement of the supply chain.

❖ Relationships with customers

The global markets offer a variety of products of different quality and cost. As a result, companies are always competing and trying to reduce costs and improve quality. According to Burgess (2009: 15) customers look for more choices, better service, higher quality, and faster delivery. The relationship with customers has turned a strategic issue for today's companies.

2.4.4 Value-added process (manufacturing)

Value-added products can be commodity processes or products that already exist; you only have to use smart modifications and apply them. According to Bishop (2011:19), value-added is defined as “adding those manufacturing or service steps to a commodity product, which the customer perceives as increasing its value”. Customers always want to pay the cost that they think is correct, and if they get something additional to the product, they got value-added. And, as stated by Benetto, Becker and Welfring (2009:88), production processes contribute to improve value-added. For example, Dramm (2009:23) affirms that the forest products industry is mainly focused on acquiring the highest value throughout the manufacturing process at the lowest cost, improving efficiency, quality, and productivity. Thus, it is important to include the production system as a part of the value-added process. Five factors are significant to value-added process: flexibility, quality, dependability, speed and cost.

❖ Flexibility

The complex markets, fierce competition and fast changes in demand require that companies be ready to react promptly to customers' needs. Flexibility can be understood as the ability to react and adapt quickly to changes in the market due to an increase or decrease of customers' requirements, accelerating or decelerating the manufacturing processes when it is requested (Bowersox 2012:11). Cooper (2010:7) mention that a logistical competency of a firm can be measured by how well it is able to adapt to unpredictable situations. Flexibility has 3 main benefits: it speeds up response, saves time and maintains dependability

❖ Quality

Quality is not a bonus for the customer; it is an expectation. Quality is also important for the acceptance of a product. High costs, low productivity, and loss of market share are directly related to poor quality (Dramm 2009:24). Quality is meeting or exceeding the expectations of your customer (Bishop, 2011:20). This could be achieved, for example, by the use of quality metrics, which improves the production system. Achieving better efficiency, quality and productivity, and acquiring the highest value of a product at lower cost will improve the business performance of a company.

❖ Dependability

Slack, Chambers and Johnston, (2010) defines dependability as doing things in time for customers to receive their goods or services. Customers might judge the dependability of an operation only after the product or service has been delivered. Initially this may affect the likelihood that customers will select the service they have already consumed. Overtime however dependability can override all other criteria. Inside an operation internal customers will judge each other's performance partly by how reliable the other processes are in delivering services on time. Dependability has 3 main benefits: saves time, saves money and gives stability.

❖ Speed

Speed means the elapsed time between customers requesting products or services and their receipt of them (Slack *et al* 2010). The main benefit of speedy delivery of goods and services to the operation `s external customers lies in the way it enhances the operation `s offering to the customer. Quite simply, for most of goods and services, the faster customers can have the product or service, the more likely they are to buy it, or the more they will pay for it or the greater the benefit they receive. There are 2 main benefits of speed: speed reduces inventories and also reduces risks.

❖ Cost

To the companies which compete directly on price, cost will clearly be their major operations objective. The lower the cost of producing their goods and services, the lower can be the price to their customers. Even those companies which compete on things other than price, however, will be interested in keeping their costs low.

2.5 Factors at strategic level and operational level

The following factors will be discussed:

- SCM policy and compliance to legislation
 - Demand management; acquisition management
 - Logistics; risk and disposal management
 - Ethics and conflict of interest.
-
- **SCM policy and compliance to legislation**

The legislative requirements warrant each government entity to create an SCM unit and implement SCM policy. Compliance with SCM includes operating in line with the principles contained in the legislation and regulations governing SCM in government entities, operating within the policy context of the South African SCM processes, recognising and applying the implications of the legislative requirements to organisations involved with service delivery.

- **Non-compliance to SCM policy and regulations**

The SCM policy requires each government entity to adhere to developed guidelines and implement a customised SCM policy. Issues regarding non-compliance to SCM policy and regulations can be attributed to lack of the prerequisite SCM skills and competencies as well as the absence of a stricter regulatory culture. These may include the tendency not to utilise a competitive process for both quotations and bids, incorrect utilisation of the preference points system, lack of appropriate bid committees, use of unqualified suppliers, passing over of bids for incorrect reasons, utilisation of the incorrect procurement process in respect of the thresholds, extensions of validity periods, incorrect utilisation of the limited bidding process, inadequate controls and procedures for the handling of bids, lack of bid information on bid register, ambiguous specifications and documents, as well as insufficient motivation for deviations from SCM procedures. These issues have been re-affirmed in studies such as in Van Zyl (2012: 15), who noted that non-compliance to SCM policy was due to lack of skills, capacity and knowledge of the workforce to be able to fully implement SCM across various spheres of government.

- **Demand management**

Demand management is the first process of SCM framework (South Africa: 2005a33). It involves planning and managing of resources, setting up goals and target such as to meet the need assessment of the community. During demand management processes, officials are required to ensure timely planning and management of processes; ensure economies of scale in acquiring repetitive goods; appropriate compilation of required specifications and undertaking appropriate industry analysis and research to promote innovation and gain technical benefits. The non-performance of these is a factor.

- **Inadequate planning and linking demand to the budget**

Another major challenge to SCM implementation is inadequate planning (South Africa 2005:a33). Cost effective procurement depends on specialist skills to ensure that buying requirements are reliably determined, appropriate contract strategies are developed, contracts are well managed and the opportunities to secure the best deal at the right time and at the right price is done. The demand management process hence is integral to any procurement process as it defines the decision making process that allows departments to procure at the right time, at the right place and at the right cost. However, many government entities are still faced with the challenges of in-proper planning and linking demand to budget. This may be attributed to limited skills and capacity. (Ambe 2011: 12) acknowledged that training and workshop are vital for successful implementation of SCM.

- **Acquisition management**

Acquisition management is the second phase of the SCM process (South Africa 2005:a33). It refers to all those actions that have to be taken to satisfy the need for material, facilities or logistic services. It involves, in sequence, requirements planning, operational research, technology acquisition, design and development, operational qualification, quality assurance, industrialization, initial procurement and commissioning. It involves management of procurement by an entity to decide on the manner in which the market will be approached; to establish the total cost of ownership of a particular type of asset; to ensure that bid documents are complete, including evaluation criteria; to evaluate bids in accordance with published criteria; and to ensure that proper contract documents are signed.

- **Logistics, risk and supply chain performance**

Logistics management is the setting of inventory levels, coding of items, placing of orders, receiving and distribution, stores and warehouse management, expediting

orders, transport, and management and vendor performance (South Africa 2005:a33). The process is activated by financial systems to generate payment. Risk management is the provision of an effective system for identification, consideration and avoidance of potential risks in the SCM system (South Africa 2005:a33). Risk refers to any unintended or unexpected decisions in the course of an action. Individual departments within the municipalities do identify their risks and manage them at the level of their department as they occur. Supply chain performance is a monitoring process, undertaking a retrospective analysis to determine whether the proper process has been followed and whether the desired objectives were achieved.

- **Inadequate and inconsistency to risk management/irregularities in SCM**

Risk management is another major challenge. Ambe (2011: 45) indicated that in government entities there is a lack of internal control environment and the implementation of risk mitigation procedures through the effective utilisation of SCM policy and procedure. This has led to fraud and corruption. Fraud, corruption and other administrative malpractices within government entities impede SCM (Smart Procurement, 2011:9). Boateng (2011:38) asserted that a lack of understanding regarding the concept of SCM and its inextricable link to long term quality service delivery, human capital development and associated socio economic growth, may be the root cause of problems beleaguering SCM in government. Boateng (2011: 45) further asserted that, since 1994, South Africa has enjoyed unprecedented social and infrastructural benefits, yet the majority of people who hoped freedom would bring with it relative socio-economic liberation and improvement are feeling increasingly bitter towards government over issues including a lack of perceived quality of governance, service delivery failure, corruption in some spheres of the economy and disillusionment with empowerment policies.

- **Inadequate monitoring and evaluation of SCM**

Monitoring and evaluation is an important aspect of SCM implementation. Inadequate monitoring and evaluation is linked to the absence or the poor presence of a control environment and the government entities are placed in a difficult position to give effect to or implement SCM as required by the policy. Hence deviations or non-compliance goes undetected or is identified after. According to Business Day reports (2011), procurement actors in government have spent millions of rands in ways that contravened laws and regulations. The national and provincial governments and their entities have notched irregular, unauthorised, fruitless and wasteful expenditure that contravene laws and regulations. There are weaknesses in SCM, controls over information technology, human resource management, capital assets and performance reporting. Most government entities do not have clean audits.

- **Ethics and conflict of interest**

In the SCM process, all parties have to comply with ethical standards (South Africa 2005:a35). Actors of SCM should deal with each other on a basis of mutual trust and respect, and conduct their business in a fair and reasonable manner with integrity (South Africa 2005:a34). Actors associated with procurement, particularly those dealing directly with suppliers or potential suppliers, are required to do the following: recognise and deal with conflicts of interest or the potential for such conflict, deal with suppliers even-handedly, ensure they do not compromise the standing of the state through acceptance of gifts or hospitality, be scrupulous in their use of public property, and to provide all assistance in the elimination of fraud and corruption (South Africa 2005:a33). Ethics and conflict of interest greatly affects SCM implementation. South Africa (2005:a34) suggests that there is enormous power wielded by some chief financial officers and lack of proper consultation with other senior officials. Whilst the National Treasury Guide to Accounting Officers prescribes a standard approach towards SCM procedure, in many instances given the autonomy of the accounting officer's financial management and the lack of application of prescribed standards as outlined in the National Treasury Guide resulted in departments utilising discretion to procure in a manner that would be appropriate for a specific time. This resulted in differentiation in approaches and a lack of standardisation of SCM policies.

- **Lack of proper knowledge, skills and capacity**

Adequate capacity in the form of appropriate structures with fully skilled and professional SCM personnel is key success factors for proper SCM implementation. In some government entities, the quality of SCM personnel's' skills and ability are well below standard. According to a study conducted by Migiro and Ambe (2010:241), many SCM actors in the South African public sphere have attended a number of training and workshop on SCM, but they still lack appropriate knowledge for proper implementation. According to McCarthy (2012:4), the completeness of tender documents in government entities is difficult to verify because the register is incomplete.

There is also the lack of capacity and knowledge to handle procurement processes that contributes to bad governance (South Africa 2005:a33). South Africa (2005:a33) indicated that the implementation of SCM is impossible without appropriate information and communication systems. The need exists for the different stages in the chain to be integrated. Moreover, appropriate organisational structures must be developed, including the skill/knowledge profiles of the different positions.

2.6 Measurement of Supply Chain Management Performance

There are many ways for any company or government entity to measure the performance of its supply chain management. SCM is carried out within a decentralised legal framework, at two distinct levels: operational and regulatory. *Operationally*, it is carried out by SCM units in individual organs of state. The *regulatory* function is also largely decentralised, governed by rules formulated at entity level as part of SCM policies (South Africa 2015: 44). Compliance with public SCM rules, legislation, norms and standards is critical to ensure that government's policy objectives are attained. To reduce waste, eradicate corruption and improve public sector performance, ethics, integrity, transparency and accountability need to be strengthened. Common governance and compliance failures result in fraudulent activities (South Africa 2015: 12). These include fronting, bribery, nepotism, collusion, cover quoting, conflicts of interest, forgery and tender splitting. These are largely the result of:

- Poor demand and procurement planning, resulting in large deviations and price escalations
- Poor development of specifications
- Dysfunctional bid committees
- Weakly-skilled SCM practitioners
- Poor contract and supplier management

Otchere (2013: 34) cited that supply chain integration directly relates with business performance. Also internal collaboration directly affects firm performance (Stank 2010:9). A study conducted on effects of SCM practices integration, and competition capability on performance by Kim (2006:39) found that "in small firms, efficient supply chain integration may play a more critical role for sustainable performance improvement, while, in large firms, the close interrelationship between the level of SCM practices and competition capability may have more significant effect on performance improvement. Flynn (2010:13) assessed the impact of three dimensions of supply chain integration (supplier integration, customer integration, and internal integration) on operational and business performance. He concluded that internal integration directly relates to both business and operational performance and that customer integration directly relate to operational performance. Although supplier integration does not relate directly to either type of performance, the integration of supplier and customer were related to operational performance. Internal and external integration influence each other along with performance.

The private sector is an important role player in public sector SCM, with its behaviour able to determine the quality of service delivery. Poor service delivery, shoddy workmanship in construction work, an inefficient lease environment, collusion, cover

quoting and fronting are examples of private sector practices that contribute to an inefficient public sector SCM environment (South Africa 2015: 66). Public sector reforms must be accompanied by supplier management interventions to ensure the SCM system founded on the principles of section 217 of the Constitution (South Africa 2015: 70).

The public sector SCM cycle as outlined by National Treasury

The public SCM cycle has three key stages: pre-tender, tendering and post tender (South Africa 2015: 90). All of these must be governed by rigorous governance principles. The pre-tender stage includes needs assessment, planning and budgeting, development of specifications and selection of the most suitable procurement strategy. The tendering stage includes the invitation to tender, evaluation and adjudication of bids. Post-tender includes contract management, ordering and payment. It is important that efficient governance principles be applied to all these stages of the SCM cycle.

- **The pre-tender or demand management stage**

Demand planning, procurement planning, items and specification management, and supplier management are critical phases in the pre tendering stage. This stage ensures that goods, services, construction work and other purchases are properly planned and aligned to the procuring entity's strategy and resource plan. This alignment is critical to ensuring that goods are delivered at the right time, place and price, in the right quantity and of the right quality. It is at this stage that a comprehensive needs analysis is carried out in line with the strategic planning process.

- **The importance of procurement plans**

Procurement plans indicate what purchases an institution will undertake in the short, medium and long-term. Proper planning should reduce delivery delays, eradicate recurring contracts and unnecessary extensions, and eliminate the need for emergency procurement. Further, procurement plans should inform suppliers about future opportunities.

- **Item and specification management**

Item and specification management is critical to the procurement process as it gives the details of the goods, services or construction works to be bought. Poor demand and procurement planning result in poor development of specifications, wrong decisions taken about the items to be procured and unrealistic cost estimates.

- **Functionality evaluation criteria**

Functionality evaluation criteria test bidders' ability to provide what is to be bought. Whether or not a bid should be invited on the basis of the functionality criteria depends on the nature of the required commodity or service, taking into account quality, reliability, viability and durability and the bidder's technical ability to carry out the contract.

When an institution invites a bid that uses functionality as a criterion for selection, the accounting officer or accounting authority must specify in the bid documentation the evaluation criteria for measuring functionality; the weight of each criterion; its value; and the minimum qualifying functionality score. The functionality criteria should reflect the critical elements of the project; should contain weightings in line with the relative importance of the selection criteria; and have a scoring system drawn aligned with information submitted with the bid. The system should be able to take account of suppliers who have good performance records and should therefore weight for skills, quality, experience, previous performance and value for money.

- **Supplier management**

Supplier management allows an institution to select its suppliers carefully and negotiate the best prices for the goods and services that it needs. Supplier management includes procurement, contract development and administration, transportation and logistics, strategic planning and supplier evaluation. Supplier management also enables the purchasing organisation to monitor supplier performance; ensure that it attains its objectives; and minimize pre-tender stage violations.

- **Pre-tender stage violations include:**
 - Development of biased specifications
 - Procurement of items not budgeted for
 - Wrong choice of procurement strategy
 - Poor procurement plans
 - Abuse of non-competitive procedures
 - Inadequate needs assessments
- **The tendering stage**

This stage includes the invitation to tender, and evaluation and adjudication of bids (South Africa 2015: 95). To avoid lack of competition and conflict of interest, all potential bidders must have access to the same tender information. Information in the bid documents should include details of the product or service to be procured, specifications, quantities, the timeframe for delivery, realistic closing dates and times,

where to obtain documentation, where to submit tenders and a clear, complete and non-discriminatory description of the selection and award criteria. These cannot be altered after the closing date. Public sector institutions should have clear procedures for opening the tender box. To avoid manipulation of the bids received, this should be done before a public audience and basic information disclosed and recorded in a register. They should also ensure that members of their bid evaluation committees and bid adjudication committees are familiar with and adhere to National Treasury norms and standards when evaluating and adjudicating bids. This is to ensure that there are no tendering stage violations.

Tendering stage violations include:

- Absence of public notification of invitations to tender
 - Evaluation criteria changed during bid evaluation and adjudication
 - Conflicts of interest not declared
 - Political interference
 - Recommendations ignored by Accounting Officers
 - Manipulation of scores
 - Discretion used to award tenders to more than one bidder.
 - Detailed tender records not kept
-
- **The post-tender stage**

This stage includes contract management, issuing orders and processing payments. Contracts or service level agreements must not contain requirements and conditions not included in the bid documents but should contain sufficient information to enable the suppliers to deliver goods or services of the correct description, quality and quantity within the specified time. If supplier performance is not monitored, a range of post tender violations may occur; for example, the purchasing authority may expand or vary orders against the original contract, to the benefit of suppliers. Contracts may be expanded or varied by not more than 20 percent of the original value of the contract and, for all other goods and services, by not more than 15 percent (South Africa 2015: 96).

Measurement of SCM performance must take place at both the strategic and operational level

2.6.1 Strategic level

The strategic importance of SCM is not well understood. Those working in the system need to understand the economic and social power of the purchasing decisions that

they make. These should not only be of maximum value to the intended beneficiaries – whether these are hospital patients who receive the medication they need or commuters with access to good public transport – but also give expression to government’s policies and strategies and support business development. Translating budgets and strategic plans into deliverables requires an efficient public SCM system which is well-resourced, functions efficiently and whose central importance is recognised. Measurement at the strategic level is measured by measuring whether the following actions were implemented:

- Adherence to legislation and policies
 - Universality
 - Inclusiveness
 - Suitable organisation structures, role definitions, Key performance areas (KPA), job descriptions
 - Organisational systems that supports SCM
 - Corporate culture
 - Transparent or open contracting
-
- Adherence to legislation and policies

Section 217 of the Constitution supports good governance. It requires that sourcing of goods, services and construction works is carried out in a way which is fair, equitable, transparent, competitive and cost effective. This can only be achieved by a public service which:

- ❖ Maintains and promotes a high standard of professional ethics
- ❖ Uses resources efficiently, economically and cost effectively
- ❖ Renders services impartially, fairly and equitably
- ❖ Is accountable
- ❖ Is transparent by providing timely, accurate, user-friendly and accessible information to the public.

All government entities need to adhere to all legislation and policies that governs supply chain to ensure that all processes are fair, open and honest. When any government department does not adhere to such legislation and policies that are in place, it opens a room for poor service delivery, fraud and corruption. At the end of the day no one will want to take responsibility and accountability. Policies that govern supply chain ensure that all processes are implemented in a manner such that there will be fairness, accountability and responsibility. It is the prerogative of managers within the supply chain department to ensure that such policies are implemented by all stakeholders to ensure that service delivery is rendered without any deviations or corrupt activities.

Adherence to legislation and policies that are in place should be monitored at strategic level to ensure maximum compliance as a way to curb all challenges that may arise to demean the performance of SCM. Finally, there is the challenge of finding the best balance between the two major objectives of procurement. Section 217(2) of the Constitution and the Preferential Procurement Policy Framework Act (PPPFA) both provide for the use of public procurement as a means of development and transformation. An effective SCM system must also have as an objective to ensure that goods and services are available at the best price, in the right qualities, at the right time and in the right place. Constantly having to make decisions about how to balance these objectives is demanding and difficult. It needs a cohort of SCM professionals with the right skills, experience, social awareness, ethical standards and dedication; and a regulatory and organisational environment that supports and monitors their work in the public interest.

- **Universality**

Beamon indicated that companies should allow the comparison of their services and products under several operational conditions. It is in this way that government entities need to compare the kind of services that they render in relation to what private sector is offering. This will also guide on the competitive advantage over the suppliers. For example if the Public works department want to construct a road using the local emerging young contractors, they first need to check what long established contractors of big companies are offering. In this way they will also be at a better position to know what is needed to construct such roads, at what cost, at what value etc.

- **Inclusiveness**

Inclusiveness entails all aspects that address performance of SCM. Policies and regulations are often confusing and cumbersome. Suppliers have to fill out numerous forms, often many times. This costs time and money and is a particular problem for small businesses with little or no administrative capacity or support. It is government policy to support the growth of small businesses and the jobs they create. Procedures that stand in the way of this, and which are also difficult for officials to interpret and implement, must and will be changed.

The public sector frequently underestimates how important supplier management is, and there is limited understanding about how public sector decisions and actions affect the overall business environment. On the other hand, suppliers often take advantage of the current weak public sector SCM environment. This is evident in high prices paid for goods and services, contracts that favour certain suppliers, collusion, unethical behaviour, non-performance, and poor quality products and services rendered. To overcome these problems, the public sector needs to develop long-term strategic supplier relationships.

Any measure of performance at strategic level should include the following measures of the pertinent aspects.

- ❖ Be simple and easy to use.
 - ❖ Have a clear purpose.
 - ❖ Provide fast feedback.
 - ❖ Relate to performance improvement and not just monitoring
 - ❖ Reinforce the firm`s strategy
 - ❖ Relate to both long- term and short – term objectives of the organization
 - ❖ Match the firm`s organizational culture
 - ❖ Be integrated both horizontally and vertically in the corporate structure.
 - ❖ Focus on what is important to customers
 - ❖ Focus on what the competition is doing
 - ❖ Lead to identification and elimination of waste
-
- **Suitable organisation structures, Role definition, KPA, job descriptions**

Any government entity that has a strategic objective of rendering quality services to its citizen has an obligation to have proper, correct and relevant organizational structures in place. Role definitions of all employees should be given so that everyone knows where to report as well as what their roles are within the organization. In that way the accountability and responsibility will be given to the relevant people. Everyone will have a relevant job description that entails the kind of work that he/ she is expected to render. At the same time the Key Performance Areas will be detailed to avoid an employee not delivering on the job. There are instances where you find that employees in a government institution don't know their roles, as such they end up doing what is not within their KPA, for example a procurement officer not doing his/ her purchasing duty but rather doing finance duties. At times procurement processes are not followed well, as the responsible person is rather focused on something else other than his/ her core function. The lack of clarity about the roles and responsibilities of technical staff and of political officer bearers creates scope for interference, and this gives rise to allegations or instances of corruption. At times politicians believes that they are above strategic governance that is in place as they even interferes with operational functions of the organization.

- **Organisational systems that support SCM**

The organisational structure and system within which SCM takes place is in too many cases not ideal. It is at times composed of with inexperienced or under skilled leadership, high staff turnover and lack of motivation. There may also be a lack of suitable equipment, such as computers with dependable internet connections; or information, such as databases giving up-to-date details of available products and

services. SCM practitioners frequently do not have the skills, knowledge and experience that they need. While the system contains many excellent people, competency assessments show significant gaps in SCM skill and knowledge. There are few if any consequences for those who, despite support and encouragement, fail to perform at the required level. Repeated negative reports by the Auditor-General (AG) highlight this lack of accountability. An improved and more dynamic public SCM system should bring out the best in its officials, and there must be consequences for those who are not willing to play their part for the public good. Every government entity needs to have organizational systems in place that supports the functioning of SCM. For an effective SCM to be in place such systems should be able to ensure the following:

- ❖ Availability of adequately skilled SCM practitioners
- ❖ Availability of policies and legislation that governs SCM operations
- ❖ Availability of procurement policies that governs purchasing
- ❖ Cooperation from end-users

- **Corporate culture**

Every organisation need to have a corporate culture that all employees can relate to and implement. The corporate culture also relates to what all employees need to achieve in ensuring quality service delivery to their clients. If there is no corporate culture, employees do not have a sense of belonging and the pride to work for their organization hence business continues as usual. Staff morale will also be low and staff members tend to look for other things to do other than their own work.

- **Transparent or open contracting**

Transparent or open contracting is a powerful tool that can be used to combat corruption and ensure good governance, value for money and good-quality service delivery. Practices currently not always implemented in line with legislation include (South Africa 2015: 96):

:

- Bid documents not published, with only advertisements published.
- Bid committee meeting evaluation minutes and standard contracts entered into not publicly available.
- Bids not opened in public and published. Good practice requires that bidders and their prices be made known by public announcement during the opening of bids and by publishing this information.
- The entire evaluation process not open to scrutiny.
- Progress and contract implementation reports not made publicly available

In every organization contracting should be done in an open and transparent manner to ensure that all stakeholders are treated equally. If this is not done, issues of fraud,

racketing, corruption and tenderpreneur will emerge and no one will be able to account for such behaviours. This will result in protests and strikes as employees will feel that they are being undermined by not being treated equally. In instances like this the organization need to follow correct legislative process in awarding contracts in a manner that is open, free, fair and transparent.

2.6.2 Tactical and operational level

Organisational performance refers to how well an organisation achieves its market-oriented goals as well as its financial goals (Donlon 2010:19). The short-term objectives of SCM are primarily to increase productivity and reduce inventory and cycle time, while long-term objectives are to increase market share and profits for all members of the supply chain (Donlon 2010:19). Financial metrics have served as a tool for comparing organisations and evaluating an organisation's behaviour over time. Any organisational initiative, including supply chain management, should ultimately lead to enhanced organisational performance.

The following measurement factors will now be discussed

- customer responsiveness)
- coordination
- supplier's trust
- cost

- **Customer responsiveness.**

When looking for successful supplier performance, it is important to emphasise relationship quality. Wu, and Hartley (2010:44) consider factors such as product quality; responsiveness to requests for change; sales, service and/or technical support; total value received; and overall cost performance as a measurement of supply chain performance. Every customer that gets good quality service will respond by always purchasing the good product and remains loyal to their supplier. If customers do not continuously get good service, they will never return for more. As such suppliers need to build good relationships with the clients by providing quality service, for clients to come again.

- **Coordination**

Services in the organisation need correct coordination so that problems can be easily managed at an earlier stage. If there is no coordination of services, it will be difficult for the organization to get customers to access services that they need.

Superior supply chain management requires significant information with respect to supplier markets. Implementation of strategies in the supply chain will make the precious firm-supplier relationship difficult to copy by competition (Eltantawy, 2010:5).

- **Suppliers' trust**

According to Yushan and Cavusgil (2010:6), changes in the market create sensible companies regarding firm-supplier relationship. For manufacturers it is more important to build supplier's trust and to rely on suppliers, focusing on customer orientation, competitor orientation, and inter-functional coordination. Steward *et al* (2010: 46) also found that "supplier performance is higher when the supply manager perceives trust and satisfaction on the part of the supplier's account executive."

- **Cost**

The current competitive environment makes manufacturers aware of the need to reduce costs and to develop new products quickly. This is when supplier's expertise plays an important role. Companies in any manufacturing sector are always looking for low-cost raw material, domestic or imported. With the objective of improving their competitive advantage, some of them see importing as an appealing option. As there are some advantages when importing resources, such as lower labour cost and lower cost of resources, there are also some disadvantages that companies have to take into account when evaluating whether or not to work with offshore companies. Importing raw materials, components or products increases the dependence on suppliers and some risks are identified such as culture, language, foreign exchange rate, regulations, quality, political and economic stability, and transportation delays ((Lockamy and McCormack, 2010: 12)

2.7. Improvements guidelines for the implementation of an effective Supply Chain Management Framework within the Department.

(South Africa 2015: 96) has outlined guidelines for the implementation of an effective Supply Chain Management for public sectors. This is outlined as follows:

- **Creating a conducive environment for transacting between the public and private sectors**

(South Africa 2015: 96) indicated that a number of issues currently stand in the way of an efficient and cost-effective public sector SCM system. These range from fragmentation to complex bidding documents and procedures. SCM procedures and processes must be simple, cost-effective, inexpensive, quick to use, transparent and free of corruption. Reforms are underway to ensure an environment in which such a system can flourish. These should result in:

- ❖ Good governance and accountability
- ❖ Cost-effectiveness, both financial and in terms of human capacity
- ❖ Reduced barriers to entry for SMMEs and emerging contractors
- ❖ Effective supplier participation

- ❖ Improved contract management leading to increased savings and good-quality on-time delivery
- **Changes to tender documents**
 - ❖ Tender documents should be made user-friendly and easy to understand. The number of documents needed for a tender should be reduced significantly, their lay-out should be simple and easy to use and the language used should be unambiguous and easily understood.
 - ❖ The documents should be standardized and be relevant to the type of procurement to be undertaken. 'Fit for purpose' documentation should allow for differentiation in procurement. Buying stationery is not the same as commissioning the building of a school; tender documents and processes should reflect such differences.
 - ❖ Standard operating procedures for all SCM processes and procedures should be developed.
- **Business processes to be streamlined and standardized**
 - ❖ Unnecessary steps in the SCM process should be removed.
 - ❖ A centralized database should be put in place. This will significantly reduce the administrative burden within the system, as the mandatory administrative documents will only need to be submitted once in a pre-determined period.
 - ❖ Automation of the system should result in significant cost reductions for suppliers, improve transparency and oversight
- **Creating a culture of cooperation between suppliers and the public sector**

For good working relationships to develop, structured interaction with suppliers must be promoted. Procurement-related information about the work of departments, planned procurement opportunities, procurement policies and procedures, and general requirements for tenders will be regularly disseminated.

- **Greater transparency in the SCM process**

A reporting framework should be developed to standardize SCM reporting across the public sector. Accounting officers and authorities should be expected to report on a range of information including procurement plans, tenders to be advertised, tenders awarded, supplier company information, the value of each award and progress in implementing tenders. Depending on the nature of the information, it should be made

public monthly, quarterly and/or annually. A system should be in place to detect officials doing business with the state.

- **Improving governance of public sector**

Corruption is not unique to South Africa but it is one of the country's major challenges (South Africa 2015: 96). One reason why it continues is that, although the legal framework is strong, laws have not been adhered to or been implemented to their fullest extent. Wrongdoers can therefore continue without being called to account.

- **Improving governance of public sector SCM through cooperation with stakeholders**

Strategic cooperation between the public and private sectors, civil society and other stakeholders should enhance the integrity of and public trust in public sector SCM. Integrity ensures that funds, resources and assets are used for their intended purposes and in line with public interest. Integrity violations include:

- Corruption, which includes bribery and nepotism
- Fraud and theft of resources
- Conflict of interest
- Collusion and bid rigging
- Abuse and manipulation of information and processes
- Discriminatory treatment
- Waste and abuse of public resources

Open, professional and law-abiding relationships between suppliers and public sector customers should help to minimize this risk.

Improving governance of SCM through transparency

Supply chain management practices are defined as the set of activities undertaken by an organisation to promote effective management of its supply chain (Donlon 2010:15). The practices of SCM are proposed to be a multi-dimensional concept, including the downstream and upstream sides of the supply chain. Donlon (2010: 19) describes the latest evolution of SCM practices, which include strategic supplier partnership, customer relationship, level of information sharing, quality of information sharing, postponement, competitive advantage as well as organisational behaviour to represent SCM practices. A more detailed discussion of these dimensions is provided below as defined by (Donlon 2010: 22).

- **Strategic supplier partnership:**

It is defined as the long term relationship between the organisation and its suppliers. It is designed to leverage the strategic and operational capabilities of individual participating organisations to help them achieve significant ongoing benefit (Tan 2011: 25). A strategic partnership emphasises direct, long-term association and encourages

mutual planning and problem solving efforts. Such strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products, and markets. Strategic partnerships with suppliers enable organisations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the products. Suppliers participating early in the product-design process can offer more cost effective design choices, help select the best components and technologies, and help in design assessment. Strategically aligned organisations can work closely together and eliminate wasteful time and effort. An effective supplier partnership can be a critical component of a leading edge supply chain.

Customer relationship

Comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Tan 2011: 23) consider customer relationship management as an important component of SCM practices. As pointed out by Day (2011: 67) committed relationships are the most sustainable advantage because of their inherent barriers to competition. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival (Noble 2010: 40). Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs (Noble 2010: 42). Close customer relationship allows an organisation to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers (Noble 2010: 40)

- **Level of information sharing**

Information sharing has two aspects: quantity and quality. Both aspects are important for the practices of SCM and have been treated as independent constructs in the past (Donlon 2010:15). Level (quantity aspect) of information sharing refers to the extent to which critical and proprietary information is communicated to one's supply chain partner (Donlon 2010:15). Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information. Donlon (2010:15) suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain. By taking the data available and sharing it with other parties within the supply chain, information can be used as a source of competitive advantage.

Lalonde (2011: 56) considers sharing of information as one of five building blocks that characterize a solid supply chain relationship. According to Stein and Sweat (2012: 55), supply chain partners who exchange information regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence

can respond to market change quicker. Moreover, Tompkins and Ang (2010: 77) consider the effective use of relevant and timely information by all functional elements within the supply chain as a key competitive and distinguishing factor.

- **Quality of information sharing**

It includes such aspects as the accuracy, timeliness, adequacy, and credibility of information exchanged. While information sharing is important, the significance of its impact on SCM depends on what information is shared, when and how it is shared, and with whom. Divergent interests and opportunistic behaviour of supply chain partners, and informational asymmetries across supply chain affect the reluctance within organisations to give away more than minimal information since information disclosure is perceived as a loss of power. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM (Donlon 2010:15).]. Organisations need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion.

- **Postponement of processes**

It is defined as the practice of moving forward one or more operations or activities (making, sourcing and delivering) to a much later point in the supply chain (Donlon 2010:16). Two primary considerations in developing a postponement strategy are: (1) determining how many steps to postpone, and (2) determining which steps to postpone. Postponement allows an organisation to be flexible in developing different versions of the product in order to meet changing customer needs, and to differentiate a product or to modify a demand function. Keeping materials undifferentiated for as long as possible will increase an organisation's flexibility in responding to changes in customer demand. In addition, an organisation can reduce supply chain cost by keeping undifferentiated inventories. Postponement needs to match the type of products, market demands of a company, and structure or constraints within the manufacturing and logistics system. In general, the adoption of postponement maybe appropriate in the following conditions: innovative products ; products with high monetary density , high specialization and wide range; markets characterized by long delivery time, low delivery frequency and high demand uncertainty; and manufacturing or logistics systems with small economies of scales and no need for special knowledge..

- **Competitive advantage**

Competitive advantage is the extent to which an organisation is able to create a defensible position over its competitors (Donlon 2010:17). It comprises capabilities that allow an organisation to differentiate itself from its competitors and is an outcome of

critical management decisions (Donlon 2010:17). Tan (2011: 16) has identified price/cost, quality, delivery, and flexibility as important competitive capabilities and time-based competition as an important competitive priority.

2.8 Evaluation of information obtained from the Literature

The literature review herein above has outlined what need to be in place to ensure an effective SCM in an organisation. The researcher will then use the following framework to address the research questions. The researcher will find out from the department what factors influence the effective delivery of services both at strategic and operational level in the Limpopo Department of Public Works, Roads and Infrastructure.

Secondly the researcher will check whether the Limpopo Department of Public Works, Roads and Infrastructure measures service delivery performance as well as to whether the department implement guidelines that are in place regarding effective supply chain management. After the findings the researcher will propose improvements in line with what literature review indicates as well as what the department want to do.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the research design and methods to review the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure. It sets out the rationale for this study, describes the target population, the methods of how data will be collected and how and where the pilot study will be conducted. The research process and construction of questionnaires will be briefly discussed.

The study will be based on qualitative methodology. An explorative qualitative research design will be used in the form of implementation or process evaluation, to examine the current situation regarding the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure. The approach was selected because the nature of the problem required that challenges pertaining to the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure be explored, interpreted and captured.

An exploratory research will be used since the study was constructed to richly describe, explain and analyse the effectiveness of supply chain management practices in the

Limpopo Department of Public Works, Roads and Infrastructure. A survey will be conducted in order to find out what practices are used to guide the effectiveness of supply chain management in the Limpopo Department of Public Works, Roads and Infrastructure. The data found will be used in the qualitative study part of the research to get clarity on the problem and what their opinions are. The researcher will use this as a guide for the whole research.

Mouton (2001:158) defines that implementation evaluation research aims at answering the question of whether an intervention (programme, therapy, policy or strategy) has been properly implemented (process evaluation studies), whether the target group has been adequately covered and whether the intervention was implemented as designed.

In this research the researcher was concerned firstly with determining the practices that the supply chain management in the Limpopo Department of Public Works, Roads and Infrastructure abide by to render effective service delivery, determine the factors that influence the performance of the supply chain management of Limpopo Department of Public Works and Infrastructure challenges as well as to look at improvements guidelines that can be adopted to improve the Directorate`s capability to effectively deliver services.

3.2 Population, Geographical area and Sample

3.2.1 Target Population and geographical area

All key parties in the department`s supply chain network comprising of SCM directorate and Construction management staff at all levels, service providers reflected in the supply chain database of the department and clients departments will constitute the study`s population. Below table gives the numbers of management and salary level as per September 2010 authorised Organogram of department of public works.

Post and salary level	Total	Number of posts vacant	Filled
General Managers level 14	08	01	06
Senior Managers level 13	25	08	17
Managers level 11 &12	71	48	23
Deputy Managers	125	85	40

level 09&10			
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The table 3-1 represents the population of the study:

Sample Frame	Population of managers	Target sample size
Customers (Client departments)	20 managers	10
Top, Middle and Junior Managers of the Department	80 managers	28
Service providers / Suppliers	150	33
Total population	285	71

Source: Department of Public Works, Roads and infrastructure Suppliers Database and departmental organisational structure and department's Infrastructure Programme management Plan: 2013

Limpopo Public Works, Roads and Infrastructure have eight chief directorates. The eight chief directorates and their directorates are listed as follows:

Chief Directorate	Directorates
Finance	<ul style="list-style-type: none"> • Financial Accounting • Management Accounting • Supply Chain Management • Assets and Logistics Management
Strategic Management	<ul style="list-style-type: none"> • Communication and Stakeholder Management • Monitoring and evaluation • Corporate governance and risk management • Information communication and technology
Corporate Services	<ul style="list-style-type: none"> • Human Resource Services • Human Resource development • Employees health and wellness Auxiliary and Record management

Construction Management	<ul style="list-style-type: none"> • Health and Social welfare infrastructure • Education Infrastructure • Public Works and other departments
Road Infrastructure	<ul style="list-style-type: none"> • Infrastructure design • Project management
Property and Facilities management	<ul style="list-style-type: none"> • Immovable Assets Management • Lease and Municipal services • Maintenance management • Facilities management
Expanded Public Works Programmes	<ul style="list-style-type: none"> • EPWP planning and support • EPWP monitoring • EPWP innovation and empowerment
Infrastructure Planning and Design	<ul style="list-style-type: none"> • Infrastructure Planning • Design Management

All the Directorates at the Limpopo Department of Public Works, Roads and Infrastructure will be included in the target population.

3.2.2 Sampling

A non-probability sampling was chosen. The target population includes all the eight chief directorates the Department. This is in line with exploratory research design adopted to have in depth interviews. In all forms of research, it would be ideal to test the entire population, but in most cases, the population is simply too large to make it practically and financially possible. Purposive sampling will be used for the pilot study. Five individuals will be selected for the pilot study .Purposive sampling is used because of the staff members `s knowledge and experience. Ten staff members will be interviewed per each Department. The selection of the ten staff members will be based on seniority level. In the department the study will include three top management, two middle management and five junior production staff. This is done because in each Department the production staff members are more than the management staff.

Three (3) departments namely; Limpopo Provincial departments (Department of Education, Department of Health and Department of Sports, Arts and Culture participated in the study. These departments were selected because there are ranked the three top most contributors of rental revenue to the department of public works.

Four chief directorates in the departments were selected namely, Roads Infrastructure, Construction management, Property and Facilities management and finally Expanded Public works programmes. These chief directorates were selected because they are basically responsible of core function of department and support function. Twenty-eight staff members were included in the study from general managers (3), senior managers (5), managers (10) and deputy managers (10) of the selected chief directorates.

3.3 THE RESEARCH INSTRUMENT

3.3.1 Type of instruments

Questionnaires and interviews will be used as research instruments. Multiple methods will be used in collecting data. Mouton (2001:159) describes that it is common in implementation evaluation studies to use all available modes of observation: structured, e.g. questionnaires, tests or scales and less structured, e.g. focus groups, individual interviews, participation observation, as well as analysing existing documentary sources which may include annual reports, field records, participation records and similar documentation.

There are different role players in the Limpopo Department of Public Works, Roads and Infrastructure and to obtain a comprehensive picture structured and open ended questions will be developed as a baseline to start interviews and to ensure that all respondents answers at least a minimum number of essential questions. Probing questions will be asked as the study progresses, which is in line with qualitative research.

The following research instruments will be used

Instrument type	Respondent category	Number of respondents
Structured Questionnaires plus open ended questions	Service providers and suppliers and Customers (client departments)	50
List of questions and interviews	Top managers only in Chief Directorate	8
	One top manager of each client department	3

From the service providers and suppliers 33 will be selected using random numbers. The interviews and the questionnaire of open ended questions will be based on the following:

- Factors that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure
- The supply chain practices employed by the Limpopo Department of Public Works, Roads and Infrastructure on service delivery
- Improvements guidelines for the implementation of an effective supply chain management framework within the Limpopo Department of Public Works, Roads and Infrastructure

3.3.2 Questionnaire construction

To gain more information on the research problem, open ended questions relating to the topic will be developed using the theory in chapter two as a basis. The questionnaire compositions covered the supply chain management practices and their effectiveness, as well as factors that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure? The questions were generated using the body of theory in chapter two.

Research questions	Gaps	Questions in the questionnaire
<p>What are the factors that influence performance of the Limpopo Department of Public Works, Roads and Infrastructure?</p>	<p>Performance Standards and resources</p>	<ul style="list-style-type: none"> ▪ What are the key performance standards of Limpopo Department of Public Works, Roads and Infrastructure? ▪ Are resources available to guide the performance of the Limpopo Department of Public Works, Roads and Infrastructure? ▪ Are there any strategic, operational or performance plans available to guide the performance of the Limpopo Department

		<p>of Public Works, Roads and Infrastructure?</p> <ul style="list-style-type: none"> ▪ What skills and competencies of staff are needed to ensure the performance of the Limpopo Department of Public Works, Roads and Infrastructure?
<p>What practices are employed by the Limpopo Department of Public Works, Roads and Infrastructure to measure effective supply chain management</p>	<p>Processes, systems</p>	<ul style="list-style-type: none"> ▪ Process of implementation ▪ Systems in place ▪ Practices ▪ Policies and procedures ▪ Legislative requirements
<p>What improvements can be adopted to improve the Department`s capability to effectively deliver services</p>	<p>Information , training, communication</p>	<ul style="list-style-type: none"> ▪ Skills and competencies ▪ Training ▪ Information sharing

3.3.3 Pilot Study

A small pilot study will be conducted on five individuals who will not participate in the study to test the questionnaires and viability of interpretation.

3.3.4 Administration of questionnaires and interviews

All research participants will be informed of the nature of the study to be conducted and will be given the choice to participate or not. They had the right to withdraw from the study at any time. Appointments will be made with all participants for the interviews.

3.3.5 Collection of questionnaires

Questionnaires will be collected at the end of interview and further field notes information will be made by the researcher during the interviews.

3.4 Data Analysis Methods

The analysis was based on the information gathered by the researcher from the primary and secondary sources obtained from the research and the interviews will be based on summarizing, categorizing and structuring data. Data analysis will be done using Microsoft Excel analysing the findings from the questionnaires and coding for the interviews and will constitute the following headings:

- Planning systems and processes that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure
- Control of supply chain management performance
- Improvements guidelines for the implementation of an effective supply chain management framework within the Limpopo Department of Public Works, Roads and Infrastructure.

Recommendations will be made based on the findings. The detailed data analysis will be done as follows:

- Organising, formatting and presenting data, interpretations and conclusions
- Correlations between data is discussed and possible solutions and recommendations will be presented

3.5 Ethical Considerations

- The study will take the following ethical aspects into considerations:
- The researcher will request approval from the Limpopo Department of Public Works, Roads and Infrastructure prior conducting the study.
- No study will be conducted prior approval being granted.
- Participants will volunteer to take part in the research and will be given an opportunity that, even when they had agreed to participate they are free to withdraw at any time they wish during the study.
- The participants will be fully informed of the procedures, expectations and risks involved in research and they will give the consent to participate.
- Participants will not be put in a situation where they may be at risk of psychological harm as a result of their participation.
- The two standards of privacy will be applied to assist in the protection of the privacy of participants:
- The participation in the research guarantees confidentiality of participants.

- Participants will be assured that no identifying information will be made available to anyone not directly involved in the study.
- The findings will be reported in a complete and honest manner and the data will not be distorted.

3.6 Ensuring Validity and Reliability

Reliability and validity in this research study is considered and protected mainly using triangulation, as described by Leedy and Omrod (2005:99). Multiple sources of data will be collected with the expectation that they would converge to support the above mentioned theory. The researcher will engage various role players in the department in conducting interviews and then looked for common themes that appeared in the data. Qualitative data will be collected to enable answering the research questions. The questions will be based on a solid theoretical base as well as other secondary data as discussed in chapter two. The results will be valid and reliable and project a clear picture of realities in reviewing the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure.

3.7 Limitations of the Study

The study focuses on the review of the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure excluding other departments in the province. The research is only valid for the context within the Limpopo Department of Public Works, Roads and Infrastructure and may not be generalized for the whole of South Africa although congruence with secondary data may indicate wider generalisation. The research forms a basis for further investigation in other departments.

3.8 Conclusions

The research design and methods on reviewing the effectiveness of supply chain practices in the Limpopo Department of Public Works, Roads and Infrastructure was discussed in this chapter. It set out the rationale for this study, the target population, methods on collection of data and pilot study. The research process and construction of questionnaires were discussed.

CHAPTER FOUR: STATEMENT OF FINDINGS AND ANALYSIS

4.1 Introduction

Aimed at providing research findings, this chapter is presented in a narrative form using brief explanation of various topics. The data collection process is discussed, the data presented and then analyzed using patterns that were found within each questionnaire. The key elements are then recorded, written in tabular form. A summary of findings ties together and is linked in the literature. The theories, models and legislative frameworks described in the literature review are used herein as a way of moving forward towards successful recommendations for implementation in the

following chapter. At this point the original questions in the study are revisited and the relevant findings are presented.

4.2 Data Collection Process

In this exploratory study all 8 Chief Directorates in the Limpopo Department of Public Works, Roads and Infrastructure, were interviewed based on a set questionnaire which was aimed at reviewing the effectiveness of Supply Chain Management (SCM) practices. The questionnaire compositions covered the following topics:

- Factors that influence Supply Chain Management
- Measure of supply chain management performance
- Improvement guidelines for implementation of an effective Supply chain framework

The questions were generated using the body of theory in chapter two. As a starting point appointments were made with the relevant departments after approval was granted from the Departmental Approval Committee. The participants were taken along the purpose and the research questionnaires in order for them to have a clear understanding of questions that will be asked. Questionnaires were distributed to the participants in order for them to get adequate time to can respond to the questions asked. Questionnaires were mostly closed ended with a likert scale of agree, strongly agree, disagree and to strongly disagree. Collection of data was done on a period of 35 days as there were delays with collecting questionnaires from the participants. Total number of 71 questionnaires was distributed and a total of 50 came back fully completed. This was done to ensure that the targeted sample was reached. The questionnaire is attached in Appendix A.

The results of the interviews are given based on the analysis of the results from all departments interviewed. Findings from the literature review and from the results of the field research were combined. This was followed by an integration of the conclusions to highlight some common findings and discrepancies. The discussions have been grouped according to the research questions. The following tables were used to summarize the responses from the questionnaires

4.3. Statistical Procedures

This study used SPSS as the statistical software for data analysis. According to Coakes (2009) SPSS is software for performing statistical procedures in the social sciences field. SPSS is among the most widely used programme for statistical analysis in social sciences. It is a complete statistical package that is based on a point and click interface. SPSS has almost all statistical features available and widely used by researchers to perform quantitative analysis.

4.3.1 Descriptive statistical analysis

Data was summarized and presented by making use of descriptive statistics. Tables, charts, graphs and percentages were used in the presentation of the findings. The mean, standard deviation, minimum and maximum values for all scaled questions were also computed and used in the explanation of the findings. The computed values of the means and standard deviations are shown in the different figures herein.

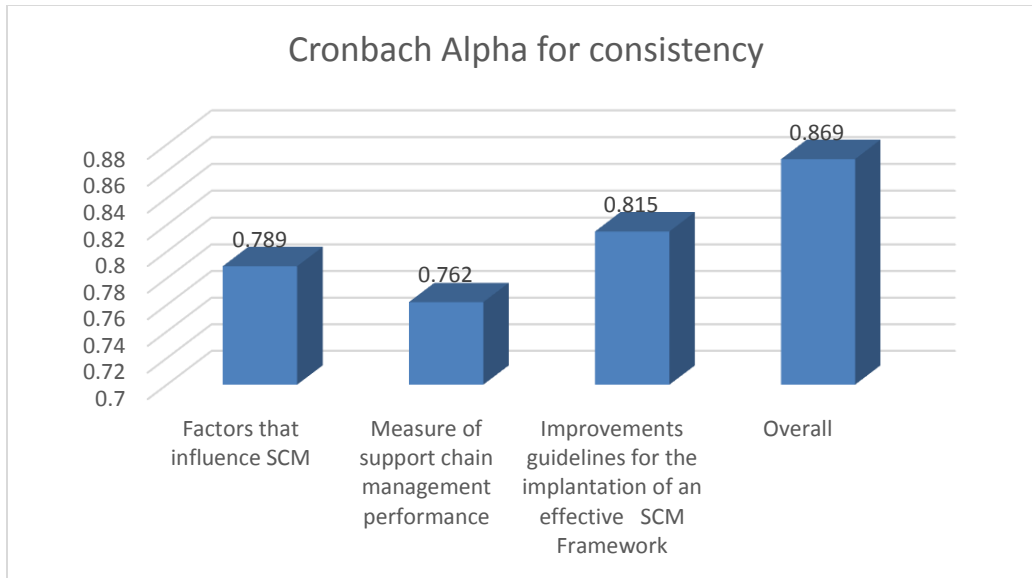
4.3.2 Reliability of individual components

4.3.2.1 Reliability test

The Cronbach's alpha indicator that was used to test for reliability indicates the overall reliability of a questionnaire. According to Field (2009:675), the values around 0.7 and 0.8 are good for reliability tests. Reliability tests performed yielded the results that are presented in table

Component	Cronbach Alpha
Factors that influence SCM	.789
Measure of supply chain management performance	.762
Improvements guidelines for the implementation of an effective SCM Framework	.815
Overall	.869

Figure 4. 1



Each component (as categorized by documentation provided) was examined for internal reliability using the Cronbach Alpha. Values higher than 0.7 indicate good reliability.

4.4. Research Analysis and findings

4.4.1 Factors that influence supply chain management

Factors that influence supply chain management were investigated. Table 4.1 depicts the analysis of the responses of the questionnaires about factors that influences supply chain management. The researcher discusses the results from the questionnaire; with the view to analyze the findings.

Table 4.1 Percentage of all factors that influence SCM

Factors that influence SCM					
Item number	Questions	Strongly	Agree	Disagree	Strongly

		agree			disagree
Q1	Do you have a strategic relationship with suppliers	20	36	24	20
Q2	Do suppliers supply electronic catalogues	4	10	64	22
Q3	Do you have strategies in place to deal with environmental uncertainties in the Supply Chain	2	28	46	24
Q4	Do you have strategies in place to deal with social uncertainties e.g. limitations of communication and technology	2	18	52	28
Q5	Does the SCM have reliable IT communication tools with a certain degree of security & privacy	8	12	44	36
Q6	Do you have set goals & target for demand management	6	72	16	6
Q7	Is the department having an Annual Procurement Plan that is in line with strategic development	64	28	6	2
Q8	Do you have systems in place to manage contracts	14	66	20	0
Q9	Do you have a system in place to ensure that Bid & Evaluations processes are implemented correctly?	24	66	10	0
Q10	Do you have systems in place that manages Item specification	2	60	30	8
Q11	Do you have systems in place to ensure that correct	14	68	18	0

	procurement processes are implemented when purchasing				
Q12	Do you have a system in place to manage inventory	8	80	12	0
Q13	Do you have systems in place to monitor supply chain integration with regard to business performance	10	46	34	10
Q14	Do you have correct systems to perform monitoring and evaluation in the SCM	6	28	54	12
Q15	Do you have systems in place to monitor irregular, unauthorized, fruitless and wasteful expenditure in the department	8	36	34	22
Q16	Are there policies within the department to monitor SCM implementation processes	26	46	22	6
Q17	Do you have a system in place to deal with ethics and conflict of interest?	10	16	62	12
Q18	Do you have a system in place to deal with internal control environment and well as the implementation of risk mitigation procedures	34	50	14	2
Q19	Do you have a system in place to assess whether staff working in SCM possess the necessary skills, knowledge and capacity	10	54	22	14

- **Analysis of factors that influence SCM**

Factors that influence supply chain management were analyzed to understand what makes the department performs well. 56% of respondents agreed that they have strategic relationship with suppliers, while only 44% disagreed. 86% of respondents disagreed that the suppliers supply electronic catalogues while only 14% agreed that they do get electronic catalogues from suppliers. 70 % of respondents did not agree that there are strategies in place to deal with social uncertainties while only 30% agreed.

80% of respondents disagreed that the SCM have reliable IT communication tools with a certain degree of security & privacy while only 20 % agreed.78% of the respondents agreed that they have set goals and target for demand management while only 22 % disagreed.

When it comes to procurement and supply chain procedures the following were noted: 92% of respondents agreed that the department has an Annual Procurement Plan that is in line with strategic development plan while only 8% disagreed. 80% of respondents agreed that there are systems in place to manage contracts while only 20% disagreed. 90% of respondents agreed that a system in place to ensure that Bid & Evaluations processes are implemented correctly while only 10% disagreed.

82% of staff indicated that they have systems in place to ensure that correct procurement processes are implemented when purchasing while only 18% of respondents disagreed. 88% of respondents agreed that they have systems in place to manage inventory while only 12% disagreed. 56% of respondents agreed that they have systems in place to monitor supply chain integration with regard to business performance while 44% of respondents disagreed.

When it comes to the department having correct systems to perform monitoring and evaluation in the SCM only 34% agreed while majority of respondents (66%) disagreed. 56% of respondents disagreed that they have systems in place to monitor irregular unauthorized fruitless and wasteful expenditure in the department while only 44% agreed.72% of respondents agreed that there are policies within the department to monitor SCM implementation processes while only 28% disagreed.

74% of respondents disagreed that there is a system in place to deal with ethics and conflict of interest whereas only 26% agreed. 84% of respondents agreed that they have a system in place to assess whether staff members working in SCM possess the necessary skills, knowledge and capacity while 36% of respondents disagreed.

Table 4.1.1 Descriptive statistics for factors that influence SCM

Topic		Statistics	Standard error
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	Mean		45.60	.925
Factors that influence SCM	95%confidence interval for mean	Lower bound	43.74	
		Upper bound	47.46	
	5% Trimmed Mean		45.43	
	Median		44.50	
	Variance		42.776	
	Std. Deviation		6.540	
	Minimum		35	
	Maximum		62	
	Range		27	
	Interquartile Range		9	
	Skewness		.447	.337
	Kurtosis		-.399	.662

Table 4.1.2 Tests of Normality on factors that influence SCM

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Factors that influence SCM	.137	50	.021	.963	50	.122

GRAPHS REPRESENTING THE NORMALITY ON FACTORS THAT INFLUENCE SCM

Figure 4.1.1

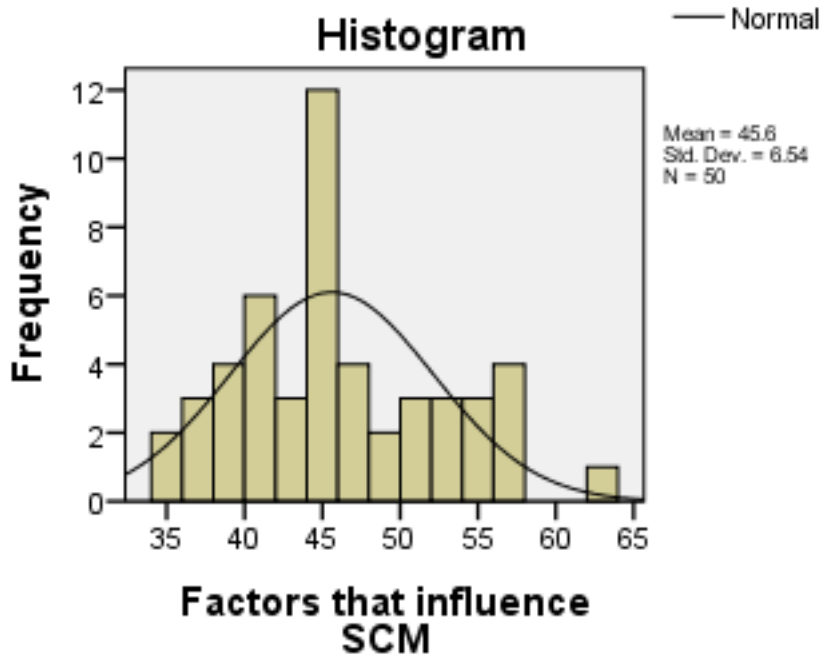
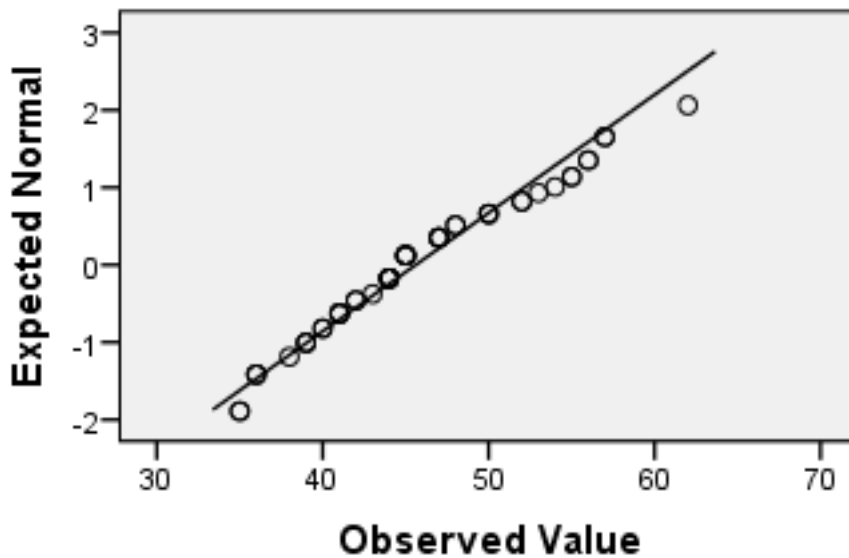


Figure 4.1.2

Normal Q-Q Plot of Factors that influence SCM



- Conclusion

The researcher has identified that majority of the respondents did not agree that the suppliers supply electronic catalogues as well as that the department does not have strategies in place to deal with social uncertainties of suppliers. This on its own creates poor working relationship between the suppliers and the department.

It was also reflected in the analysis that majority of staff members did not agree that the SCM has reliable IT communication tools with a certain degree of security & privacy. This put the SCM in jeopardy as it can be at risk of any threats or stealing of confidential information as well as loss of such valuable information.

When it comes to the department having correct systems in place to perform monitoring and evaluation in the SCM majority of staff members disagreed. From the findings it also emerged that majority of staff members disagreed that the department has systems in place to monitor irregular unauthorized fruitless and wasteful expenditure. Lastly majority of respondents also disagreed that the department has a system in place to deal with ethics and conflict of interest. These factors have been confirmed from literature review that they influence the performance of SCM. From the analysis made the researcher is certain that some of these factors contribute to SCM not performing according to expected standard.

4.4.2 Measure of Supply Chain Management Performance

A measure of supply chain management performance was investigated. Table 4.2 depicts the analysis of the responses of the questionnaires about the measure of supply chain management performance. The researcher discusses the results from the questionnaire; with the view to analyze the findings.

Table 4.2: Measure of supply chain management performance

Measure of supply chain management performance					
Item number	Questions	Strongly agree	Agree	Disagree	Strongly disagree
Q20	Do you have systems in place to monitor whether the department complies with public SCM rules, legislation, norms and standards	8	46	42	4

Q21	Do you have measures in place to ensure that strategic actions for effective SCM are implemented	22	42	36	0
Q22	Do you have systems in place to ensure that the department adheres to legislation and policies that governs supply chain management	0	62	36	2
Q23	Do you have a system in place that ensures that the department make comparison of their services with private sector in order to gauge their competitive advantage	2	26	40	32
Q24	Are suppliers taken into considerations when designing SCM policies	4	60	24	12
Q25	Do you have a system in place to manage suppliers	8	56	34	2
Q26	Do you have a system in place to ensure open or transparent contracting to combat corruption	6	24	62	8
Q27	Do you have a system in place to ensure that there is proper, correct and relevant organizational structures in place in order to render quality services	10	62	26	2
Q28	Do you have a system in place to ensure that all staff have relevant job descriptions and their roles are well defines	14	62	24	0
Q29	Do you have a system in place to ensure that there is	8	22	50	20

	corporate culture that all staff can relate to				
Q30	Do you have systems in place to ensure that customers are well managed	4	26	54	20
Q31	Do you have a system in place to ensure that services of SCM are well coordinated?	2	38	50	10
Q32	Do you have a system in place to manage supplier trust and performance	8	18	50	24
Q33	Do you have a system in place to ensure that customers get quality, speed and dependability when rendering services to them?	6	20	54	20
Q34	Do you have systems in place to ensure that there is a conducive environment for transacting between the department and its suppliers	2	38	44	16

▪ **Analysis of the findings on Measure of Supply Chain Management Performance**

54% of respondents agreed that they have systems in place to monitor whether the department complies with public SCM rules, legislation, norms and standards while 46% disagree. 64% of respondents agreed that they have measures in place to ensure that strategic actions for effective SCM are implemented while 36% disagreed.

62% of respondents agreed that they have systems in place to ensure that the department adheres to legislation and policies that govern supply chain management while only 38% disagreed. 72% of respondents disagreed that they have a system in place that ensures that the department make comparison of their services with private sector in order to gauge their competitive advantage while only 28% agreed.

64% of respondents agreed that suppliers are taken into considerations when designing SCM policies while 36% disagreed. 64% of respondents agreed that there is a system in place to manage suppliers while only 36% disagreed

70% of respondents disagreed that they have a system in place to ensure open or transparent contracting to combat corruption while only 30% agreed. 72 % of respondents agreed that they have a system in place to ensure that there are proper, correct and relevant organizational structures in place in order to render quality services while 28% disagreed.

76% of respondents agreed that they have a system in place to ensure that all staff members have relevant job descriptions and their roles are defined while only 24% disagreed.70% of respondents disagreed that they have a system in place to ensure that there is corporate culture that all staff can relate to while only 30 % agreed.74% of respondents disagreed that they have systems in place to ensure that customers are well managed while only 26% agreed.

60%of respondents disagreed that they have a system in place to ensure that service of SCM are well coordinated while only 40% agreed. 74% of respondents disagreed that they have a system in place to manage supplier trust and performance while only 26% agreed. 74% of respondents disagreed that they have a system in place to ensure that customers get quality, speed and dependability when rendering services to them while only 26% agreed. 60% of respondents disagreed that they have a system in place to ensure that there is conducive environment for transacting between the department and suppliers while 40% agreed.

Descriptive statistics

Table 4.2.2

			Statistics	Standard error
	Mean		38.98	.732
Measure of supply chain management performance	95%confidence interval for mean	Lower bound	37.51	
		Upper bound	40.45	
	5% Trimmed Mean		39.37	
	Median		39.00	
	Variance		26.755	
	Std. Deviation		5.172	
	Minimum		23	
	Maximum		48	
	Range		25	
	Interquartile Range		5	

	Skewness	-1.195	.337
	Kurtosis	2.714	.662

Table 4.2.3 Test of normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Measure of support chain management performance	.151	50	.006	.897	50	.000

Graphs representing the normality of Measure of supply chain management performance

Figure 4.2.1

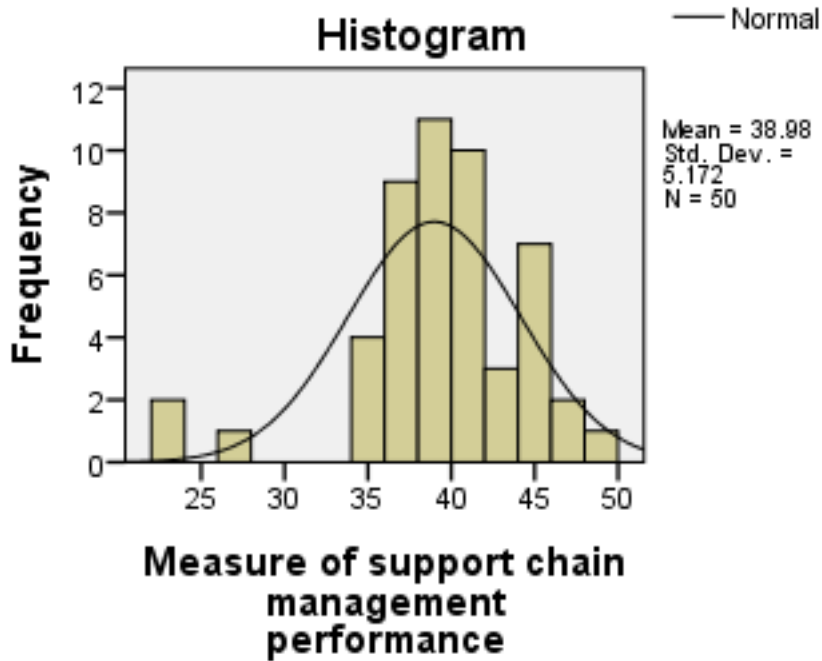
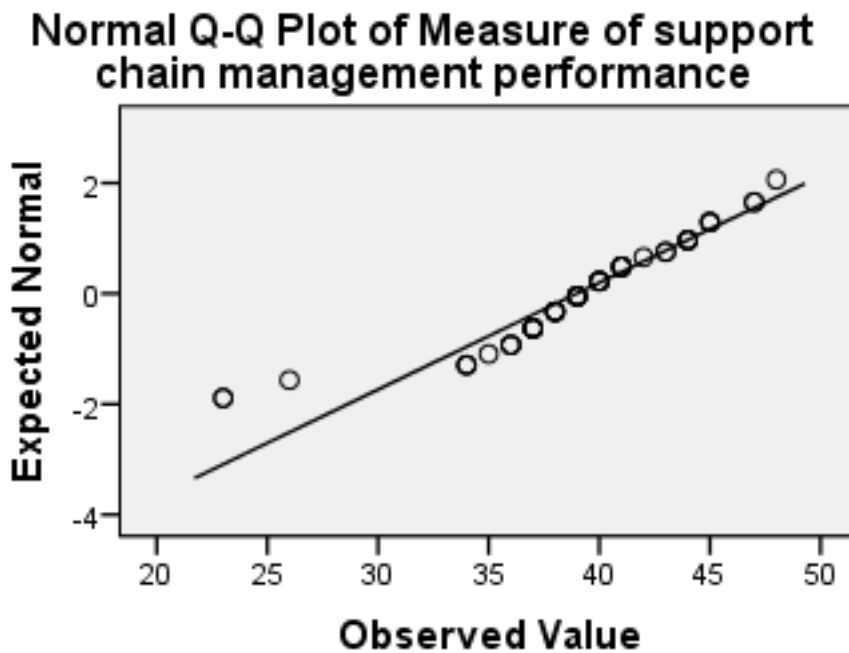


Figure 4.2.2



- **Conclusion**

Majority of staff members indicated that the department does not have a system in place that ensures that the department compares its services with private sector in order to gauge their competitive advantage. It was also found from the study that majority of staff members indicated that the department have no system in place to ensure open or transparent contracting to combat corruption.

Majority of staff members also indicated that there is no corporate culture that they can relate to. This also indicates to the researcher that staff members have no sense of belonging to the department. It was also found from the study that there is no system in place to ensure that services of SCM are well coordinated. This also indicated that there is no system in place to manage supplier trust and performance as well as ensuring that customers get quality, speed and dependability when service is rendered to them. It also emerged that the department has no system in place to ensure that there is conducive environment for transacting between the department and suppliers.

The findings above made the researcher to understand the measure of supply chain management performance with regard to systems that are not in place as indicated in the study.

4.4.3 Improvements Guidelines for the Implementation of an Effective SCM Framework

Improvements guidelines for the implementation of an effective SCM framework were investigated. Table 4.3.1 depicts the analysis of the responses of the questionnaires about the improvements guidelines for the implementation of an effective SCM framework. The researcher discusses the results from the questionnaire; with the view to analyze the findings.

Table 4.3.1

Improvements guidelines for the implementation of an effective SCM framework					
Item number	Questions	Strongly agree	Agree	Disagree	Strongly disagree
Q35	Do you have a system in place to ensure that there is good governance and accountability	2	28	60	10
Q36	Do you have a system in place	4	44	50	2

	to ensure that barriers for SMME`s are reasonable to afford them business with the department				
Q37	Do you have a system to monitor the implementation of tender documents	26	60	12	2
Q38	Do you have a system in place to ensure that business processes are streamlined and standardized	4	52	42	2
Q39	Do you have a system in place to ensure greater transparency in the SCM process	2	36	56	2

▪ **Analysis of the findings on improvements guidelines for the implementation of an effective SCM framework**

70% of respondents disagreed that there is a system in place to ensure that there is good governance and accountability while only 30% agreed. 52% of respondents disagreed that there is a system in place to ensure that SMME`s are reasonable to afford them business with the department while only 48% agreed.

86%of respondents agreed that there is a system in place to monitor the implementation of tender documents while only 14% disagreed. 56% agreed that there is a system in place to ensure that business processes are streamlined and standardized while 44% disagreed. When it comes to having a system in place to ensure greater transparency in the SCM process 58% disagreed and only 38% agreed.

Table 4.3.2 Descriptive statistics

		Statistics	Standard error
	Mean	12.26	265
Improvements guidelines for the implementation of an effective SCM Framework	95%confidence interval for mean	Lower bound	11.73
		Upper bound	12.79
	5% Trimmed Mean	12.27	

	Median	12.00	
	Variance	3.502	
	Std. Deviation	1.871	
	Minimum	8	
	Maximum	18	
	Range	10	
	Interquartile Range	3	
	Skewness	.092	.337
	Kurtosis	.989	.662

Table 4.3.3 Test of normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Improvements guidelines for the implantation of an effective SCM Framework	.125	50	.050	.952	50	.043

Graphs representing the normality on Improvements guidelines for the implementation of an effective SCM Framework

Figure 4.3.1

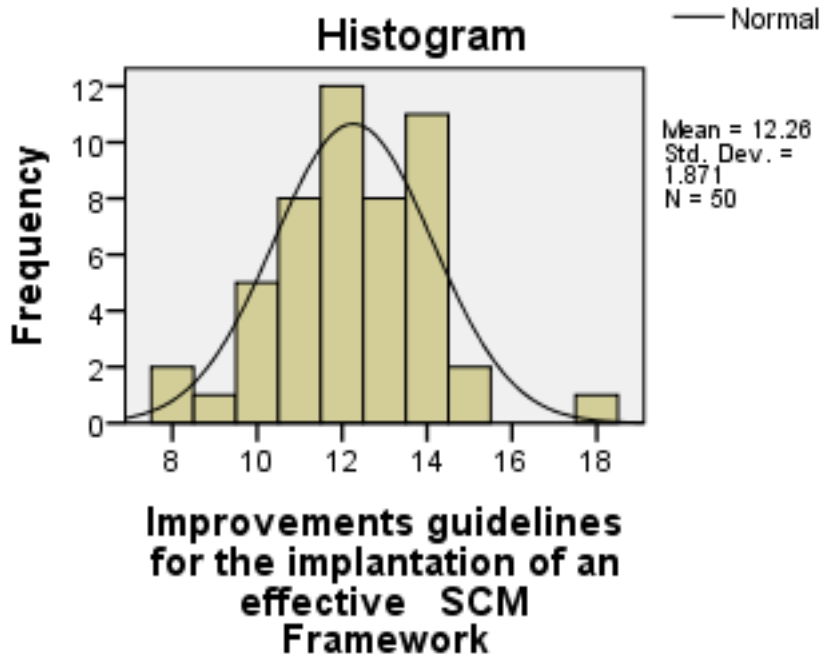
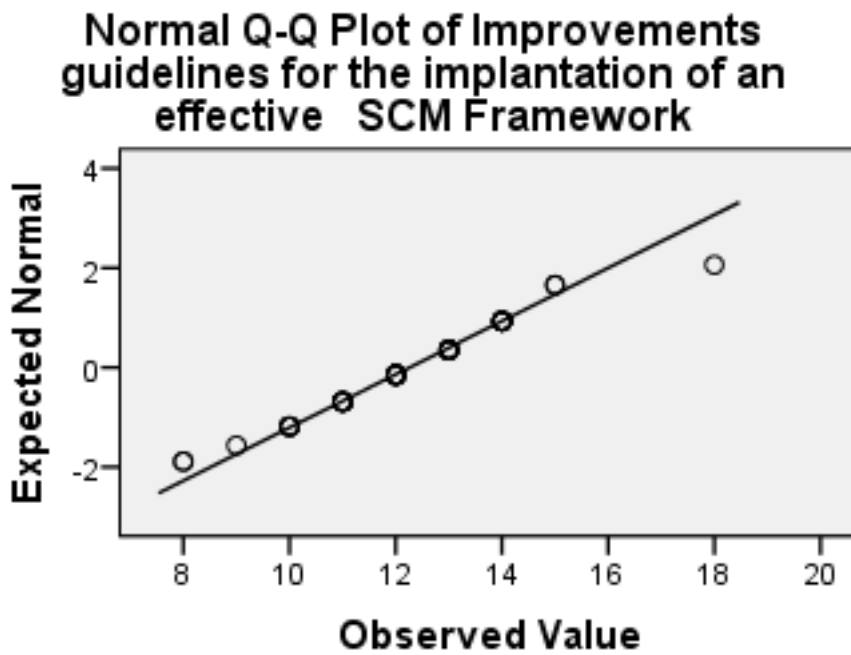


Figure 4.3.2



▪ **Conclusion**

Majority of staff members disagreed that there is a system in place to ensure that there is good governance and accountability. It also emerged in the findings that majority of staff members disagreed that there is a system in place to ensure that SMME`s are reasonable to afford them business with the department. When it comes to having a system in place to ensure greater transparency in the SCM process majority of staff members also disagreed. This enlightens the researcher about improvement guidelines for the implementation of an effective SCM framework.

The purpose of this study was to extensively evaluate the effectiveness of existing supply chain management practices employed by the Limpopo Department of Public Works, Roads and Infrastructure.

Table 5:One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	(2-Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Factors that influence SCM	49.301	49	.000	45.600	43.74	47.46
Measure of supply chain management performance	53.288	49	.000	38.980	37.51	40.45
Improvements guidelines for the implementation of an effective SCM Framework	46.322	49	.000	12.260	11.73	12.79

Table 5 shows that $P < 0.000$ meaning that there is a significance difference between the means of Factors that influence SCM, Measure of supply chain management performance and improvements guidelines for the implementation of effective SCM Framework

4.5. Conclusion

An extensive review of literature showed that effective Supply Chain Management requires correct systems to be in place. It has become apparent to the researcher that

staff members disagreed that there are no systems in place to ensure effective supply chain management within the Limpopo Department of Public Works, Road and Infrastructure. From the beginning the researcher has identified that a lot of systems are not in place, for example to combat fraud and corruption and to prevent unnecessary fruitless expenditure. It was also highlighted that there are no systems of good governance and accountability; as such this can lead to poor performance as no one is taking responsibility.

It is clear from these findings that the effectiveness of SCM in the department is still a challenge due to the fact that many systems that are supposed to be in place to ensure effective performance of SCM are not in place. In the following chapter conclusions to the findings will be discussed and recommendations presented in order to solve the problems presented

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The purpose of this research report was to review the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure. Conclusions and recommendations from the literature review and from the result of the study will be discusses in this chapter.

5.2 Summary of the findings, Conclusion and Recommendations.

5.2.1 Planning Systems and Processes that Influence Supply Chain Management

Staff members interviewed indicated that the department has no strategic relationship with their suppliers and such suppliers do not supply them with electronic catalogues. The findings reflected to the researcher that if the department does not have strategic relationship with their suppliers it makes it difficult for the department to know what are the expectations of the suppliers as well as what they need from the suppliers. This will make service delivery to be poor for example suppliers may not know the urgency of goods that the department needs, as such they can drag their feet in supplying the department with goods which in turn delays service delivery. Secondly suppliers may also take advantage of the department and provide shoddy service as there is no strategic relationship that governs both the supplier and the department.

Secondly it emerged in the study that the department has no strategies in place to deal with social uncertainties in the supply chain management. This indicates to the researcher that in cases where there are environmental changes the department will not be ready to render services. This will also lead to poor service delivery as there are no plans in place to deal with such uncertainties.

When it comes to social uncertainties e.g. limitations of communication and technology it was indicated from the results that the department does not have strategies in place to deal with this. In case where there is communication and technology problems the department will not be able to render effective service to the clients. It was also found that the SCM have no reliable IT communication tools with a certain degree of security and privacy. This poses a high risk to the department as anyone can have access to

private and confidential information. For example SCM works with certain programmes like BAS, which requires personal identification and private passwords. In this case anyone can access the system and create login details that will assist in doing fraudulent activities like placing abnormal quantities of orders or making unauthorized fraudulent payments. As such this poses a huge risk to the supply chain management department.

It was also noted in the research study that the department does not have systems in place to monitor irregular, unauthorized fruitless and wasteful expenditure in the department. This is an alarming situation as it may lead to treasury audit queries. As long as the department lacks proper IT system that has a certain degree of security and privacy, it becomes difficult for the department to monitor irregular unauthorized and wasteful expenditure because everyone can access the system and create such unauthorized transactions. Furthermore it was noted that the department has no policies to monitor SCM implementation processes. As such this causes SCM processes to be flawed as there is no one monitoring the implementation thereof.

Lastly it was also indicated that the department has no systems in place to deal with ethics and conflict of interest. This may lead to individuals in the department doing business with the department for personal gains, as there is no system that will deal with ethics and conflict of interests. There are lots of things that can go wrong in cases like this. For example individual staff members may divulge prices of quotations to their favorite's suppliers in order to get tenders within the department. Secondly they may even increase prices to suit their own personal interests. At times they may even divulge sensitive information about contracts and tenders to ensure that their personal interests are addressed.

5.2.1.1 Recommendations

It is recommended that the department should have a strategic relationship with suppliers and such strategic relationship be communicated to all relevant stakeholders. This will assist the department in ensuring that suppliers know what the department expects from them and vice versa. In a way suppliers will be able to supply electronic catalogues to the department in order for the department to be able to know what to buy from different suppliers.

Secondly it is recommended that the department should have strategies in place to deal with both environmental and social uncertainties in the supply chain management. This will ensure that the day a disaster strikes, the department is able to mitigate such and still be able to provide service to those in need. Communication and technology are the

heart of each and every business. If the department does not have strategies in place to deal with communication and technology, it will not be able to provide services.

It is therefore recommended that the SCM should ensure that they have reliable IT communication tools with a certain degree of security and privacy. This will eliminate any fraudulent activities as each and every staff member will have private access that is monitored. This will also create a sense of accountability and responsibility to all relevant stakeholders.

It is also recommended that the department should have systems in place to monitor irregular, unauthorized, fruitless and wasteful expenditure in the department. This is very crucial as any irregular, unauthorized, fruitless and wasteful expenditure in the department leads to audit queries and also put the department under risk of being under national administration. Secondly this opens a room for fraudulent and corrupt activities as no one is taking accountability and responsibility. This in the long run will grossly affect the performance of SCM.

Policies in the department guides how SCM processes should be implemented. In light of this it is recommended that such policies should be in place to monitor the implementation of SCM processes. This will help the department to identify if there are any challenges and deal with them earlier as well as to understand how it performs.

Lastly it is recommended that the department should have a system in place to deal with ethics and conflict of interest. If this is not addressed it will lead to staff members engaging in fraudulent and corrupt activities. Ethics is the core survival principle of any business entity. Business that do not have ethical values and morals, are unable to render quality service to their clients. Some suppliers may even lose interest in doing business with the department that does not have ethical values and morals. Conflict of interest should be managed guided by the supply chain management policies and procedures in the department.

5.2.2 Control of Supply Chain Management Performance

It was found that the department has no system in place that ensures that the department makes comparison of their services with private sector in order to gauge their competitive advantage. This creates problems in the sense that if services are not comparable with private sector it becomes difficult for the department to know what is the latest trends in the market, what is offered, at what value etc. The department may be underperforming or over-performing in certain areas as there is no benchmarking that is done.

It was also found that the department has no system in place to ensure open or transparent contracting to combat corruption. This is a challenge to the department in the sense that contracts that is not done in a transparent and fair manner created conflicts. Suppliers may not be able to compete in a transparent, fair and open system. This on its own leads to audit queries as the Public Finance Management Act Provides for transparent contracting. It will also lead to corrupt activities as staff members working on contracts may award tenders to suppliers that do not qualify on the basis that this is not done in an open, transparent manner. Suppliers will not have a competitive advantage and equal opportunities to participate in the tendering system with the department.

It was also found that there are no systems in place to ensure that customers are well managed. This creates problems to the department as they will not be able to know what their customers want and what they expect from the department. Stakeholder analysis is a key factor for the success of any business. Customer relations affect the business in many ways. If the department does not managed customers well, the customers will opt for the competitors. It also emerged that there is no system in place to ensure that customers get quality, speed and dependability when rendering services to them. As such the department is not in a better position to know whether customers are happy and content with the services that they are receiving from the department.

It also emerged from the research study that there are no systems in place to ensure that services of SCM are well coordinated. This creates problems as there will be no accountability on the actions done. Staff members will operate in isolation as there is no coordination of services. At times there will be duplication of services or inadequate provision of service as no one will be able to take responsibility and accountability.

It was also found that the department has no systems in place to manage supplier trust and performance. This creates problems as the suppliers may take advantage of the department and not perform according to expected standards. They may not be reliable and fail to deliver on the right time or the right quantities. It was also indicated that the department has no systems in place to ensure that there is a conducive environment for transacting between the department and its suppliers. This can cause suppliers to take advantage of the department and not deliver on expected results. It can also lead to suppliers not having trust when transacting activities with the department.

5.2.2.1. Recommendations

It is recommended that the department put in place systems that ensure that the department makes comparison of their services with private sector in order to gauge their competitive management. This will assist the department to know and understand

the latest trends in the market, the value of their services and also gain competitive advantage.

It is further recommended that the department should have a system in place to ensure open or transparent contracting to combat corruption. This will lessen any corrupt or fraudulent activities between the department and the suppliers. It will also give suppliers a fair, open and transparent opportunity to do business with the department. As such suppliers will have confidence in the department when transacting business with it.

Customer management is an integral part of stakeholder analysis. It is recommended that the department should have a system in place to ensure that customers are well managed. It should also ensure that customers get quality, speed and dependability when rendering services to them. This will assist the department in ensuring that customers do not go after their competition to get alternatives. As a result the department will be able to build long lasting relationships with their customers in order to increase their business and make profit.

Suppliers are also important to the survival of any business. It is therefore recommended that the department should have in place a system to manage supplier trust and performance. If suppliers are not well managed they may lead to the downfall of the business. Supplier trust and performance are key to any business. If they are not well managed suppliers will not perform according to the agreed standards.

Lastly it is recommended that the department should put in place systems to ensure that there is conducive environment for transacting between the department and its suppliers. The transacting environment should always be conducive for suppliers in order for them to comply with supplies. If every time suppliers have to go through lot of paper work for them to can supply to the department, they may end up losing interest and not delivering as expected. The conditions of transacting should be easily understood by all and be as simple as possible within a reasonable time frame.

5.2.3 Improvement Guidelines for Implementation of an Effective Supply Chain Management

It was indicated in the research study that the department does not have a system in place to ensure that there is good governance and accountability. Good governance and accountability is the cornerstone of each and every business. If this lacks, the business might as well close. Good governance creates a sense of responsibility in any business entity. Good governance guides the operations of the department as well as the suppliers and customers. If such systems are not in place this may lead to the department to engage in fraudulent and corrupt activities.

It was also indicated that the department does not have systems in place to ensure that barriers for SMME`s are reasonable to afford them business with the department. This

may lead to SMME`s not growing as they may not be able to match the well established businesses. In the long run this will affect the economic growth of the province as many people working for SMME`s may not be employed. Needless to say that it will not be easy for them to do business with the department. This can also be an audit query as treasury regulations guides the department to afford SMME`s business within reasonable barriers. As such this will also affect the performance of the department.

The Public Finance Management Act promotes greater transparency in the SCM processes. It was also found that there is no system in the department to ensure greater transparency in the SCM process. This on its own poses a risk as staff members may use this as an opportunity to engage in fraudulent and corrupt activities. For example they may inform suppliers about quoted prices so that their favorite`s suppliers can lower the prices. They may even afford non qualifying suppliers businesses with the department.

5.2.3.1. Recommendations

It is recommended that the department should put in place a system to ensure that there is good governance and accountability. This will ensure that the department performs well in all its activities.

Secondly it is recommended that the department should also put in place a system to ensure that barriers for SMME`s are reasonable to afford them business with the department. This will help SMME`s to grow and in return increase the economy.

Lastly it is recommended that the department should put in place systems to ensure greater transparency in the SCM processes. This will help the department to curb fraudulent and corrupt activities that hinders the performance of the department.

5.3 Recommendations

5.3.1 Planning Systems and Processes that Influence Supply Chain Management

Planning systems and processes influences supply chain management. It is therefore imperative that such systems should be in place and be implemented correctly and be continuously monitored. In view of this the researcher recommends that the department fast track such systems to be in place. This is based on the findings that the department does not have most planning systems and processes in place.

As a matter of urgency it is recommended that the department should develop a strategic relationship with its suppliers to ensure that suppliers are on the same level with the department in terms of what the department needs and what suppliers can offer.

Every company needs to do a SWOT (Strength, Weakness, Opportunities and Threats) analysis. From the SWOT analysis the company can do PESTEL (Political,

Environmental, Social, Technological, Economical and Legal). This assists the business to know its strengths and weaknesses, opportunities and threats in order to remain competitive. It is for this reason that it is recommended that the department do a SWOT analysis so that it can be able to put in place systems to deal with environmental and social uncertainties' within the supply chain management. This will also help the department to deal with its technological downfall of not having reliable IT and communication systems that is secure and private.

Financial management is an integral part of any business entity. It is for those reasons that every company strives to ensure that the finances of the business are run in a correct, ethical and principled manner. If the department has to be successful it needs to comply with principle governing financial management in relation to the Public Finance Management Act. It is for these reasons that it is recommended that the department should put in place systems to monitor irregular, unauthorized, fruitless and wasteful expenditure in the department. This will prevent the department for engaging in fruitless, unauthorized wasteful expenditure that can create audit queries.

Lastly ethical principles drive the success of each and every business entity as it assures both clients and suppliers about the trust they uphold in the business. It is for this main reason that the department should develop systems to deal with ethics and conflict of interest. This will assist the department to ensure that they implement SCM processes without any fear or favour as they will be guided by ethical principles.

5.3.2 Control of Supply Chain Management Performance

Competitive advantage is a key for the survival of any business. For this to happen any business entity needs to know what their competitor is doing. It is for this reason that it is recommended that the department should ensure that there are systems in place that allows the department to make comparison of their services with private sector in order to gauge their competitive advantage.

There is no supplier that can enter into business with corrupt department, or department that do not have transparent or open contracting system. This will degrade the integrity of such suppliers. The researcher also recommends that the department should have in place a system that ensures open or transparent contracting to combat corruption. This will promote equal opportunities for clients and suppliers and also instill a sense of trust between the department and its suppliers.

Customers can either make or break the business. It is for this reason that customers's interest should always be given priority first and foremost. Customers should be afforded quality, speed and dependability when being rendered a service. How customers are managed determines how long they will be loyal to the business. If customers are not managed well, given quality and reliable service, it will be difficult for

them to come back. It is thus recommended that the department should have in place system that ensures that customers are well managed and receive the best possible service that they expect.

Suppliers are also integral to the business. In the same light of customers, suppliers should also be managed well to ensure that they have trust in the department as well as to enhance their performance. If suppliers are not taken care of, they may fail to perform on the expected agreement. It is recommended that the department should have systems in place to manage suppliers well, as well as to create a conducive environment for transacting between the department and suppliers.

5.3.3 IMPROVEMENT GUIDELINES FOR IMPLEMENTATION OF AN EFFECTIVE SUPPLY CHAIN MANAGEMENT

Good governance and accountability is the cornerstone of each and every business. This directs the business and provides strategic leadership. Good governance instills a sense of responsibility and ownership. Without good governance and accountability the department will not perform well. It is therefore recommended that the department should have in place systems to ensure that there is good governance and accountability.

SMME`s are part of economic growth in the country. Due to high unemployment rate SMME`s also serve as a vehicle to create job opportunities through tenders or contracts that the department afford to them. In order for SMME`s to continue doing business with the department, they need to have conducive environment as well as reasonable barriers in place. It is therefore recommended that the department should have a system in place to ensure that barriers for SMME`s are reasonable to afford them business.

Transparency in the SCM processes is critical for suppliers to have trust in the department. It is for this reason that the department should ensure that it put in place systems to ensure greater transparency in the SCM processes.

5.4. Integrated Conclusions and Recommendations

Supply chain management is the heart of each and every government entity. If SCM department is not performing accordingly, it affects any other section within the department. Every department needs to ensure that its SCM is effective in the day to day operational functions. SCM should put in place systems in place that governs the operations of the department. This will ensure that customers and suppliers have mutual benefits when working with the department.

SCM performance is also governed by legislative frameworks like the Public Finance Management Act which entails that all processes of procurement and supply chain management should be done in an open, fair and transparent way such that there are

no windows for fraudulent and corrupt activities. It is thus recommended that the department should not deviate from available legislative framework, because it can lead to unnecessary audit queries which will also make the department not to perform accordingly.

The department needs to ensure that they put correct systems in place to manage SCM. Such systems should be communicated to all relevant stakeholders. If all stakeholders are aware of such systems they will be able to implement them and take ownership.

5.5. LESSONS LEARNED FOR FUTURE RESEARCH

SCM is the cornerstone of the department. If SCM is not performing well, all other department will fail. It is for this reason that it should be given attention starting from the basics of having good governance and accountability. Secondly it should also ensure that proper systems are in place, communicated and implemented by all involved. It should not be for the chosen few, but all stakeholders as this will instill a sense of ownership. Monitoring of SCM process implementation should be done to ensure that the department is on track.

For future research, the researcher has identified that a lot still need to be done on communication strategy that the department is using to communicate to all stakeholders. Secondly financial management seems to be a thorny issue for the SCM; as such more research is needed to understand how irregular, unauthorized, fruitless and wasteful expenditure is managed.

5.6 Conclusion

This study aimed at reviewing the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure. The review was made from the above discussions. The researcher identified the following research questions?

- What are the planning systems and processes that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure?
- How is the control of supply chain management performance?
- What are the improvement guidelines for implementing an effective supply chain management framework?

The planning systems and processes that influence the performance of the Limpopo Department of Public Works, Roads and Infrastructure have been identified from the literature as well as the study itself. It has been noted from the study that planning systems and processes are not in place. It was also noted from the study that there are no adequate control systems in place to measure supply chain management performance. This was highlighted by the fact that there are no systems in place to curb

irregular, unauthorized, fruitless and wasteful expenditure in the department. It was also noted that there are no systems in place to curb fraud and combat corruption. When it comes to the improvement guidelines for implementing an effective supply chain management framework, it was also noted that the department lacks systems in place to ensure good governance and accountability. Without this the department cannot provide leadership and strategic management to their staff, suppliers and customers.

It is therefore imperative for the department to put systems in place to ensure that SCM are done in an ethical manner, and such systems should be communicated to all relevant stakeholders for implementation. This will assist in curbing fraud and combating corruption in order for the department to perform effectively.

It also emerged from the study that there are other SCM systems that are in place, but due to the fact that some of the staff members disagreed, it reflected that such systems are not routinely communicated to all staff so that they can take pride and perform in line with the systems that are in place.

From the above literature, findings and discussions the researcher concluded that supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure are not effective.

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APPENDIX A: QUESTIONNAIRE

Title: “A review of the effectiveness of supply chain management practices in the Limpopo Department of Public Works, Roads and Infrastructure”

You are kindly requested to participate in this study by completing the following questionnaire, through an interview which should take no longer than 30 minutes of your time. Your responses will be anonymous and your individual confidentiality is assured.

Instructions:

- This questionnaire is divided in to three sections; please complete all of them consist of open ended questions which will guide the interview.
- There are no wrong and right answers.

Thanking you for your co-operation and willingness to participate in the study.

QUESTION	STRONGLY AGREE	AGREE	DISAGREE	DISAGREE STRONGLY
PLANNING SYSTEMS AND PROCESSES THAT INFLUENCE SCM				
Do you have a strategic relationship with suppliers				
Do suppliers supply electronic catalogues				
Do you have strategies in place to deal with environmental uncertainties in the Supply Chain				

Do you have strategies in place to deal with social uncertainties e.g. limitations of communication and technology				
Does the SCM have reliable IT communication tools with a certain degree of security & privacy				
Do you have set goals & target for demand management				
Is the department having an Annual Procurement Plan that is in line with strategic development				
Do you have systems in place to manage contracts				
Do you have a system in place to ensure that Bid & Evaluations processes are implemented correctly?				
Do you have systems in place that manages Item specification				
Do you have systems in place to ensure that correct procurement processes are implemented when purchasing				
Do you have a system in place to manage inventory				
Do you have systems in place to monitor supply chain integration with regard to business performance				
Do you have correct systems to perform monitoring and evaluation in the SCM				
Do you have systems in place to monitor irregular , unauthorized, fruitless and				

wasteful expenditure in the department				
Are there policies within the department to monitor SCM implementation processes				
Do you have a system in place to deal with ethics and conflict of interest?				
Do you have a system in place to deal with internal control environment and well as the implementation of risk mitigation procedures				
Do you have a system in place to assess whether staff working in SCM possess the necessary skills, knowledge and capacity				
CONTROL OF SUPPLY CHAIN MANAGEMENT PERFORMANCE				
Do you have systems in place to monitor whether the department complies with public SCM rules, legislation, norms and standards				
Do you have measures in place to ensure that strategic actions for effective SCM are implemented				
Do you have systems in place to ensure that the department adheres to legislation and policies that governs supply chain management				
Do you have a system in place that ensures that the department make comparison of their services with private sector in order to gauge their				

competitive advantage				
Are suppliers taken into considerations when designing SCM policies				
Do you have a system in place to manage suppliers				
Do you have a system in place to ensure open or transparent contracting to combat corruption				
Do you have a system in place to ensure that there is proper, correct and relevant organizational structures in place in order to render quality services				
Do you have a system in place to ensure that all staff have relevant job descriptions and their roles are well defines				
Do you have a system in place to ensure that there is corporate culture that all staff can relate to				
Do you have systems in place to ensure that customers are well managed				
Do you have a system in place to ensure that services of SCM are well coordinated?				
Do you have a system in place to manage supplier trust and performance				
Do you have a system in place to ensure that customers get quality, speed and dependability when rendering services to them?				
IMPROVEMENTS GUIDELINES FOR THE IMPLEMENTATION OF AN EFFECTIVE SCM FRAMEWORK				
Do you have systems in				

place to ensure that there is a conducive environment for transacting between the department and its suppliers				
Do you have a system in place to ensure that there is good governance and accountability				
Do you have a system in place to ensure that barriers for SMME`s are reasonable to afford them business with the department				
Do you have a system to monitor the implementation of tender documents				
Do you have a system in place to ensure that business processes are streamlined and standardized				
Do you have a system in place to ensure greater transparency in the SCM process				

APPENDIX B: LETTER OF APPROVAL FOR DATA COLLECTION



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF PUBLIC WORKS

17 December 2014

Reference : 2/8/4
Enquiry : MP Manamele

Ms T. Letshedi
POLOKWANE

PERMISSION TO CONDUCT RESEARCH IN THE DEPARTMENT

1. Your application to conduct research in the department bears reference:
2. You submitted the proposal to the department on the 15th December 2014. Your proposal was forwarded to the Departmental Research Ethics Committee for assessment.
3. The Committee concluded that:
 - Your proposal complies with the departmental research and development terms of reference.
 - Your research sample covers Head Office and Districts.
 - You should complete a departmental declaration form within 5-days of receipt of this letter.
4. To complete the whole process, please visit office number 3-1-14 during working hours between 07h30 – 16h30.
5. Kind regards

Ms K MACHABA
ACTING HEAD OF DEPARTMENT

18/12/2014
DATE

NJ Nel
PO Box 365,
BENDOR PARK
0713

Tel: 074 184 9600

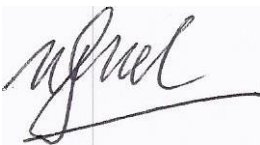
CERTIFICATE

This serves to certify that I have language edited the Research Report of

Ms Kobela T. R. Letshedi,

Student number, **9710047** entitled:

"A REVIEW OF THE EFFECTIVENESS OF SUPPLY CHAIN MANAGEMENT PRACTICES IN LIMPOPO DEPARTMENT OF PUBLIC WORKS, ROADS AND INFRASTRUCTURE, LIMPOPO PROVINCE"

A handwritten signature in black ink, appearing to read 'NJ Nel', with a long horizontal stroke extending to the right.

N J Nel

Lecturer of English, Department Applied Languages
Tshwane University of Technology
(Retired)

22/12/2015