FACTORS THAT INFLUENCE THE SUPPLY CHAIN MANAGEMENT PRACTICES OF SELECTED MUNICIPALITIES IN KWAZULU-NATAL, SOUTH AFRICA.

By

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Declaration

I, S'mangele Favorite Duma, declare that, to the best of my knowledge and belief, this is my own work, and that all the sources used in this thesis are properly acknowledged and accurately reported.

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S'mangele F. Duma

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Dedication

I dedicate this research to my mother, who has always been my motivation and inspiration. I also appreciate the support of my friends, who have always believed in me from the beginning of this study till the end.

Abstract

Whilst much research has been conducted on Supply Chain Management (SCM) globally, very little research has been performed on factors influencing SCM practices in the municipalities of KwaZulu-Natal (KZN), South Africa. Therefore, an understanding of these factors is clearly defined and explained in order to assist the municipal administration and academia to improve SCM operations, covering aspects such as policies, procedures, programmes/models and personnel.

The study sample comprised 120 respondent employed at the eThekwini and UMgungundlovu municipalities. Respondents were asked to complete a 5-point Likert-scale questionnaire to collect quantitative data for statistical analysis, with the researcher assisting in questionnaire administration. Analysis of the primary data was performed using the Statistical Package for Social Sciences (SPSS, Version 24.0). The results are presented in a form of diagrams and figures produced using Microsoft Excel and gross tabulation tables.

The primary aims of the study were: to investigate and describe the available understandings and knowledge of SCM in KZN municipalities; to identify and explain factors influencing their SCM; to examine to what extent the factors identified affect or influence municipal SCM in the province; and to suggest and recommend strategies which could be employed to improve the current state of SCM within these municipalities. The findings of this study revealed that factors such as poor purchasing policy, lack of proper guidelines for procurement as well as poor network infrastructure contributed negatively in the SCM in KZN municipalities. The study was limited by its exploratory nature and small sample size. Generalisation of the research findings should therefore be undertaken with care, and further research is encouraged and should include other provinces and areas in the country.

Contents

List of Abbreviations and Acronyms

ANP - Analytical Network Process
CIMA –Chartered Institute of Management Accountants
CRM - Customer Service Management
DRP - Distribution Requirement Planning
DW - Data Warehousing
EDI –Electrical Data Interchange
EFT - Electronic Funds Transfer
ERP - Enterprise Resource Planning
GDP - Gross Domestic Product
KZN - KwaZulu-Natal
HRM - Human Resource Management
IBM - International Business Machines
IDP - Integrated Development Plans
JIT - "Just-in-Time"
IMF - International Monetary Fund
LED - Local Economic Development
MPP - Manufacturing Process planning
MRP - Material Requirement Planning
NKF- National Kidney Federation
NT - National Treasury
OECD - Organization for Economic Co-operation and Development
OGC –Office of Government of Commerce
PFMA -Public Finance Management Act
PPPFA - Preferential Procurement Policy Framework Act
SCM - Supply Chain Management
SPSS - Statistical Package for Social Sciences
SWOT –Strengths, Weaknesses, Opportunities, Threats
VAN - Value-Added Network
VMI - Vendor-Managed Inventory

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CHAPTER 1
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

The purpose of this study is to identify the factors influencing supply chain management practices in the municipalities of KwaZulu-Natal, South Africa. Therefore, this chapter will include the following sections: problem statement, research aims and objectives, significance of the study, literature review, research methodology, target population, sample size, sampling method, data collection instrument, data analysis, delimitations, limitations, validity, reliability, anonymity and confidentiality, ethical considerations and structure of dissertation chapters.

1.2 BACKGROUND TO THE STUDY

The application of the principles of supply chain management (SCM) policy at municipalities in KZN is the responsibility of the Municipal Accounting Officer, who is also the Municipal Manager responsible for constructing a detailed implementation plan (Awodele *et al.* 2012:20), with execution and completion of SCM systems implemented using a phased-in strategy approach (Gidado 2010:181).

The measurement of the progress on SCM implementations should therefore be conducted against the original implementation plans developed by municipalities. The Auditor General has, moreover, embarked on the monitoring and reporting of municipal compliance to the requirements of SCM implementations, which is performed against each municipality's internally-approved SCM implementation plan and policies (Hartmann *et al.* 2010:1165).

In municipalities, furthermore, there appear to be poor levels of service delivery performance (Division of Revenue 2014: 296), as can be observed from the public protests occurring across the country, and which can be ascribed to

reactions from communities which, having placed much hope in government to assist in improving their standard of living, remain dissatisfied year after year.

Municipalities receive allocations of funds in the form of conditional or unconditional grants from the National Treasury (NT 2015). Funds allocated are, however, often underutilised, while communities, on the other hand, have become concerned by the phenomenon of little or no effective service delivery (Policy Statement 2014:29).

The SCM procedures previously employed for the procurement of goods and services by municipalities are, moreover, inadequate or corrupt, to the point now where they seriously affect municipal service delivery (Ambe and Badenhorst-Weiss 2012: 243).

This study therefore aims at investigating SCM in order to broaden the understanding and knowledge of its use in South African municipalities, specifically those in KZN, in order to identify those factors which, influence its effectiveness, and also the extent to which such factors affect successful SCM, while, in addition, make suggestions for strategies which could lead to improvements.

1.3 PROBLEM STATEMENT

Lack of properly administered SCM within the various South African municipalities has resulted in poor service delivery to local communities (3SMedia 2013). The problem is further emphasised by the South African Division of Revenue's Report for Submission for 2014/15 (2014: 296), which indicates that South African municipalities are faced with the challenge of non-delivery of services.

There appears to be a lack of understanding and knowledge of the factors contributing to this failure of SCM within municipalities, particularly those in KZN exists (Mahmood 2010: 103). The premise is echoed by Ambe and Badenhorst-

Weiss (2012: 243) who indicate that the procedures for SCM employed in the procurement of goods and services are so inadequate and cumbersome that they profoundly affect service delivery by the public sector. The intention of this study is, therefore, to identify and discuss the various factors which influence effective SCM within selected municipalities in KZN.

1.4 RESEARCH AIMS AND OBJECTIVES

The overall aim of this study is to identify factors influencing the SCM within municipalities in KZN, and examine the effects and implications of these factors, thereby examining whether they improve upon or hinder the success of SCM within these municipalities.

In order to achieve the aim of this study, the following objectives are pursued:

1. To explore the understanding and knowledge of SCM in KZN municipalities;
2. To identify and explain factors influencing SCM in the selected municipalities;
3. To examine to what extent the factors identified affect or influence the SCM of municipalities in KZN;
4. To suggest and recommend strategies which could be employed to improve the current state of SCM within municipalities.

1.5 SIGNIFICANCE OF THE STUDY

The reason for conducting this study is to contribute to the body of existing knowledge concerning the importance of SCM in local government in South Africa, particularly in KZN.

The findings of this study could prove a useful tool for local government in South Africa, by enabling a greater understanding of the importance of factors influencing SCM within the KZN municipalities targeted. The objective in doing this is to ensure that the core components of the public financial management

discipline seek to guarantee a proper flow of goods and services between suppliers and public sector institutions, in the correct quality and quantities.

This study encourages promotion of the principles of empowerment, supplier development, local economic development (LED), and value for money in ensuring expeditious and appropriate public-sector service delivery.

1.6 LITERATURE REVIEW

The apartheid system perpetuated a system where disadvantaged municipalities were not allocated adequate resources to effectively deliver services. Moreover, those municipalities provided with infrastructure before or during the apartheid era have subsequently become so dilapidated that they now require serious rehabilitation (IMF 2012).

Whereas constant allegations of corruption and inefficiency are levelled at the administrations of local government on the one hand, on the other service delivery protests have become a clear sign that people feel they are not receiving the quantity or quality of services required (Arnaboldi *et al.* 2015: 211).It is, moreover, public knowledge by admission of local government itself that its current SCM system is faced with many challenges, such as corruption, conflict of interest, and lack of uniformity. In addition to this, inflated prices, and inadequate processes, and the fact that the system experiences a lack of proper monitoring, all combine to manifest in the poor delivery of services.

Visser and Erasmus (2007:150) argue that government, as the largest procurer of goods and services in the country, is responsible for ensuring that the tender system supports and achieves its overall economic objectives. South African government must therefore quickly determine its short- and long-term goals for the supply chain industry, and institute measures which strengthen the links in its chains of supply where deficiencies exist, or the country will lose the small share of global trade it possesses (Watson 2014).

Hugo *et al.* (2004:199), moreover, argue that the movement of materials through the supply chain lies at the core of any supply system, since this process is essentially aimed at creating competitive advantage by providing outstanding customer service in terms of delivery. This enables companies to differentiate themselves from competitors in the market, and enhances current and future profitability by balancing costs and levels of service.Dubihlela and Omoruyi (2014) amplify on this by arguing that SCM is vital for companies to achieve their goals, and for the sharing of information.

Operations managers are faced with many barriers in implementing SCM, particularly in developing economies such as South Africa. Such barriers include: a lack of economies of scale; poor organisational structures; and technological challenges, which are amongst the major factors considered to be major limitations to the effective implementation of SCM.

Pretorius (2001) maintains that, in recognising how critical supply chains are for overall corporate success, companies have invested significantly in research to improve their supply chain processes and systems. However, 42 percent of companies were found to be dissatisfied with the results achieved, and only 27 percent of companies believed that their performance had been elevated beyond the industry norm.

Such investiture is, however, not the case in South African municipalities, where the advantages of SCM construction do not override the complexities associated with its implementation. For instance, as individuals or firms gain autonomy, the burden of coordination tends to grow, which then requires organisational structures capable of managing the range of commitment loops involved in project completion (Isatto and Formoso 2011).

SCM practice includes many activities which support the service delivery of government entities, ranging from routine items to complex development and

construction projects. SCM also directly or indirectly supports government's social and political aims (IMF 2013).

Public procurement is, however, increasingly being recognised as a function which plays a key role in the successful management of public resources (Kateja 2012:368). In addition, many countries have become progressively aware of the significance of procurement as an area vulnerable to mismanagement and corruption, with efforts made to for its integration into a more strategic view of government efforts.

As part of efforts to adopt a long-term and strategic view for their procurement needs and management, most countries have resorted to using their annual procurement plans as a possible solution (Mahmood 2010: 103). Furthermore, each year after the budget has been passed, government entities prepare procurement plans regarding how and when their budgets will be spent, while considering all processes to be followed in SCM, including clear timelines (Mahmood 2010: 103).

1.7 RESEARCH METHODOLOGY

Research design is the plan followed in a study to make ensure that research objectives are achieved (Berndt *et al*. 2011: 31), while research methods are the different techniques utilised for the collection of data (Wilson 2014:119). The research methods used for this study can be classified broadly into those that are either qualitative or quantitative.

A quantitative method was used to collect the primary data for this study. Quantitative methods are based on the measurement of quantities or amounts, and are applicable to research phenomena which can be expressed in these terms (Wilson 2014:119).

Berndt *et al.* (2011: 31) define qualitative methods as those which do not use statistical methods in their interpretation, while quantitative methods provide

data which can be interpreted using statistical analysis. Since the research required the collection of data regarding how supply chain services, policies and procedures are implemented, quantitative found to be appropriate in obtaining this information, and quantitative approach was therefore adopted.

The research instrument comprised a survey questionnaire. The literature review was referenced as the source of information for the formulation of the questionnaire, which was only consisted with closed- end.

The survey was conducted regarding the various factors influencing the performance of municipalities in KZN at the eThekwini and UMgungundlovu municipalities in KZN.

1.8 TARGET POPULATION

According to Zikmund (2003: 369), a population is a complete collection of entities sharing a common set of characteristics. Two municipalities were targeted for this study (eThekwini and UMgungundlovu), with 120 staff members in total from both municipalities.

1.9 SAMPLE SIZE

A sample population of 120 was drawn from respondents within the two municipalities in KZN selected, with data gathered directly from participants through questionnaires. The use of multiple data-gathering techniques assisted, by enabling the potential for cross-checking and verification of data.

1.10 SAMPLING METHOD

A stratified sampling method was used for this study; this is relevant because this method requires the prior definition of categories within the targeted population before being possible to draw samples from its sub-groups (Teddlie and Tashakkori 2009).

A stratified sampling technique was used as it improves the precision of estimates, because the various strata making up the total study population are all represented in the sample. The municipality staff register list was used to select respondents for this study.

1.11 DATA COLLECTION INSTRUMENT

A 5-point Likert-scale questionnaire was used to gather quantitative data from respondents at the selected municipalities.

1.12 DATA ANALYSIS

In determining the data analysis method to be used for this study, data inputs needed to be considered, as well as the theory regarding the type of data on which analyses were to be performed. The desired outputs were the logical starting point for planning the data analysis method.

The data obtained for this study were entered on computer according to the codes assigned to questions, and analysed using the SPSS,Version 24.0, statistical analysis software with the assistance of a professional statistician. A descriptive statistical presentation, including tables, graphs, frequencies and cross-tabulation, is used.

1.13 DELIMITATIONS

The population of the study was drawn from only the two (eThekwini and UMgungundlovu) municipalities in KZN selected, and other municipalities which do not fall within this region were not considered.

1.14 LIMITATIONS

A perception by respondent that completing the questionnaire was a waste of time, and a reluctance to disclose sensitive information may have been restricting factors in obtaining data for this study.

To address these issues, respondents were allowed seven working days in which to complete the questionnaire, which should have allowed sufficient time for the document to be read, and appointments were arranged to collect completed questionnaires at a later date.

To counter any problems regarding privacy and security, anonymity and confidence were guaranteed in writing; and an assurance given that the personal details of respondents would not be divulged.

1.15 VALIDITY

According to Sekaran (2004: 82), validity ensures the ability of a scale to measure an intended phenomenon. Kumar (2013: 48), moreover, states that the procedure for gathering relevant evidence to uphold or fail to support a particular interpretation of test scores, is referred to as validation, and validity is therefore the ability of an instrument to measure what it is designed to measure.

To ensure validity, the questionnaire responses were carefully examined in order to ascertain whether they in fact represented the research expectations through closed- ended questions used for this study. Space was provided following each open-ended question as a means of inclusion, and in order to obtain appropriate information from the questionnaire used to collect data.

The questionnaire was pre-tested using a pilot study to establish the credibility of the findings. Two approaches are proposed by Kumar (2013) to determine the validity of an instrument: the establishment of a logical link between a research objective(s) and the questions used in a research instrument, and also the use of statistical analysis to demonstrate this link (Kumar 2013: 80).

Measuring instruments produce numerical scores, with the interpretation of such scores being of critical importance, where these may or may not be valid. Participant names were not required, and dummy names were substituted,

which built confidence in participants to provide honest responses to the questionnaire.

1.16 RELIABILITY

The term reliability implies that the instrument used for the study, including the researcher, can consistently or repeatedly obtain the same results (Leedy and Ormrod 2010: 35; Kumar 2013: 48). Reliability is enhanced by carefully piloting the questionnaire.

To ensure reliability, the research instrument was edited by the researcher's supervisor, and checked by a language specialist and further confirmed by the institutional faculty research committee.

Questionnaires were distributed at the same time to the target population with the support of the research assistance as well as the researcher; this was to ensure data consistency and trustworthiness. The Instructions on the questionnaires were the same and consistence throughout the questionnaires.

1.17 ANONYMITY AND CONFIDENTIALITY

Non-disclosure of the identity of all respondents is ensured, with assurances given to participants that information obtained from them will be used for the intended purposes of this study only, which is for social benefit. The identity of respondents will be protected, and stored information of any kind – electronic or hardcopy – will be retained by the researcher for three years, and will thereafter be destroyed.

1.18 ETHICAL CONSIDERATIONS

Bloomberg (2007: 76) emphasises that, for the most part, issues of ethics focus on establishing safeguards to protect the rights of study participants, and include: informed consent; the shielding of participants from harm; and the ensuring of confidentiality.

The researcher is committed in keeping the names and other significant identifying characteristics of the sample population confidential. In addition, all participants were fully informed regarding the purpose of the study, the confidentiality of their responses, how the results were intended to be used, and who will have access to them.

According to the ethical considerations which must be considered in conducting research (Bloomberg 2007:64), harm may broadly be defined as including extreme physical pain, or death, but also involves such effects as psychological stress, personal embarrassment and humiliation, or a myriad of other influences which may adversely affect participants in any significant way. Participants were provided with consent forms containing all details and background for the study.

1.19 STRUCTURE OF DISSERTATIONCHAPTERS

Chapter One: Introduction– This chapter provides an overview of what the research entails, such as the problem statement, the rationale for the study, the research questions, and the study's aims and objectives.

Chapter Two: Literature Review– This chapter deals with a review of the various theories, concepts and models relevant to the study available, and ends with a conclusion, reached on the basis of the literature reviewed.

Chapter Three: Research Methodology– This chapter describes the overall approach utilised in the research process, from its theoretical foundations to strategies used in the collection and analysis of data.

Chapter Four: Statement of Findings, interpretation and Discussion– The findings from the primary research and data analysis are provided in this chapter. The discussion given constitutes mainly the study findings, and attempts to link these to the secondary data presented in Chapter 2.

Chapter Five: Conclusions and Recommendations –The conclusions and recommendations of the study are presented in this chapter.

1.20 CONCLUSION

The main aim of this study is to identify factors which influence the practicing of SCM in the municipalities of KZN, South Africa. The conclusions drawn from the study are informed by data obtained from the questionnaire administered to officials at the eThekwini and UMgungundlovu District Municipalities.

This chapter outlines the study's objectives, as well as giving a brief summary of the research design and methodology used for the dissertation overall.

The study's literature review, relating to factors which influence the effectiveness of SCM, is presented in Chapter 2.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

For the purposes of this study it is important to understand that SCM is referred to as one of the core functions of municipalities, and over the years' municipalities have made it their mission to offer goods and services in a cost-effective, reliable, fast and transparent way (Kateja 2012).

Extensive literature exists, however, which covers historical changes in the supply chain industry (IMF 2013), although the adaptation of supply chain polices in municipalities has led to difficulties in the bidding, tender, sourcing, distribution and production processes for the customer (Ahmad 2016:76).

Moreover, following the adoption of democracy in South Africa, local government has had to address those inequalities in service delivery performance which remained in the aftermath of the apartheid era, especially within black communities (Batra and Kalia 2016:921), where some municipalities were rehabilitated in terms of infrastructure after the introduction of democracy due to being under-developed (Alikhan and Ali 2016:52). Within the spectrum of government, it is also safe to conclude that municipalities are the largest procurers with regard to the delivery of goods and services (Bătrâncea *et al.* 2013:298).

The South African government and its structures plays a crucial role in contributing to the country's Gross Domestic Product (GDP) (Ben-Caleb *et al.* 2014:81) through its consumption of goods and raw materials, and more focus has recently been directed to how government spends, and regulates it spending, which has resulted in more attention being directed to the provision of products, goods and services (Bent 2014).

Despite the fact that SCM has been in existence for a very long time, it has only been in the past few decades that it has begun to be treated as a fundamental component of strategic business management (Afdev 2013).The South African government should, hence, focus on the procuring of goods and services using fair, cost-effective and competitive means, through a properly implemented SCM system (Argandona 2012:5), and, as such, SCM remains one of the South African government's macro-policy agendas, which include LED, increased employment, and the equal distribution of wealth (Bharthjavan 2014).

This chapter reviews relevant literature on key areas covered by the study, and entails a critical assessment of available sources in literature which have a bearing on successful SCM. With a focus on the objectives and theoretical thresholds of the study, this chapter reviews contemporary and related literature on the concepts and factors affecting the management of supply. The chapter also looks at the benefits of well-managed supply chains, since from this it can be established that implementing SCM in municipalities effectively can assist them in putting their houses in order.

2.2 DEFINITION OF SUPPLY CHAIN MANAGEMENT

SCM concerns a complex, dynamic and growth-oriented approach to competitive management developed in response to the phenomenon of globalisation, which has brought with it both uncertainty and change (Lee 2008: 196).

SCM is concerned with the management of supply chains, its aim being to achieve reductions in cost, and improved customer service (Assey 2012: 94). SCM also refers to the management of activities within supply chains in order to maximise the value derived from it by customers so that sustainable competitive advantage can be achieved (Handfield 2011). Furthermore, SCM is a mechanism which is used to enable policy implementations by government (Fuzile 2015).

However, also falling with scope of SCM are the purchasing of materials, the transformation of those materials into finished products, and the delivery of finished goods to final consumers, which accounts for why SCM is often referred to as a “plan, source, make and deliver” process, or a supply chain operations model (Swink *et al.* 2011: 42).

Hopp (2008:1) explains SCM as being comprised of those processes in network form which are goal-orientated. Stock and Boyer (2009: 706) further describe SCM as a process involving the management of groups of connections; i.e. per organisation, and also across many units of businesses and organisations operating interdependently.

The efficient and effective implementation of SCM is considered challenging, and greater understanding of its elements is therefore required (Heikkila 2012: 752). However, SCM is usually focused on the management of supply chains, which includes all other participants for the supply of specific goods or services, originating at the very core of businesses (Frohlich and Westbrook 2015: 187).

Yet another factor which needs to be considered as part of SCM and its networks is that of competition, and which results in SCM being viewed as part of the core competencies of businesses formulated to enhance their competitive advantage (Rasheda *et al*. 2000). Nonetheless, SCM refers to the planning, design, execution, monitoring and controlling of all activities involved in supply chains so that value can be created, competitive infrastructures built, and influence exerted on worldwide logistics, whilst also ensuring that demand is matched with supply, and global measurements of performance are met (Heikkila 2012: 752).

Moreover, SCM is a collaborative approach in businesses and organisations, which consists of different supply chain role-players who contribute significantly in ensuring that product quality is improved, lead times are shortened, and responsiveness in the supply chain is increased, all at a lower cost, and with

improved levels of customer satisfaction (Bennet and O'Kane 2006; Humphreys *et al.* 2007; Lockström *et al.* 2009).

SCM is therefore one of the most intellectually and practically important themes in current research regarding management and the economy (Hugo *et al.* 2004:367). However, practitioners within supply chains can, according to Saman (2012), become so distracted by the tactical demands assigned to them that they end up failing to comprehend and control the SCM processes' more strategic aspects (Saman 2012).

Saman (2012) further explains that it crucial for both supply chain practitioners and the organisations they serve to place more emphasis on comprehension of supply chain developments in order to ensure that value is added by their efforts in the larger economic context (Lambert 2014: 25).

In addition, SCM aims to bring suppliers, manufactures and retailers together in order to facilitate in the production and distribution of products in appropriate numbers, to the correct places and at the right times, in a bid to curtail system-wide expenses, whilst simultaneously satisfying service level requirements (Thakkar 2013).

2.3 THEORETICAL FRAMEWORK FORSUPPLY CHAIN MANAGEMENT

The term SCM was proposed more than thirty years ago, and can be explained as the organised and tactical amalgamation of functions within organisations which increases the value of products (Fawcett 2008).However, this ranges from the supplier to the end consumer, with the goal of benefiting both consumers and other stakeholders, and SCM therefore also refers to the incorporation of supply and demand, since it includes consumers, suppliers, intermediaries and other third parties (Isatto and Formoso 2011: 14). Moreover, SCM involves input from every stakeholder in organisations, from directors, managers, creditors, and suppliers to, ultimately, even insurance personnel (Bent 2014).

Eight business processes – reverse logistics; product development; commercialisation; supplier relationships, manufacturing flows; order fulfilment, demand management; customer service; and customer relationships – are required for the successful collaboration and coordination of manufacturers and customers in SCM (Fawcett and Blanchard 2013). The three main components administered by SCM are therefore: manufacturing; operations; and logistics (Isatto and Formoso 2011: 11), based on the modern concept of SCM, which found its origins by adoption in the private sector from the beginning of the 1980s onwards (Alfalla-Luque and Medina-Lopez 2009:202).

WhileAlfalla-Luque and Medina-Lopez (2009) agree with earlier definitions, and regard SCM as playing an important role in production, whereby organisation need to make use of supply chains to allow for the acquisition and storage of raw materials, and subsequent storage and distribution of end products (Muńuzuri *et al.*2005: 15), the emergence of the concept of SCM has also evolved from more functional areas, such as marketing, finance and operations production management (Badenhorst-Weiss *et al.* 2004:3).

2.4 THE IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

Businesses and organisations place much of their focus on strategies aiming to maximise the effectiveness of their operations, based on an attempt to satisfy customer demands (Treville *et al.* 2014: 627). Nevertheless, this came about through an emphasis on the efficient use of resources, and on ensuring that value for money was increased (Green *et al.* 2012: 290).

Supply chains have, however, evolved over time, and this has altered the ways in which businesses operate, leading to the delivery of products and services which are of more value to customers, due to the more cost-effective and improved business methods adopted (Hansmann and Claudia 2001). However, SCM, by its nature, is lent to ensuring that the best results are achieved through increased competitiveness and efficiencies (Ogunlela 2016: 33).

Dinter (2012) states that, this means that in order for business companies to be fit or effective, they need to adopt techniques that will improve their performance. Whereas the conditions mentioned do not simply enable efficient suppliers who understand customers, they also require that there is sustainability in the products organisations produce (Heikkila 2012: 747). However, it is also explained by Ogunlela (2016) that SCM can be of value in such activities as ensuring the availability of products and services, cost reductions, and improved responsiveness to meeting the demands of customers.

Moreover, these considerations have caused more organisations, both public and private, to formulate SCM practices focused on ensuring that relationships which develop the sustainability and viability of the economy as a whole are initiated.Such relationships include those which exist between suppliers, customers and organisations (Frohlich and Westbrook 2015: 187).

Businesses and enterprises have increasingly been compelled to make investments in, and concentrate on, their supply chains due to the emergence of products with shorter life cycles, greater competition now prevalent within global markets, and also increasingly complex customer expectations (Dillman 2007). The continuous evolution of supply chains, and of the techniques which manage them effectively, have been motivated to a large extent by developments in transportation and communications technologies (Cooper 2011).

Historically, raw materials were purchased and products produced at factories, which would then be shipped to warehouses for storage, from where they would from then be distributed to retailers (Das *et al.*2012: 564). Effective supply chain strategies must now, in addition, take into consideration the relationships which exist at various points within the supply chain in order to decrease cost and improve service levels (Dinter 2012).

The processes of SCM have been generally discussed amongst academics, and it can thus be seen as a technique which is effective as regards the creation of fruitful relationships and understanding between stakeholders in chains of supply for satisfying consumer demands (Croxton *et al.* 2016: 17).However, the products obtained from a style of SCM that is effective are outcomes of competition and efficiencies occurring at various stages of supply chains in which availability, flexibility, and value for money remain priorities (Gilaninia and Raya 2013).

Processes established to respond to competition and efficiency rely on effective decisions for the procuring of supplies, and in considering the weight of activities required to ensure that goods and services are tailored to satisfy customer needs, they thus form the basis for a resulting SCM that is successful (Dillman 2007).

Businesses, companies and organisations should therefore aim to implement methods which could attain results from SCM that are of value, grounded on interaction of the chains of supply, lower costs and better services (Ogunlela 2016: 33). In the South African public purchasing, moreover, the act of purchasing goods and services should be conducted in a manner which is both transparent and cost-effective (Fawcett and Magnan 2010).

The processes included in the procurement of the goods should therefore be grounded in fair decisions which consider consumers, and also that products remain affordable, especially with regard to competing suppliers that are differentiated (Gilaninia and Raya 2013).

2.5 THE CONCEPT OF SUPPLY CHAIN MANAGEMENT FROM AN INTERNATIONAL PERSPECTIVE

The definitions given of SCM show that the subject is also informed by the field of logistics management (Ader *et al.*2008), a study of which indicates that the

theoretical perspectives on the connections between businesses, manufacturers, consumers and other internal operations, remain in debate. The goal of such debate is to identify any early advancements which can assist in providing definitions for SCM based on those common perspectives identified in the past (Lonngren *et al.* 2010: 404).

The concept of SCM was recognised when identified and developed by Hamilton during the 1980s. Debates were initiated aimed at investigating strategies for prioritising the internal functions of business, such as manufacturing and distribution (Das *et al.* 2012: 564). However, this development required that organisations formed comprehensive strategies in order for any difficulties encountered to be addressed, and also for more effective methods of conducting business to be established. It is believed that these views were lent impetus by advancing trends of a business nature.

SCM theory was augmented when Houlihan (1985) then integrated coordinated decision-making, and the sharing of information across various levels, from the highest to the lowest, into the supply chain (Šerić *et al.* 2014: 31). This is an indication that, due to more comprehensive strategies being introduced, correct coordination and incorporation were found to be lacking in serving organisations to react appropriately to the demands of their consumers.

The needs of organisations began to expand during the1990s, and this motivated SCM to grow as well, since it then assumed a major role in the business strategies of many companies (Ivanov *et al.* 2013). Moreover, the era was characterised by further developments, whereby SCM was embraced as a practice of businesses in which they gained competitive advantage as an outcome of synchronising the sharing of information and flow of materials at all stages of production (Ivanov *et al.* 2014: 2154).

What can be seen is that in order for businesses to be successful when faced with increased consumer demands, strategies had to be formulated to ensure

that supply chain activities and organisational objectives were streamlined. SCM thus played a major role in creating competitiveness between companies in their reaction to the demands of consumers (Ivanov *et al.* 2015:1).

SCM strategies within organisations are, furthermore, important for ensuring that the efficiency of supply chains is maintained, and these strategies consist of elements which include both production activities, and the building of relationships through the planning and sharing of information at all production levels or stages (Croxton *et al*. 2016: 17).Croxton *et al.*, moreover, explain it as noteworthy that effectiveness and efficiency in operations for managing the flow of resources is means to achieving good partnerships within supply chains, and each component should be included in the chain which sees the transformation of materials into finished products ready for consumption (Lonngren *et al.* 2010: 404).

Whereas it is proposed that SCM relies on relationships which exist between businesses, consumers and suppliers for the fulfilment of consumer satisfaction, its role is as a necessary part of management technique (Makgoe 2014). The results of this is that suppliers are seen as vital players in the industry with regard their role of making services and products available, and which finally meet the needs of customers.

Also indicated is that SCM does not consist of separate entities, but is rather a technique which incorporates and joins organisations together, but differentiates the operations of the supply chain and associated networks into a separate system so that efficiency can be attained. The relationships which exist between businesses, manufactures and consumers are therefore the building blocks of an overall incorporated system (Croxton *et al*. 2016: 17).

The management of supply and demand for businesses should therefore be incorporated so that the relationships which exist come into effect (Lonngren *et al.* 2010: 404). Nonetheless, this perspective is not contrary, but rather allows

for deeper insights into those operational activities included in SCM processes which make it successful (Bolek 2014:1). The topic, moreover, appears to be complex, since it attempts to demonstrate the connections which exist between the various SCM components (CIMA 2011:5).

2.6 SUPPLY CHAIN MANAGEMENT IN THE SOUTH AFRICAN CONTEXT

Supply chains include internal processes which should occur in the manufacture of products and which match the requirements of customers The production process cycle is identified as consisting of new customer orders, the refilling of existing orders, goods production, and the retail cycle, each of which interpose at various phases of the supply chain (Danese and Romano 2011: 224).The chain of supply is, however, sometimes not required to include all of these elements, depending on the nature of the products being produced, and also on the needs of the industry (Hulland 2009: 198).

Internal auditing is an independent, objective assurance and consulting activity designed to add value, and improve on organisational operations. Such auditing assists organisations to accomplish their objectives by bringing a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, control and governance processes (Li *et al.* 2017:41).

Whereas internal auditing is intended to provide management with an independent assessment of the quality of their internal controls, administrative processes and the extent to which they are effectively running their organisations, it is also expected that internal auditing coverage should extend beyond merely these internal controls, and also includes providing assisting in developing a systematic and disciplined approach to both risk management and corporate governance (Bulgarian National Bank 2016).

Treville *et al.* (2014: 627) state that, generally, the processes for the SCM cycle begin with consumer demand for a specific product, which prompts retail businesses to refill their supply of finished products as demand for them grows.

Pressure is also placed on suppliers to deliver manufactured goods, which have been requested in the purchasing cycle, to these retail businesses. The cycle, as explained, keeps repeating itself with a concomitant and an ongoing increase in demand (Fuzile 2015). Each process contains other sub-process which occur in order for the cycle to continue, and for products to finally reach consumers (Naslund 2012).

The sub-processes mentioned should eventually attain a level where continuous delivery of products occurs, also taking cost into consideration, and placing part responsibility on suppliers to be able to match supply to demand (Jabbour *et al.*2014: 139). As stated by Nieman (2008), communication is, additionally, vital for the success of sub-processes in the supply chain cycle. However, many factors also need to be taken into consideration, such as where the final product is to be stored, or delivered to, as indicated by Watson (2014), and the cost of sub-letting (Wu and Hsu 2009).

Those involved in sub-letting should, nevertheless, also consider all related health issues, as observed by Lambert (2014). Smaller municipal contracts are, however, awarded to the same contractors who supply the products they require, since not many contractors in reality supply the overall needs of smaller municipalities (3SMedia 2013).

2.7 BENEFITS OF SUPPLY CHAIN MANAGEMENT FOR THE SOUTH AFRICAN ECONOMY

Endorsed by Sections 3(1) and 3(2) of the regulatory framework for the management of supply chains, and by the provisions of Section 38 of the Public finance management act (PFMA) of 1999, is the appointment of accounting officers, which is thereby made both an obligation and responsibility for the development and implementation of efficient and effective SCM for the acquisition of goods and services by municipalities, These provisions also regulate the letting and disposal of state assets, including the disposal of no longer useful products (Jenster and Søilen 2013).

The goal of SCM is, however, to develop or build trust and collaboration between the partners in supply chains, which thereby improves the visibility of inventory, and also the speed of inventory movement (Ogunlela 2016). Ogunlela moreover explains that, in circumstances which are considered normal, the main goals of a company involve enhancing revenue flow, controlling cost, the optimal utilisation of assets, and also the improvement of customer satisfaction (Søilen 2010:200). However, this focus is generally supplanted in individual businesses and organisations by how best companies or their supply chains can perform in order to achieve their objectives by creating greater final value for customers (Forslund 2010: 351).

SCM is therefore a concept whose effective use is extremely important to the success of businesses worldwide, and which integrates additional assistance in achieving cost reduction (Flynn *et al*. 2010: 58).

It is also widely acknowledged that the management of supply chains is an inclusive part of many businesses and organisations, and is important for the success of companies, and the satisfaction of customers. SCM has a crucial role to play in the moving of goods to their destinations in speedier ways (Danese and Romano 2011:220).

Whereas SCM is important because it creates service delivery of a high quality, it is increasingly possible that its use can also provide significant improvements in the welfare of South African citizens, most especially of the poor, who strongly depend on the support provided by government (Sabanovic and Søilen 2012). In addition, differing approaches to the supply of commodities utilised by various sectors can take place as a result of innovation; for instance, e-learning in both secondary and primary schools can be facilitated by the purchasing and deployment of electronic equipment (Søilen 2012:308).

The movement of equipment or materials along supply chains is the core of any such chain, because they are focused mainly on forging competitive advantage by the provision of outstanding customer service through the effective delivery of goods. Company are thereby able to differentiate themselves from their competitors, and promote both present and future profitability by the balancing of costs and service levels (Hugo and Badenhorst-Weiss 2011).

Whereas a need exists to implement fundamental institutional reforms so that ideals for good governance can be achieved in the addressing of SCM deficiencies (Forslund 2010: 351), those reforms required to facilitate provisioning and procurement in systems which are both efficient and effective should also enable government to provide quality and quantity in the services required of them by society (Trebilcock 2016).

The strategy of managing supply chain effectively also generates revenue, and SCM therefore becomes the platform which allows organisations to leverage advantage over their competition, that is achieve competitive advantage (Kolbe *et al.* 2010).

SCM strategies, however, often positively direct the capabilities of organisations, which include speed of response, flexibility and cost efficiency, and the correct alignment of the capabilities and strategies of organisations therefore also assists in performance enhancement (Hill 1995; Fisher 1997; Wagner *et al.*2014: 340).

2.8 SUPPLY CHAIN MANAGEMENT PUSH AND PULL STRATEGIES IN SOUTH AFRICAN MUNICIPALITIES

A perspective of the processes with which the supply chain is considered to begin is that occurring at the start of the period taken to react to consumer orders (Fuzile 2015). Differences are, furthermore, shown to exist between pull and push strategies applied to supply chain processes, based on the level of reaction to product demand from customers. The primary push process involves

the approach of production being driven by the manufacture of products, with the goal of this being to refill retail inventory (Heikkila 2012: 752). However, this means that the decision to refill orders is determined by the availability of stock which already exists, and for this reason this has been referred to as a speculative process (Hulland 2009: 198).

Pull processes are fuelled predominantly by the demands or needs of customers. Unlike push processes, where stock is produced in response to demand, pull processes involve manufacturing goods to order, and therein lies uncertainty, because stock is kept to minimum or is even completely depleted, due to this being considered a reactive process (Gilaninia and Raya 2013).

However, an explanation of push and pull processes which considers the complexity of the needs of consumers is of a vital importance in the creation of supply chains, and also in ensuring that they operate efficiently (Lambert 2014: 25).Furthermore, this implies that a higher level of comprehension of the final outcomes of effective SCM is required in order that the theoretical objectives and practical views commonly presented in the literature dealing with this subject can be positively combined (Lambert and Knemeyer 2014: 118).

2.9 FACTORS CONTRIBUTING TO THE SUCCESS OF SUPPLY CHAIN MANAGEMENT IN SOUTH AFRICA

A variety of factors can contribute to the success of supply chains, and these include: government support; product innovation; economic globalisation; and the introduction of new information technology (Bowersox 2010).Moreover, those factors already mentioned may also negatively impact on the management of supply chains (Kolbe *et al*. 2010).Nevertheless, many studies have been carried out concerning the subject of successful SCM, and this study assists in addressing factors affecting SCM by proposing those which contribute primarily to its success (Koh 2011).

Furthermore, it is difficult to propose and then also operate a supply chain in such a way that total system-wide expenses are reduced and system-wide service remain static. Hence, operating a single facility such that costs are minimised and service level maintained is generally considered difficult to achieve (Croxton *et al*. 2016: 17). Moreover, when an entire system is actually considered, the difficulty in operating it successfully increases exponentially when compared to only a single part of the overall system, and in such cases global optimisation is usually considered the best process for finding an optimal system-wide SCM strategy (Dinter 2012).

Every supply chain has its attendant uncertainty and risks, such as where customer demand can never be exactly forecast, where machines and vehicles break down, and where travel times can never be ascertained with certainty (Croxton *et al*. 2016: 17).

Recent industry trends used to reduce supply chain costs, however, significantly increase their attendant levels of risk, which include those areas of risk associated with outsourcing, offshoring and lean manufacturing. Supply chains need to be designed in such a way as to eliminate risk as much as possible, while also dealing effectively with any uncertainty regarding possible further exposure to risk which remains (Thakkar 2013).

2.10 MUNICIPALITIES IN SOUTH AFRICA

2.10.1 An overview of municipalities in South Africa

Municipalities are regarded as organs of local government exercising legislative authority within the mandate of the statutory laws governing them (Iweala 2014), and are, moreover, required to prepare their own IDPs for their regions (IDPs) (Afmeasur 2013).

IDPs are intended to assist in the transformation of local government by the management and development of jurisdictions (Fuzile 2015), and integrated development is therefore the primary component in facilitating the principles of

development for local governments (Awodele *et al.* 2010). To a certain extent, the council for eThekwini municipality has, from time to time, delegated or shared authority with municipal managers in terms of the preparation of such plans (3SMedia 2013).

It is, however, critically important to understand that municipalities must ensure that their programmes remain aligned with their budgets (Sean 2014). Municipalities are required to deliver on meeting the needs of communities through their IDPs (Anand *et al.* 2012: 101), although this requires that they also remain answerable to the Auditor General when making commitments to programmes and budgets which are overseen by this authority (Ballantyne *et al.* 2013: 93).

2.10.2 Challenges to supply chain management in municipalities

The term SCM can be defined as procurement, which is accompanied by planning, pricing, stock management, distribution of goods, and the provision of services, where, if these elements are dealt with appropriately within organisation, they can contribute to enhancing organisational service delivery performance (European Commission 2013).

Municipalities which practise and follow effective and documented SCM systems deliver their goods and services to consumers in the most effective was possible (European Commission 2015).Moreover, the SCM process can free municipalities of favouritism and corruption, since communities may thereby become involved in all areas of service delivery (Gammelgaard 2015: 333).Other areas where corruption occur are in the reshuffling and appointment of personnel, and retirements., and this is identified in municipalities following the implication of municipal employees (Ambe and Badenhorst-Weiss 2012). Proper SCM enhances the competitive abilities of municipalities with regard to the activities carried out by other municipalities (Gatta and Marcucci 2014: 248).

SCM can also be used to improve standards of living through the provision of schools, universities and hospitals. Croxton *et al.* (2016) emphasise that government is scrutinised by its citizens, which can lead them to provide better services. In a bid to stay in power, politicians also try by all means to provide services to those who vote for them (Azkunaga *et al.* 2013:79).

In addition, the literature indicates that SCM has a positive impact in terms savings on operational costs, with a significant 25 percent achieved from savings and improved public relations (Janjevic and Ndiaye 2014:284). Such savings in operational expenses can then be used for other purposes within organisations (Quesada *et al.*2014).

Many challenges face municipalities in attempting to implement and manage SCM. According to Boateng (2008), these challenges arise as a result of the need for long-term quality service delivery by the municipalities. The NT (2015) observes that municipalities are constantly faced with allegations of favouritism and corruption, which inhibit effective SCM, in those contracts are awarded to people or organisations unqualified to receive them, either due to nepotism, or because of bribes received. To combat corruption, the NT established the positioned the Chief Procurement Officer, which demonstrates government commitment to timeous quality service delivery to those who most deserve it (Ambe and Badenhorst-Weiss 2012).

Ellram and Cooper (2014) suggest that SCM should be given greater strategic status, and not fall under the auspices of the Ministry of Finance while a lack of proper municipal structures, skills and experienced personnel remain amongst the challenges facing municipalities (Review 2015).However, many municipal contractors who default on delivering goods and services have not been held accountable (Szołtysek 2005),and government employees who default are not penalised, but are instead often simply reassigned to other departments. There is therefore an urgent need to eliminate corruption within municipalities (Taniguchi and Tamagawa 2005:3062), and repercussions should also be felt

by those not willing to play their part in contributing to the public good (NT 2015).

Ambe and Badenhorst-Weiss (2012) furthermore observe a lack of proper controls and procedures for the handling of bids, and also the appointment of municipal personnel. Boateng (2008), moreover, notes that municipalities fail to develop long term strategies for quality service delivery, which is mostly a consequence of the lack of skilled human resources, either because those available lack appropriate work experience, or are completely unqualified.

Top municipal authorities hold much power, which they can abuse by appointing relatives or friends or employees who are not competent or qualified to municipal positions. The NT (2015) confirms this by stating that allegations of corruption are rampant within municipalities, which hinders the effectiveness of their SCM. It has, additionally, been noted that the administration of SCM falls under the control of Finance Ministry, which leads to other public organisations feeling excluded or undervalued.

Ellram and Cooper (2014) indicate that guidelines and principles should be laid out in order for SCM to be given greater strategic status as a discipline, and also that SCM should not fall under the control of the Finance Ministry. Lack of clarity concerning the roles and responsibilities of technical staff and political office-bearers creates additional scope for interference, and gives rise to allegations or instances of corruption (Fuzile 2015).

While the municipal system contains many highly-skilled people, competency assessments have shown significant gaps in SCM skills and knowledge (NT 2015).Moreover, although many municipal SCM actors are known to have attended a variety of SCM training workshops, they still lack the appropriate knowledge for its proper implementation (McQuoid *et al.* 2015).Therefore, despite the National and Provincial Treasuries embarking on programmes

designed to educate SCM practitioners, implementation of its programmes always appears to fall short (NKF 2012).

Ambe and Badenhorst-Weiss (2012) observe that inadequate controls and procedures exist for the handling of bids, and for the appointment of bid committee members, which is not aligned to policy requirements, and where insufficient motivations are provided for the elimination of deviations from SCM procedures. Municipalities are, moreover, frequently faced with the problem of under-spending on public-sector service delivery, which leaves both organisations and individuals struggling, even though funds have been budgeted and distributed to municipalities by central government (News 2015). All of these factors therefore remain challenges which continue to confront municipalities and their officials (Neutens *et al.* 2011).

Whereas municipalities are responsible for identifying, evaluating, sourcing, negotiating and reporting on goods and services prior to appropriating them (Lindholm 2010: 6205), the time allocated to delivery of goods to consumers is often limited. Implementing SCM can effectively assist organisations in addressing cash flow problems (Ellram and Cooper 2014), which can arise as a result of slow or delayed manual processing of invoice reconciliations, transactions, and unpredictable cash inflows (Commercial Solutions 2015).

Hindrances of time to the effectiveness of municipal SCM, however, remain, such as the excessive periods taken in providing goods and services by public organisations (Lindholm 2012: 134). Moreover, the time taken from when tenders are won to when citizens are supplied with required services is generally over-long (Lindholm 2014:125). Organisations still favour imports which require payment in foreign currencies, however, and itis frequently uncertain whether the raw materials obtained and used could be harmful to lives of citizens, or to the environment (Lindholm and Ballantyne 2016: 66).

Social factors, such as religion and culture, also remain issues for South African municipalities. The “bull-whip effect” on end-consumer demand, which is caused by arise in the demand for goods and services from municipalities, may also lead to suppliers increasing their goods prices (Rajesh 2011). Consequently, it must be understood that suppliers often take advantage of the demand for goods and services, and, driven by the need to be seen as managing SCM effectively, officials can sometimes distort information regarding its perceived success. An example of this is where an increased consumption of 7 percent causes retailers to increase their ordering of products by 10 percent, thereby fuelling a distortion in information of the need for such goods (Lindholm and Behrends 2012: 129).

2.10.3 Municipal infrastructure in South Africa

Municipal infrastructure in South Africa is broadly defined as the works and capital required to provide or deliver municipal services to the communities (Ambe and Badenhorst-Weiss 2012). Municipal infrastructure encompasses every activity necessary to ensure the effective delivery of public works; for instance, feasibility studies, project planning and capacity building in the establishment of effective operational arrangements (Division of Revenue 2014).

The term “works” is, furthermore, often assumed to exclude moveable assets, such as vehicles, which are specialised but related equipment, and also land, which is not directly required for the building of municipal infrastructures (3Smedia 2013). Whereas vehicles, which include conventional vehicles for hauling, such as trucks, are excluded from this definition, included are the electrical and mechanical equipment required for, amongst other things, wastewater removal and water treatment plants (Makgoe 2014).

Municipal infrastructure is important in the daily delivery of public works, as it assists in regulating the delivery of goods and services, such as refuse collection, the delivery of bills, and the collection and transfer of hospital

patients(Lindholm and Browne 2013:20).Municipal infrastructure is, moreover, an asset which enables municipalities to accumulate supplies and wealth, thereby enabling them to provide the services required in the areas in which they operate, and therefore needs to be preserved and used efficiently for the benefit of future generations (Dierickx 2005).

Municipal infrastructure is split into two categories: social infrastructure, such as schools, hospitals and universities; and economic infrastructure, which includes infrastructure supporting local economies, including those networks used to support the delivery of services, such as roads, and water and electricity to homes, communities and workplaces (Fuzile 2015). There have, however, been shortfalls in the provision and maintenance of public infrastructure, mainly due a lack of qualified personnel, such as the engineers and technicians available in the private sector. More effort should therefore be afforded to the promotion of public-private sector cooperation (Lee *et al.* 2008).

2.10.4 Fairness in Supply Chain Management at municipalities

Procurement is a vital activity in the successful delivery of municipal services in South Africa ,but has historically been used as a tool to allow discriminatory and unfair practises during the apartheid era (Bolton 2016).Chains of supply include the involvement of various parties, which participate in the provision of goods and services, to a level where the requirements of consumers are attained, by means of coordinated relationships and activities at their various stages (Evanschitzky *et al.*2007: 413).

The complexities of attaining the desired results in these various stages depends on the primary decisions taken regarding administration of the overall supply chain (Fawcett and Magnan 2010). Implied by this is that decisions which are fair and equitable should be made from the initiation of inputs, by the provision of raw materials, and which thereby also address issues of sustainability, as far as the stages of conversion and final outputs. Such decisions should, in addition, not be influenced by any rivalry which occurs

concerning areas of interest for parties in chains of supply (Rong *et al.* 2009: 109).

Effectiveness and efficiency are also outcomes provided for in planning supply chains, based on the quality of the products, and the value which is ultimately added to them for consumers (Fornell and Bookstein 2007: 440).Fairness is, however, only attainable if information is made accessible for all processes involved in public purchasing, and would ensure that all interested participants are allowed equal access to information regarding purchasing processes. In this way, value maybe enhanced, and unfair advantages removed (Rong *et al.* 2009: 109).

Fairness also provides room for openness regarding the sharing of information, which is important in curbing potential monopolies, and also ensures that the decision-making process is fair in considering the interests of consumers, without compromising the affairs and connections which exist between the parties involved, and without any of them developing an unfair advantage (Ogunlela 2016: 33).

2.10.5 Competition in Supply Chain Management at municipalities

According to Hazen and Byrd (2012: 32), those SCM practices which are successful take into regard the minimisation of costs derived from partnering with rival suppliers in the provision of any goods and services which aim at satisfying consumer needs. Hulland (2009: 198) explains that this indicates a company's competitive advantage depends in its ability to offer products of quality at affordable prices, and with optimal performance in ensuring there is product accessibility which is both faster, and more flexible.

According to Evanschitzky *et al*. (2007: 413), competition is of a major factor driving organisations to offer products and services which are increasingly value-added and efficient. Competition in purchasing can have desirable consequences, such as increased access to information, the attainment of

lower incremental costs, and the lowering of costs over time. Competition in SCM could also be considered a motivation for innovation, since it provides such positive outcomes as cost reduction, efficiency and effectiveness (Ha *et al.* 2011: 69).

The competitiveness of businesses and organisations is connected to their ability to offer products of quality at prices which are affordable by comparison to those of their market rivals (Somuyiwa 2010: 29). This means, however, that chains of supply should be able to reliably contribute to the improvement of delivery performance in reaction to the dynamic of the environments in which businesses operate, without affecting the quality of their products (Rong *et al.* 2009: 109).

Whereas the goals of effective SCM should include the ability to achieve early deliveries of quality products with minimum cost, this also implies that what customers expect can actually affect how supply chains perform in consideration of the service or product types being provided, and also their attendant costs. An important aspect of effective SCM is, therefore, that suppliers are able to implement cost-lowering initiatives by streamlining their production, and other expenses overtime (Shin *et al.* 2012:102).

Initiatives such as these would be of mutual advantage to both businesses and suppliers, since the method used in many purchasing systems relies on a minimum price-bid. In some instances, however, purchasing decisions are not built solely on the factor of price, but may also consider speedy delivery at an overall higher expense to production cost (Seles *et al.* 2016:342).

Concluded from this discussion is that effective SCM can contribute great value to the outputs of companies and organisations, since it enables the relationships between suppliers and buyers to be successful in the achievement of flexibility and quality, which are issued generally resolved by product flow operations which occur in chains of supply. In other words, SCM can be

considered a crucial tool in providing effective measures for better organisational performance during the transformation of raw materials into finished products (McClelland and Brien 2011: 141).

Explained by Soni and Kodali (2010: 44), is that the total value found in businesses and organisation can successfully be maximised by the effective use of SCM. A comparison is, moreover, made by these authors between the value added by supply and demand, in which a link is established between the value of finished products and the value they have for consumers, in contrast to the expenses incurred in supply chains, which are caused by organisational reactions to the needs of consumers. A link between supply chain success and effective SCM is thereby definitely established (Quesada 2013: 35).

2.11 IMPORTANT FACTORS FOR SUPPLY CHAIN MANAGEMENT EFFECTIVENESS

Municipalities need to encourage good governance and up the rule of law within their institutions. Good governance allows communities to live in peace, and also favours transparency, especially with regard to how tenders are awarded (3SMedia 2013). The public SCM system is governed by clear regulations, which must be enforced, especially with regard to any interference from politicians. Most municipalities are lacking in terms of proper supervision, and little follow-up is performed to check whether proper provision of services is being performed; for an instance in refuse collection, where municipal workers are seen asleep in public parks during the afternoon, thereby wasting taxpayers' money, instead of doing their jobs (Schliwa *et al.*2015: 50).

SCM can therefore also ensure that suppliers don't become the focus for corrupt behaviour though tampering with pricing systems (Bent2014). Moreover, the National and Provincial Treasuries need to implement improved policies regarding the conduct of employees, and of other stakeholders in achieving their objectives (NT 2015).

Another important factor which the South African government is managing to phase out is that of the issues associated with historical apartheid practices, which include discrimination and favouritism. People who were once marginalised by these practices can now enjoy equal opportunities in the running of the country's economy (Rong *et al.* 2009). In addition, the Department of Trade and Industry must be commended for its "Proudly South African" campaign, which encourages the promotion of locally-manufactured goods and services abroad, as listed by the eThekwini municipality (2016).

The achievement of successful SCM affects all local municipalities which lack properly-planned procurement structures, because its correct implementation ensures that itis made difficult for public servants to avoid being held accountable for their actions and expenditures to both the government, and to the country's citizenry (Russo and Comi 2011: 81).

Contrarily, in the absence of effective SCM, tenders may fall into the wrong hands, especially where no channels for recourse are available to those, who are supposed to benefit from public service delivery, when they find themselves in need. Infrastructures will also degrade without proper SCM over time, because no accurate records are kept with regard to their maintenance (Russo and Comi 2016:1).

2.12 SUPPLY CHAIN MANAGEMENT AND EDUCATION

SCM, in the context of its use within South African municipalities, may be considered as a financial management tool which seeks to reform and regulate the manner in which public funds are utilised when procuring goods and services, especially whilst in pursuit of service delivery which is responsive to the needs of society as a whole, by curtailing any mal-administrative and fraudulent practices in procurement practices (Taniguchi *et al.* 2016: 5).

The NT, moreover, regards SCM as "an integral part of financial management that seeks to introduce global practise" (Sun *et al.* 2017:554). SCM is a tool

which can therefore be used to bridge the gap between traditional methods of procuring goods and services and the supply chain, whilst also addressing procurement matters of strategic importance to municipalities.

The use of SCM was adopted by the South African government in 2005 due to inefficiencies which arose in public procurement processes previously dealt with collectively under the Tender Board System (Weerakkody *et al.* 2016:658). Many irregularities resulted from this system lacing transparency on the parts of both government, and also of those entrusted with the supply goods and services to municipalities (Taniguchi *et al.*2001: 1).

The procurement reform process in the South African public sector was initiated by the introduction of the Preferential Procurement Policy Framework Act (PPPFA), No. 5 of 2000, which was directed at the promotion of the principles of good governance, and the introduction of a preferential system for procurement which also addressed the socioeconomic objectives of the government (Ngobeni 2011). The new system, however, resulted in a lack of accountability, and improper application and implementation of the PPPFA (Wall *et al.* 2012).

The purpose of the adoption of SCM in South African municipalities was to introduce internationally-accepted best procurement practice principles, while at the same time addressing governmental preferential procurement policy objectives (Office of Government of Commerce [OGC] 2005). SCM is aimed at adding value at each stage of the procurement process, from the demand for goods or services to their acquisition, the management of their attendant logistics processes, and finally, following use and where necessary, to goods disposal (Zailani *et al.* 2015).

In managing the procurement process, effective SCM needs to be used to address any areas of difference which exist in current practices relating to procurement, contract management, inventory and asset control, and obsolescence planning (Mkhize 2004). Demands such as these resulted in the

establishment of the position of Chief Procurement Officer within the NT, who is responsible for overseeing the monitoring and evaluation of the municipal procurement process. Such a move may be perceived as the South African government's way of demonstrating their commitment to quality service delivery (NT 2015).

In addition, communities should become more involved with regard to the delivery of anticipated public services. For example, when education and training camps are conducted by municipalities, citizens should attempt to participate in order to become more aware of tenders being carried out for their areas, and which benefit their communities directly (Witkowski and Kiba-Janiak 2014: 373). Moreover, when communities are made aware of tenders being put out by their municipalities, they can become involved in the SCM bidding and monitoring processes. SCM can therefore be considered an important concept in organisational environments, because it contributes significantly to adding value in the delivery of quality services (Agus 2011).

2.13 PLANNING IN SUPPLY CHAIN MANAGEMENT

Effective SCM is made up of independent variables, namely: sourcing; planning; quality; and timeous delivery (Aigbavboa 2010).The effectiveness of SCM can, moreover, be enhanced by the development of marketing plans, and also of methods for forecasting market conditions, where with prices from various suppliers should also be compared, and those with lower prices selected (Cousins and Menguc 2014).Raw materials purchased should be of high quality, and any applicable discounts given, and these factors must be considered for effective supply chain operation. In some industries, underutilised capacity, industrial planning, which includes planning for upgrades to machinery, must also be considered in order for supply chain effectiveness to be increased (Lin *et al.* 2013: 352).

Best corporate practices should, in addition, be maintained, and through analyses of environments, and related resources, planning for the link between

them can take place (Kumar 2013). Strengths, Weaknesses, Opportunities, Threats (SWOT) and analytical network Process (ANP) are examples of tools commonly used during the SCM planning process (Lin *et al.* 2013: 352).

While management is important to the development and administration of SCM, many municipalities still struggle with the challenge of failing to properly plan for, and remain within their financial budgets (Ambe andBadenhorst-Weiss 2011). Luyt (2008), furthermore, indicates that a need exists to properly monitor the delivery of services in order to ensure that scarce resources are efficiently and effectively procured. Poor planning and budgeting also affect the implementation of SCM, with the personnel assigned to running or conducting its processes often being unable to appropriately link the demand for services to the planning made for this in their budgets.

Quality management involves the administration of relationships which provide benefits to organisations in the long term, and also involves continuous improvement, through the use of a variety of quality control systems. Organisations favour suppliers who offer raw materials of high-quality, while also taking into consideration where these have been sourced (Rajesh 2011). Van Schaik (2011) further explains that continuous improvements also allow competitive advantage to be achieved by the integration and communication of quality management into SCM practices.

Furthermore, the activities of quality management, such as quality policies and planning, are extremely important for processes to become more efficient (Cousins and Menguc 2014). Quality control begins with raw material providers, since if the raw materials obtained are of high quality, the end products delivered should also be of high quality (Lyerk 2011).

Croxton *et al.* (2016: 17) furthermore affirm that business effectiveness and the sourcing of raw materials are reliant on one other. Companies generally favour suppliers who produce at lower cost, and this is how outsourcing decreases the

overall cost of production. Heikkilaj (2012) also argues that outsourcing occurs to those countries where labour and technological costs are lowest.

Contemporarily, countries in Northern America and Europe outsource most of their business production to countries in Asia, where labour is cheap. Heikkilaj(2012) also notes that taxation is often lower in such countries. In addition, for businesses and organisations to possess effective supply chains, they must decide whether to work with single or multiple suppliers, and parallel or delegated sourcing. Relationship management is, in addition, therefore very important in performing outsourcing needs assessments (Hulthen 2012).

Mahmood (2010) elaborates further that the main enemies working against effective SCM are corruption and favouritism. Many government tenders conducted in South Africa fall into the wrong hands because proper procedures are not being followed. Dubihlela (2013), additionally, maintains that in most developing countries responsibility for the sourcing of municipal raw material requirements ends up in the hands of either relatives or close friends.

2.14 TRANSPARENCY IN SUPPLY CHAIN MANAGEMENT

Communication with, and incorporation of, organisations that are not on the same level of the supply chain, are motivated by need to meet the demands of customers (Das *et al.*2012: 564). Dierick and Cool (2005: 1508), however, are of the view that one major drawback in the SCM process is that of ensuring that organisations involved in the production and supply of goods have the ability to react to particular needs, while, at the same time ensuring that any disruptive effects are prevented by maintaining good managerial coordination.

The debate regarding the implications of contemporary SCM models, which are more responsive than traditional models are anticipatory, mostly concerns advancements in the effective management of supply, chains (Dillman 2007).

Makgoe (2014) points out that, although there must be mutual understanding between suppliers and buyer, some buyers do not pay their debts on time, which causes suppliers to withhold their goods, and leaves buyers unable to meet their customer requirements. Cousins (2014) goes onto state that this affects those who are involved especially in “just-in-time” (JIT) businesses, such as florists, who do not have access to warehouses to store supplies should they require flowers on time to meet customer demand, and this can cause their business to suffer.

2.15 THE ANTICIPATORY BUSINESS MODEL

The traditional practices of businesses rely on predictions which anticipate future consumer demands; this is because insufficient sharing of information takes place between organisations relating to customer purchasing behaviours, and can lead to organisational plans and activities being wrongly influenced by incorrect predictions (Dillman 2007).It is also debated where the faults arise from exercises which include the forecasting of outcomes, and this can lead to planning of inventory processes being negatively impacted (Droge *et al.*2004: 557).

The problem of inventory being unreliable, however, leads to increased costs and levels of adversity for all trading partners (Danese and Romano 2011: 224).Another drawback of the anticipatory model is that the conducting of important work relies on expected future production requirements, as explained by Mahoomed (2007),and wrong information or poorly predicted forecasts can, moreover, lead to industries supplying more or less of a product than necessary, which may cause superfluous demand, or shortages, which cause retailers to increase prices, and which therefore also fuels inflation (Lyerk 2011).

SCM in the South African public sector is guided by the following principles: demand; acquisition; logistics; disposal; risk management; and performance evaluation (Mnguni 2012). Disposal, especially, needs to be performed correctly, as some chemicals, such as oil and clinical products, are harmful to

humans and the environment and require to be disposed of properly (Oil and Gas Industry 2015).

The anticipatory supply chain business model remains, however, an efficient way to lower costs by ensuring that the sharing of information with competitors and suppliers takes place and, through this interaction, the flow of material and supply of services, continues to occur within chains of supply, so that competition and efficiency can effectively be maximised and maintained (Danese and Romano 2011: 224).

The anticipatory model can be best applied in business environments which are highly predictable, with low margins of error in forecasting, and long-lived cycles for products, which emphasise their value and effectiveness, without frequently being having to be replaced by those which are new or better (Fornell and Bookstein 2007: 440). The characteristics shown by the anticipatory supply chain model can, therefore, lend consider stability and effectiveness to the flows of raw material and goods for organisations (Fawcett and Magnan 2010).

Evanschitzky *et al.* (2007: 413), however, consider that it often occurs that “lean” and “agile” strategies employed within the supply chain are regarded as best when used together in trade-offs against each other. This strategy can successfully be implemented by organisations, since in doing so, one concept competes with another, and not with businesses processes themselves (Dillman 2007). These trade-offs can be of great advantage if the best characteristics of each strategy employed are complimentary. Hence, benefits can be reaped if these models are applied in times when organisations face problems of increased demand for manufactured goods, and are required to implement counter-strategies which are more market responsive (Danese and Romano 2011: 224).

SCM models which allow companies to share information are given here in simple outline, based on the connections between their processes, and also the

duties which businesses adopt when responding to the demands of consumers in environments which are highly competitive (Lambert 2014).However, in order to properly comprehend the incorporation of the various links within supply chains, it is also necessary to look into all of the various available and possible processes, in order to differentiate their impact when placed in the context of entire chains of supply (Knemeyer 2014).

It has been mentioned that supply chains incorporate processes or activities to ensure the flow of materials, up to the point where these finally reach consumers as finished products, and which occur in a particular sequence (Fuzile 2015).Moreover, this indicates that there are various processes which are joined together in order for specific business objectives to be achieved, all of which are employed, as and when required, in order to respond to the needs of customers in a more efficient manner (Lambert *et al.*2014).Such activities are, however, usually not fragmented, and processes have been identified which also comprise both push-or-pull and cyclical factors. SCM is therefore regarded as having a significant impact on success of businesses and the economy where the focus is turned to its influence on the business performance of small to medium-sized enterprises (Dubihlela 2014).

2.16 DIFFERENCES BETWEEN SUPPLY CHAINS AND SUPPLY CHAIN MANAGEMENT

In a related study performed in Australia at anunspecifiedcompany,60 percent of respondents indicated that there was no difference in the way they perceived strategies used for supply chains and their actual management within their companies (Thoo 2011).

The design, planning, execution, control, and monitoring of supply chain activities occurs with the objective of creating nett value, building competitive infrastructures, leveraging worldwide logistics, synchronising supply with demand, and measuring performance globally (Lambert 2014: 25).

The components of operations strategy should, however, also be regarded in light of strategies formulated for supply chains, in addition also to global considerations, regulatory compliance, product sustainability, reverse logistics, customer systems, and the synchronisation of business activities (Cooper 2011).Moreover, the fundamental difference between the two is that, while supply chains exist within the occurrence of events and procedures, SCM is a means for laying out methods and procedures to ensure that proper operational guidelines are followed, as agreed by Gilaninias and Raya (2013).

Supply chains in municipalities are also systems which are used to gather information and resources together in the most effective possible manner, and then transform them into goods and services for their delivery to consumers (Jakobsen and Clausen 2016:131). While SCM is utilised to manage the flow of resources from suppliers to consumers, part of its management process involves the planning and design of products which satisfy consumer needs in a cost-effective way, while not sacrificing their inherent quality (Kaplan Financial Knowledge Bank 2012).

2.17 THE IMPORTANCE OF SUPPLY CHAINSFORTHE GROWTH OF MUNICIPALITIES

The management of supply chains makes a positive contribution to profitable growth, because it enables the assembly of “perfect” orders, the enactment of after-sales service support, and allows organisations to become involved in the development of new products (Grosse-Ruyken and Erhun 2012: 340). A study was conducted which indicates that up to approximately 25 percent of operating costs for companies can be wasted through inefficiencies occurring within their supply chains. Considering profit margins of 4 percent, it is pointed out that if the waste in the supply chains of organisations can be reduced by just 5 percent, the profitability of companies could thereby be doubled (Talib and Abu 2014: 23).

SCM provides organisations with opportunities which can be used to allow them to do more than simply concentrate on the operations of buying and selling, but also focus on sustainability. Some authors regard the role played by customers as the most important part in the SCM value chain, and not just the offering by organisations of quality services and products (Roach Partridge 2013). Other researchers point out that consumers' view value as something which is promoted by organisations by means of product prices and quality, and which are ultimately designed and supplied to meet their specific needs.

Profits can be attained by reducing production costs within public and private sector partnerships (Matjimp and Ruiters 2015). Explained by this is the fascination with certain goods which occurs for those consumers who receive products and services, and the activities and other functions of supply chains, which are both propelled by the concept of value, and which indicates that this should be ensured at all stages of SCM (Søilen 2013).

2.18 EXTERNAL FACTORS HINDERING SUPPLY CHAIN MANAGEMENT AT MUNICIPALITIES

External factors have been identified which hinder SCM, and which are sometimes difficult to counter, such as natural disasters (e.g. earthquakes, volcanos, strikes and droughts) (Bunget and Bureana 2015:183). Such factors hinder production, and distribution service provision, although some factors are influenced by foreign rates of exchange, where specific materials or products need to be sourced abroad, such as crude oil. Government intervention can also be expected where quantities of imported foreign products can thus be more affordably obtained than by being produced locally (Burja 2011:15).

Environmental uncertainties relate to when problems are experienced with products (Lyin 2013). Hazen (2012), additionally, explains that changes can spontaneously occur regarding consumers, suppliers, technology, and even competitors. Cousins (2014) also postulates that an important role must be played by government for businesses or municipalities to be successful, and the

uncertainty of environments is therefore of vital importance for the strategic plans of organisations to be successfully realised (Cousins 2014).

The activity of outsourcing has also increased, and this has called in being a need for strategic supply management, in order for improved relationships between organisations to result. Three sub-factors, moreover, need to be considered in this regard, namely: the support of government; the environment; and global uncertainty (Saleheen 2012; Ader 2013).

2.18.1 Flexibility and quality

Contemporary markets, both locally and globally, are very complex; for instance, rapid changes in demand call for organisations to always be ready to respond to customer needs without delay (Croxton *et al*. 2016: 17). Flexibility can be appreciated when companies are able to quickly adapt and respond to changes which occur in the market, due to such factors as the increasing or decreasing requirements of customers, and the increasing or reducing of manufacturing processes, when so required.

An organisation's ability to respond well, or adapt to situations which become unpredictable, can therefore also be used to measure its logistical competency (Routroy and Pradhan 2013: 330). Although change is difficult to achieve, manufacturers should be able to be flexible to its demands, and also be able to quickly adapt to new customer needs and requirements (Cook 2012: 1).

According to Croxton *et al*. (2016: 17), the provision of quality is not something which should be considered as optional, because it is what is expected by customers. Quality is therefore crucial in order for products or services to be accepted by consumers. If poor quality is provided, this can result in inefficiencies, such as decreased productivity, declining market share and higher costs (Croxton *et al*. 2016: 17).

Quality is defined as a result of companies meeting or exceeding customer expectations, and can be achieved by means of utilising quality metrics to achieve enhancements in systems of production. The performance of businesses and organisation can, moreover, be improved by attaining better quality, productivity and efficiency, as well as the highest product value at minimum production costs (Ha *et al.*2011: 77).

Since there is always an exchange of information between municipality, customers and producers, quality in municipal service delivery can always be achieved, since it is an important expectation of their customers (Demirhan and Anwar 2014: 65). The assurance of quality requires constant monitoring from all stakeholders, and making use of modern means of production, or the latest technology, to attain quality is therefore of vital importance (Ehiedu 2014: 81).

2.18.2 Financialskills

According to Chima (2007:31), outsourcing can help to improve SCM departmental operations when there is an internal shortage of particular skills. South African municipalities could therefore outsource those services which require specific skills in which there is a shortage, such as financial management. However, Naslund and Hulthen (2012: 488) state that the introduction of a single unified SCM system for government, which combines all governmental finances, would also contribute greatly to achieving the journey on the road to the advancement of successful financial administration in the widely-ranging public sector.

A framework could be created at the same time which assists government to achieve its preferential procurement objectives. In addition, Bent (2014) maintains that, since the dawn of the new democracy in South Africa, government performance in terms of the misappropriation of funds has, likewise, been under the spotlight for the last 19 years.

Similarly, citizens have scrutinised government even more over the past few years, to ensure that sound financial practices are been applied in municipal activities (Croxton *et al*. 2016: 17), and this is to ensure that all products and services delivered to them in the form of public services are duly obtained using the resources annually assigned to municipalities by central government.

Based on the above information, it can, moreover, be concluded that finance remains one of the most critical factors playing a crucial role in the SCM system used by municipalities. Blanchard (2013) adds that financial supply chains provide the cash flow required to ensure that doors are kept open for organisations, and thus represents their actual life blood.

2.18.3 Financial support

The supply of goods to customers in improving service delivery in South Africa has been hindered by a lack of finance allocated for the purposes of practicing effective SCM (Cousins and Menguc 2014: 604). A lack of such finance, and of access to broader markets, has therefore also contributed to the failure of public service providers in South Africa (Makgoe 2014). Even though there have been interventions implemented by government to assist them in terms of financing and accessing markets, it still occurs that the function of many service providers is simply to provide monthly domestic necessities.

Organisational costs, profitability, and their competitiveness in the market are influenced by market prices; thus, Nieman (2008) indicates that price and financial stability share an important relationship. Suppliers with a poor financial record should be avoided, as they may not be able to guarantee uninterrupted supply of services or products to the organisations requiring them (Cousins and Menguc 2014: 604).

2.19 INTERNAL FACTORS HINDERING THE EFFECTIVENESS OF SUPPLY CHAIN MANAGEMENT

Internal issues also arise which hinder the effectiveness of SCM, such as mistrust between parties regarding to concerns about payments. Some companies become lax in their payments because of low cash flow, or because they spend recklessly or at times overspend on their budgets. Organisations which are part of the JIT delivery system are particularly affected by this, and when deliveries are made exactly when goods or service are required, and payments are not up to date, such deliveries maybe halted.

According to Cousins and Menguc (2014: 604), this has to do with the relationships which develop between suppliers and organisations, and pertains to the commitment, loyalty and trust that exists between them as also to quality, timeous deliveries, and levels of competition. Companies usually favour imports as the best option for gaining flexibility in responding effectively to consumer demands. Moreover, it should also be taken into consideration that when organisations work with other companies abroad, they are also necessarily working with a degree of uncertainty (Saleheen 2012).

A study was carried out by Koh et al (2011), which reveals that when uncertainties arise, an organisation's performance can be negatively affected. Local suppliers have stepped onto the scene in assisting the country to save much in terms of foreign currency purchases (Ader 2013). Aliahdad (2012) explains that such expenditure can be reduced by establishing strategic relationships with important local suppliers; in other words, organisations should put new strategies into effect so as to become able to face environmental uncertainties within the supply chain, and thereby also perform more effectively.

2.19.1 Human capital

Organisation for Economic Co-operation and Development (OECD 2007) literature reveals that a lack of professionalism in municipal officials' leads to risks in budgeting and procurement management, poor planning, unnecessary

delays, and costs overruns for projects. In this case, it is implied that public officials are not well enough equipped to deliver work to the expected professional standards (Dillman 2007).

Human Resources Management (HRM) can be defined as those activities and organisational procedures and plans which affect the behaviour, attitudes, organisational culture and achievements of staff within the business system in a way which increases both their productivity and flexibility. HRM also looks at the capacity of employees to create competitive advantage, which is difficult to duplicate in the short term (Jurčević *et al*. Undated).

Claes and Lakshman (2012) reveal that both HRM and SCM research has been independently focused on improving the competitive advantage gained by organisations. They reveal, in addition, that these parties have barely begun to collaborate on strengthening their mutually independent functional bases for the achievement of broader organisational objectives, as expressed by Bhartthyajan (2014).

2.19.2 Training and career development

According to Dillman (2007), technical development courses are essential for supply chain personnel to remain current with affairs and developments, and on-the-job training and external courses are the most common methods used for employee education. In most cases, employees are satisfied with the training they receive, and indicate that it actually meets their needs (Jurčević *et al*. 2014). The provision of in-house training, time for the attending of external courses, and tuition reimbursement, are thus the most generally utilised forms of training support provided to employees, since they are usually not overly expensive (Bhartthyajan 2014).

Supply chain work/study programmes are not widely used, although all of these forms of training are employed to some extent (Dillman 2007). Van Schaik (2014) comments that proper logistics should be instituted to determine where

workforces are able to obtain proper work training. Training empowers employees with the correct tools for performing their jobs, and off-job training allows workers to relax and learn more effectively, since it removes them from the confines of the workplace.

2.19.3 Skills and education

One of the main mandates for skills training is to teach staff those communication skills which will enable information to flow in such a way that is easily understood. Even though technology is now largely used to enable communication, the spoken word is still retained for longer in the memories of learners.

According to Dillman (2007), the skills requirements for employees do not differ greatly according to region or company size, and he proposes that workers within supply chains could be transferred from one region to another fairly easily. Dillman (2007) further explains that it is indicated by some employees that analytical and communications skills are required for almost every category of occupation, across all sub-functions. Skills and education are at the top of government's list of priorities, since they have the potential to empower the nation (Fezile 2014).

Likewise, when workers are retrenched or fired, they leave organisations having acquired particular skills (Lewis 2011). Cousins (2014) states that workers who are laid off are better able to reintegrate with society as informal traders, which has the additional effect of cutting down on unemployment. Customer service, interpersonal relations and technological proficiency are identified as being amongst the most commonly required skills in the workplace (Bent 2014).

2.20 SUPPLY CHAIN RELATIONSHIPS

The relationships that are created between customers and suppliers should not be over looked, as they are important if organisations are to achieve their intended goals. Suppliers and customers should therefore work together in a

holistic manner for the coordination and integration of activities by understanding consumer needs.

Such cooperation will result in greater benefits for the role-players involved (Quesada *et al*. 2014: 36), since supply chain relationships play a vital role in the successful attainment of organisational goals and ambitions. Great benefits for can be obtained by organisations from these relationships if there is both increased integration and coordination of activities with suppliers, and better comprehension of customer needs (Treville *et al*. 2014: 627).

The management of supply chains is significantly linked to relationship management, which takes into consideration both customer and supplier requirements. Major elements found in SCM practices include customer relationships, and strategic supplier partnerships, the use of which leads to a sharing of information that is amongst the five pillars recommended for attaining solid and effective supply chain relationships (Wu and Hsu 2009: 96).

Business organisations do not always find themselves in a position to work with suppliers in effective ways, although such supplier relationships should be best exploited in meeting organisational needs (Treville *et al*. 2014: 627). In commodity production, and mainly based on the costs incurred between suppliers and buyers, adversarial relationships are commonly found; such relationships do not, however, easily enable the reduction of supply chain costs.

Where suppliers are well-networked, this can be advantageous to producers, since partnerships and associations can be developed for the benefit of both parties involved (Treville *et al*. 2014: 627). Such associations could be centred on personal, production, and evens symbolic networking for the creation of strategic associations, and would also allow the sharing of both information and risks, thereby achieving mutual benefit through the coordination of plans.

All of these factors could allow for supply chain improvements to occur (Ha *et al.* 2011: 56). Various products of differing costs and quality are offered by markets globally, and, in their turn, companies will always compete in attempts made to reduce costs and better the quality of their products. Customers usually look for increased choices, higher quality, improved services, and also quicker delivery times; hence, companies now regard relationships with their customers as being an increasingly important strategic issue (Lin *et al.* 2013).

2.21 GOVERNMENT POLICIES AND REGULATIONS

There are many factors which influence effective and successful SCM within municipalities, and here governmental support is addressed. Literature reveals that the level of support which companies receive from government when using locally-sourced raw materials or products is not the same as when these are obtained abroad.

Advice to the sector, policies, regulations, and the enforcement of supply norms which impact supply chains positively should also be included in this package from government (Quesada*et al.* 2004: 35), and relate to the levels of support provided to companies which import raw material from overseas for use in local production, and there by also with considering for the use of policies and regulations for the sector.

Allahdad (2012) conducted research to explore ways in which the South African government can encourage export companies through the implementation of various marketplace reforms. In other words, the government can assist to increase the competitiveness of the manufacturing sector by means of improved logistics competencies. Complications, however, also arise from the purchase of resources from other countries, and these include language barriers, the cost of transportation, exchange rates, amongst other factors (Abbasi 2011).

In addition, political uncertainties existing within source countries should be taken into consideration where the outsourcing of raw materials is concerned

(Bent 2014), as these can increase supplier risk, alter business strategies, and affect overall business decisions. Other factors which may also affect the functioning of supply chains are social uncertainties, such as different social environments, religions, cultures, and also technological competencies (Rajesh 2011).

2.22 INFORMATION TECHNOLOGY ABILITIES

According to Treville *et al*. (2014: 627), communication within supply chains is permitted by technology and telecommunications, and supply chain participants are thereby connected to their partners. Reductions in lead time, paperwork and other unnecessary activities, are all benefits of the use of information technology, which should be taken full advantage of by suppliers, manufactures, distributors, retailers, and customers (Treville *et al*. 2014: 627).

The advantages that come with the application of information technology in SCM include: the flow of information in a coordinated fashion, improved customer-supplier relationships, better inventory management, not only at national level but also internationally, and greater ease in accessing information and achieving data exchange. The list could be longer, since other advantages include: supply contracts obtained via the Internet, the outsourcing of materials, improved procurement practices, and also better distribution strategies (Abbasi 2011).

Value in the supply chain relationships of industrial organisations can be built by means of the tools used for communication; for instance, from websites. More effective use of planning tools is another key advantage which can lead to the success of SCM.

Dinter (2012) explains that if no information systems are used by organisations, it becomes very difficult for them to handle costs, provide better services, and best meet their own logistical requirements. Without the incorporation of top-of-the-line information technologies in SCM, companies cannot effectively manage

costs, offer improved customer service, or become market leaders within their fields. In a review conducted by Lee *et al*. (2008), these authors identify such information technology tools as enterprise resource planning(ERP) and electrical data interchange(EDI) for use in achieving more effective SCM, to mention only two (Fawcett 2008).

Paperwork, lead time and other unnecessary activities can be reduced by information technology in the work of suppliers, manufacturers, distributors, retailers, and even customers. The use of information technology results in considerable advantages, and these include: the more coordinated flow of information, better data interchange and access to information, improved customer-supplier relationships, and also more efficient inventory management, not only at a national level, but also internationally (Handfield and Nichols 1999).

To foster collaboration among partners so as to enhance the decision-making processes amongst them, the use of network technologies, such as the Internet and extranet should be considered. The implementation of technology should not be limited to internal networking only, but should also consider collaborations with all contributing stakeholders (Treville *et al*. 2014: 627).

2.23 ON-TIME DELIVERY

On-time delivery of raw materials and products is, in addition, an important element affecting the efficiency of supply chains. Materials need to be delivered on time, so that demand for finished products can easily be met (Hussey and Hussey 1997). Costs and lead times should also be reduced by means of devising systems which can be promoted using appropriate available technologies, which also make it possible for organisations to achieve reductions in waste (Shah 2011).

Supply chain efficiency can be directly influenced by effective on-time delivery, and the ability to respond quickly to demand by retailers is important for this to

be fulfilled both quickly and easily as it arises. Advancements in SCM theory, and differentiation of its techniques into distinguishable concepts, have changed the manner in which organisations traditionally carry out both logistics and procurement functions for the betterment of customer service (Treville *et al*. 2014: 627).

In this context, it is important to comprehend the complexities of the incorporations which occur between SCM processes, connections and participants who contribute to the flow of materials up to the stage where value is added for the consumers, by developing a generalised representation of available SCM models (Mashari and Zairi 2000: 312).

Many studies concerned with the management of supply chains have expended great effort in identifying general activities in the flow of products in supply chains, and also the motivations behind the creation of such models for managing chains of supply (Frohlich and Westbrook 2015: 187). Various models exist which provide businesses with the ability to be flexible and competitive in the dynamic environments in which they operate.

An aspect which is important for SCM in the determination of effective and efficient chains of supply is that of being able to incorporate processes which are carried out to satisfy the needs and wishes of consumers, by including the movement and conversion of materials and goods (Frohlich and Westbrook 2015: 187).

There are usually four main stages related to supply chain activities, which include: networks of supply, internal chains of supply, systems of distribution, and also consumers (Mashari and Zairi 2000: 312). The essential stages which describe the SCM concept are discussed in this chapter; where it is pointed out that both downstream and upstream connections exist. Upstream linkages consist of supply sources, and downstream linkages consist of goods distribution and consumers (Frohlich and Westbrook 2015: 187).

Provided that these linkages are maintained by means of the flow of information, the resulting value added could be further communicated to all parties involved. Use of JIT deliveries assists smaller municipalities, without access to large warehouses, to stockpile both raw materials and finished goods. Materials are thus only supplied when needed. In addition, South African municipalities and suppliers should consider other methods used globally which are cost effective and reduce wastage, such as the Kanban system of stock control, that is designed to reduce any unnecessary wastage of raw materials.

2.24 PUBLIC-SECTOR DEVELOPMENT OF SUPPLY CHAIN MANAGEMENT

SCM is a management philosophy which has added much to the performance of organisations through the development of their competitive advantage, since increases are thereby dealt with in both principal supply and demand (Heikkila 2012: 752).

Advancements of this kind have added to the public sector fostering similar rules to those used by the private sector, since value for money has also become a priority in the operations of government. In this case, the role of SCM is seen as an answer to government operations which focus on the equitable provision of important services to the public, and these results in the concept of SCM becoming part of financial management theory (Makgoe 2014). Making services available to government beneficiaries can be accomplished by the planning of operations, as highlighted in pre-formulated goals which tally with the strategies adopted by government (Heikkila 2012: 752).

Players which participate in providing important public services are vital in the SCM implementation plans of government. The parties involved may refer to manufacturers which produce goods and services, as well as to other participating organisations (Lonngren *et al.* 2010: 404). The main steps in SCM consist of planning, purchasing, storing and the distribution of products.

It should, in addition, be observed that governmental supply chains contain structures which are implemented in accordance with the various sectors being served, and according to the requirements for government delivery; for instance, the purchasing of materials used in training purposes, which is undertaken by the Department of Education (Hulland 2009: 198). What is illustrated by this is that the SCM processes used by the public sector bring together common financial practices, such as accounting and budgeting, along with those activities involved in the management of assets, provisioning and purchasing (Iyer 2011: 90).

According to Hulland (2009: 198), the importance of the purchasing processes of government lies in allowing it to reap the advantages associated with lower final service delivery costs, which is due to the competitive nature of purchasing goods and services as an activity. The availability of options which are less inconvenient, and also less bound in red tape, therefore ushers in an era for the provision of government services which more fully satisfy consumer needs, and this may be regarded as a very positive government public policy (Hulland 2009: 198).

It is also indicated that government depends mostly on private sector expertise to provide both goods and services, which is considered essential due to the technology used, which is often highly sophisticated, and also to the private sector's efficiency in carrying out required tasks (Iyer 2011: 90).

Kamalpur (2013: 394) proposes that SCM is successfully attained where those suppliers responsible for the purchase of materials are tied to fulfilling their obligations by government. According to the South African view, the activities occurring in government for the management of supply chains include the coordination of main parties, which participate in the offering of services as per the South African NT's regulations (Fornell and Bookstein 2007: 440). These

regulations provide rules and instructions for the correct execution of public-sector SCM policies.

According to Fornell and Bookstein (2007: 440), government SCM begins with preliminary demands from consumers (i.e. citizens), and the ultimate offerings of goods and services is well and knowledgeably connected to the use of the internal SCM processes adopted. SCM in public-sector activities is therefore incorporated with consideration for the affairs of the main participants in public service delivery (Fornell and Bookstein 2007: 440). The effectiveness of SCM activities is, in addition, measured by the specific yard sticks used by those service providers connected to purchasing processes, and are controlled through the use of good governance principles (Kamalpur 2013: 394).

According to Kamalpur (2013: 394), the management of public-sector supply chains consists of various major features, which are connected according to the flow of the supply chains utilised, from the management of demand to the management of purchasing, goods disposal, and risk and also performance management.

The SCM guide provided for public officers supplies the boundaries within which municipal service delivery must take place (Cousins and Menguc 2014: 604). The goals addressed are unchanged from the objectives of government, and the legislative environment, and other rules of state related to the target of improving efficiency and cost-effectiveness, also remain static for the realisation of the predetermined goals of government (Cousins and Menguc 2014: 604).

The vital opening step lies in discovering the true needs of consumers; i.e. the public. It is therefore important in South Africa that the SCM processes utilised should be carried out fairly, transparently, and in a manner which is effective, as stipulated by the policies of public-sector SCM (Iyer 2011: 90). Implied by this is that the features of public-sector SCM are established to represent the principles of good governance, which ensures that such activities deliver value

for money in an open, fair and competitive manner, and also that the functionaries assigned with the fulfilment of these processes remain answerable for both their activities and decisions (Cousins and Menguc 2014: 604).

Good governance principles are, moreover, vital in guaranteeing that good public-sector SCM is practiced, from the point at which demand for products and services is created by entering into contracts with manufacturers, to the management of all inventory levels on hand for municipalities (Cousins and Menguc 2014: 604).

Purchasing by the public sector prioritises the values of good governance in order for SCM to retain its positive effect on the various stakeholders involved, including those consumers found within the country's population (Cousins and Menguc 2014: 604). What can be concluded from this discussion is that there are primary resemblances which can be observed in the execution of SCM methods for reacting to the needs or demands of consumers within the private sector, and which can also be used to satisfy the needs encountered by the public sector (Cousins and Menguc 2014: 604).

This study, hence, includes mention of some of the models which demonstrate in practical the ways the manner in which companies can react to external demands, and notes their ability to effectively implement SCM, despite the influence of many such pressures working together against them (Kamalpur 2013: 394).

2.25 COMMUNICATION TOOLS

The tools of communication are used mainly to enhance the transfer of data between partners involved in SCM processes, such as trading. Examples of these tools include electronic funds transfers (EFTs), the internet and intranet (Lee 2008). Electronic Data Interchange (EDI) is used mainly when making purchases, and also for transaction follow-ups. EFTs provides trading partners

with an effective and efficient means of moving funds between various accounts by means of a value-added network (VAN) (Bowersox 2010).

Van Schaik (2014) explains that, because the tools used for communication are constantly changing, workers also need to be kept abreast of how best to use them, to ensure that they do not fall behind the times (Bharthyajan 2014) In addition, the HRM departments of organisations should concentrate on hiring personnel who are qualified and experienced in the use of these communication tools. Kumar (2013) believes that best corporate practices push organisations to move into the twenty-first century.

2.26 PLANNING TOOLS

According to Barlas and Gunduz (2011: 470), the tools used for SCM planning are aimed at incorporating the activities of planning for resources within businesses and organisations. Planning tools which are commonly used include: material requirement planning (MRP), enterprise resource planning (ERP) and manufacturing process planning (MPP) (Das *et al.* 2012: 564).

MRP is a tool which provides organisations with the ability to construct schedules for their production activities so that specified deadlines can be met, and is based on available levels of inventory, master schedules for production, and also the cost of raw materials. ERP is a tool which enables businesses and organisations to incorporate the processing of information regarding tasks which are related to all other value chain processes (Das *et al.* 2012: 564). Usually, this involves a single system which can possibly include: the management of orders, the fulfilment of inventory requirements, the planning of production, the provision of customer service, and also the financial planning of organisations. It thus becomes a source of support and stability for the various organisations and businesses using it (Flynn *et al.*2010: 62).

Oher IT tools exist which can be utilised for the execution or management of different SCM activities, and also of the relationships making up entire chains of

supply (Das *et al.* 2012: 564). Examples of these include: vendor-managed inventory taking (VMI), customer service management (CRM), distribution requirement planning (DRP) and data warehousing (DW) (Richey *et al.*2010: 237).

2.27 CONCLUSION

This chapter provided a detailed literature review of SCM in outline, and those factors which affect the management of supply chains were also discussed. In addition, the chapter explored what SCM is, its importance, how supply chains can effectively be managed, as well as a discussion of the results of the investigation regarding the benefits which can obtained from the effective implementation of SCM.

It is here with concluded, from the study of literature regarding SCM presented, that this important management tool may well allow for the successful development of competitive advantage within municipal chains of supply by enhancing stakeholder relationships so that the demands of customers can be satisfied, which can be achieved through the sharing of information, and the proper incorporation of all SCM processes.

Various phases of supply chains should remain static in order for any form of interruption, or processes with undesirable results, to be eliminated. Value will accrue in all supply chain phases if SCM is practiced that is balanced, and a greater responsiveness towards consumer demands will also thereby become apparent. It was, however, also discovered that there is a definite sequence or order followed by supply chain phases, which include: inputs, conversion and outputs. The order in which organisations produce and distribute products and services is also necessarily designed to best meet the end needs of their consumers.

It should, moreover, be emphasised that SCM processes must be conducted in a fair manner, but which also remains competitive and cost-effective, so that

value for money for all stakeholders can be achieved. Transparency in SCM was also explained as a part of the discussion of the management of supply chains, as this practice allows no room for the plague of corruptly-administrations which have so weakened the South African economy.

An investigation into the means by which transparency can be attained though SCM was given, along with the advantages this can have for public procurement overall. All participants of public decision-making should, consequently, be dedicated to the implementation of effective SCM processes, in order for this transparency to be achieved and maintained.

Chapter 3 which follows covers a discussion of the research design and the kinds of research methodology adopted for this study in order to obtain data more accurately, and so as to increase the authenticity of the research conducted.

The chapter also provides a description of the reasoning and comprehension employed and which pertain to the structure of the survey questionnaire formulated to examine factors which affect the effectiveness of SCM in the eThekwini and UMgungundlovu municipalities.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

A description of literature on the components which affect the management of supply chains, as well as the objectives of SCM, was set out in the previous chapter. The importance of effective SCM was highlighted.

Research design is the plan to which the researcher works for the optimum achievement of research objectives (Berndt *et al*. 2011: 31), whereas methods of research are referred to as data collection techniques (Wilson 2014:119). This chapter entails a discussion of research design, and the kinds of methodology the researcher can undertake to find data more accurately, thereby increasing the authenticity of the study.

The chapter also gives reasoning and comprehension pertaining to the structure of the survey questionnaire formulated to examine the factors which affect the effectiveness of SCM in the eThekwini and UMgungundlovu municipalities. Clarification of the research design is done, outlining the goal of the research paradigm, in addition to exploring the data collection instrument, and a detailed explanation of the target population. Finally, the methods utilised for the analysis of study data is explained as well.

3.2 RESEARCH DESIGN

Lewis *et al.* (2011) define research design as the method used by a researcher in carrying out the study. Throughout the process of research design, the stages and the sequence of the research process should be made clear by the researcher in order to predict and forecast any eventual bias.

Mouton (2014:107) explains research design as the means of setting instruction and guidelines in addressing research problems or phenomena. Moreover, Gorard (2013:8) amplifies this, stating that research design is a way of planning

or organising a research project, in order to maximise the collection of data relevant to addressing the answers of the research questions.

It is further explained by Fobosi (2012:1) that the design of the research is a strategic framework for action, through which the research question goals may be achieved. Implementation of the research project is made possible by means of the research design, since it is the plan for collecting and analysing data, enabling a researcher to answer all questions directed at the target populace. Research design is also described by Fobosi (2012) as a plan of action which clearly puts everything into perspective, in terms of obtaining evidence relevant to answering the research questions.

The process of research design usually consists of the following steps:

- The research topic;
- How to address the topic;
- The subjects of the topic;
- The source of the subjects and the process of gathering data;
- The method of processing the data; and
- The way in which the findings are to be communicated.

The listed stages are for the purpose of outlining or defining the process of research which was undertaken in this study. This study approach was descriptive and cross-sectional in nature.

According to Leedy and Ormrod (2012: 135), should the considered respondents be at a fixed position at a specified time, the researcher would be using what is termed a cross-sectional methodology. On a parallel, Welman *et al.* (2011: 95) clarify and strengthen the idea that a cross-sectional method of research includes the once-off gathering of data or information from a clearly defined population sample.

A descriptive research method is a study in the form of statistics aimed at recognising trends in circumstances and not linkages which may occur in the different factors (Leedy and Ormrod 2012: 189). Research that is descriptive is not merely implemented for quantitative studies only, and can also use the factors of qualitative and quantitative studies, with the purpose of measuring central tendency. Central tendency consists of mode, median, mean or average, and a standard deviation (the mean deviation), as well as variance, percentages and the correlations occurring between the mentioned variables (White and McBurney 2012: 432). However, a quantitative method was used to collect the primary data for this study. Quantitative methods are based on the measurement of quantities or amounts, and are applicable to research phenomena which can be expressed in these terms (Wilson 2014:119). With the research requiring the collection of data regarding the implementation methods of supply chain services, policies and procedures, a quantitative approach was considered suitable in obtaining this information.

The selection of this study design assisted with the collection of data, measurements and analysis. The questions required that staff members from the selected KZN municipalities, namely eThekwini and UMgungundlovu, used skills of decision-making and critical problem-solving in reading and comprehending the questions. The study form is quantitative in nature. The latest version of SPSS (24.0) from International Business Machines (IBM) was used for data analysis.

3.3 AIMS AND OBJECTIVES

The overall aim of this study is to identify the factors influencing SCM within selected municipalities in KZN, and to examine the effectiveness and implications these factors might have in improving or hindering the success of SCM within municipalities in KZN.

In order to achieve the aim of this study, the following objectives will be pursued:

- To explore the understanding and knowledge of SCM in the selected KZN municipalities;
- To identify and explain factors influencing SCM;
- To examine the extent to which these identified factors affect or influence the selected municipalities' SCM in KZN; and
- To suggest and recommend strategies which could be employed to improve the current state of SCM within the selected KZN municipalities.

3.4 SURVEY METHOD

A decision, in terms of the use of the survey instrument, had to be made with regard to choosing the type of instrument to be used to collect data, as there are methods, such as closed-ended questions for the purpose of data collection, used (Christensen *et al.* 2015:340). Due to the effectiveness of the 5-point Likert-scale questionnaire, for statistical reasons in terms of results and findings, 120 survey questionnaires based on this format, were distributed and deemed relevant for the collection of primary data.

The research instrument comprised a survey questionnaire with only closed-ended questions and 5-point Likert Scale-type responses. For the formulation of the questionnaire, the literature review was referenced as the source of information, which includes closed-ended questions.

3.5 FREQUENCIES

Frequencies were used to determine the intervals between certain responses to a research question, while also used to check the coding of data. In this regard, should the responses not equal the sample total, it would indicate that the data was not correctly captured (Babbie *et al.* 2002: 298). The data from the frequencies, furthermore, allowed for sound analysis of findings, results and conclusions of this research project.

3.6 QUANTITATIVE RESEARCH

Welman *et al.* (2011: 87) define the method of quantitative research as being descriptive in nature, and state it is widely used in the answering of questions concerning links between variables. The analysis comes from making of tables which display occurrence frequencies by making statistical connections amongst different factors; i.e., dependent and independent variables of the study. White and McBurney (2012: 429) further explain that the method of quantitative research has various advantages, as follows:

- Quantitative data is statistically-driven and more information can be provided;
- Compiling the data into graphs or charts is easier because of provided figures (numbers);
- The time of the respondents is saved; and
- It enables research to be carried out on a wider scale, therefore providing for large amounts of information.

Nonetheless, the quantitative method of research has its flaws, with White and McBurney (2012: 432) pointing out that some of the disadvantages of quantitative research include the fact that it is costly, in comparison to a qualitative research method, while numbers used in quantitative research change more often; i.e. they are not always the same:

This study did not involve interviews, however, and was mainly quantitative in form, with the justification for using the stated population given below.

3.7 TARGET POPULATION

Table 3.1 contains numbers for the target population of the study.

Table 3.1: Target population

Department	Target population
eThekwini Municipality	60
UMgungundlovu Municipality	60
Total	**120**

The target population of the study consisted of 120 staff members from the two selected municipalities of KZN, namely eThekwini municipality (60) and UMgungundlovu municipality (60) in KZN. Equal numbers of participants were be targeted from the eThekwini and UMgungundlovu municipalities, since both the municipalities are involved in the management of supply chains, which is the topic for this research study. The target population should consist of individuals connected to the specified study, and they are supposed to be classifiable in terms of physical or geographical boundaries, time and factors (Leedy and Ormrod 2012: 35).

3.8 CENSUS SIZE

120 respondents were selected from the two municipalities of KZN. A census study involves collecting information from a population at a particular time (Siniscalco and Auriat 2011: 7). According to White and McBurney (2012: 429), a census study has the following advantages:

- Interval of confidence is increased;
- Negative feedback can be identified easily; and
- The whole population is studied.

There are also disadvantages of a census study, which Babbie (2011: 35) outlines, as follows:

- Other possible opportunities for surveys are limited; and
- Declined responses could be high.

It is held by Welman *et al.* (2011: 71) that a sample size between 25 and 500 is most suitable for research studies. This is why a sample size of 60 respondents from UMgungundlovu and 60 respondents from eThekwini municipality which resulted in to 120 respondents was seen as appropriate for the fulfilment of the study objectives. Table 3.2 contains a detailed census population outline.

Table 3.2: Census population

Department	**Frequency**	**Percentage (%)**
eThekwini Municipality	60	50
UMgungundlovu Municipality	60	50
Total	**120**	**100**

Table 3.2 indicates that 60 respondents (50 percent) of the population were targeted from the eThekwini municipality, and 60 respondents (50 percent) from the UMgungundlovu municipality.

3.9 RESEARCH INSTRUMENT

A survey questionnaire was utilised as the instrument of research to ensure the data was well interpreted, while also showing the thoughts or ideas of the respondents pertaining to the variables affecting factors which influence SCM at the eThekwini and UMgungundlovu municipalities. Only closed-ended questions were used to elicit information. Closed-ended questions were presented in such a way as to not allow the respondents to further explain their ideas or opinions, but only to choose from a given set of alternatives provided by the researcher, with less time spent, as opposed to responding to open-ended questions.

The questionnaire only comprises closed-ended questions because it is easier and quicker to answer. However, these types of questions limit the respondents in being creative; but also keep the study more focused or narrow. While open-ended questions enable respondents to explain their ideas, Siniscalco and Auriat (2011: 4) explain that a low response rate is likely to be attained when mainly open-ended questions are used. The reason could be because this type of question calls for much thinking and time from the respondents, which makes them reluctant to participate. The authors suggest that, in cases such as this, that the researcher should utilise self-administration of the survey questionnaires (Siniscalco and Auriat 2011), which is why this study was self-administered.

3.9.1 Description and development of the questionnaire

The questionnaire was organised according to the particular research objectives of the study. It was structured and divided in the following manner:

SECTION A: Demographics information includes the following:

- Municipality
- Position
- Years of Service

SECTION B: Measured aspects related to SCM on the following:

- Policies
- Procedures
- Programmes/Models
- Personnel
- Other

3.9.2 Validity and reliability

3.9.2.1 Validity

Muijs (2011: 56) defines validity as an estimation of the correctness of a measure for particular decisions. Sekaran and Bougie (2010) further define validity as the extent to which an instrument measures what it purports to measure. There are four types of validity. Firstly, content validity pertains to the degree to which the instrument fully assesses or measures the construct of interest. Secondly, face validity, which is a component of content validity, and is established when an individual reviewing the instrument concludes that it measures the characteristic or trait of interest. Thirdly, criterion-related validity is assessed when one is interested in determining the relationship of scores on a test to a specific criterion. Construct validity is the degree to which an instrument measures the trait or theoretical construct that it is intended to measure (Fox *et al.* 2013), for the purpose of the study validity of the data through data analysis was of paramount importance for research ethics.

3.9.2.2 Reliability

The reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept across the various items in the instrument (Denscombe 2003). However, Parasuraman *et al.* (2007: 133) explain reliability as the extent to which an instrument under use can produce similar outcomes, such as when a research survey is re-conducted using the same study sample. It was deemed relevant to proof read the study to check consistency and stability of the findings.

3.10 RESEARCH LIMITATIONS

It is important to understand time as a factor that needs to be dealt with accordingly to meet short-term research project goals (Collins 2011). In order for the research project to be a success, time frames will be provided for this research project. Further consideration must also be given to political influence within the field of service delivery, which can be an added limitation of this project in terms of accessing political information.

3.11 ELIMINATION OF BIAS

The research did not make use of gender-neutral words, and people were not identified by race or ethnic group. Language which suggests evaluation or reinforces stereotypes was avoided. No assumptions were made about various age groups.

3.12 ETHICAL CONSIDERATIONS

3.12.1 Informed consent

The respondents for this study will first be informed about the nature of the study prior to its commencement (see Appendix A). Informed consent implies the following:

- Respondents have the intellectual capacity and psychological maturity necessary to understand their involvement in the study;
- Respondents are making an autonomous decision to participate in the study.
- Involvement in the study is absolutely voluntary;
- Respondents are aware of the nature and details of the research being conducted;
- Respondents are aware of their right to discontinue in the research study;
- The researcher is honest with respondents about the nature of the study; and
- Respondents are in no way coerced into participating in the study.

3.12.2 Ensuring participant safety

The participants were protected from any harm by assessing risk first before performing the research.

3.12.3 Confidentiality and anonymity

There will be protection in terms of identity of all respondents. Protection of confidentiality may involve restricting access to raw data, storing all data securely, reporting findings in a manner which does not allow for ready

identification of the respondents, and obtaining permission for subsequent use of data.

3.13 CONCLUSION

This chapter described the research methodology executed for this study, with a quantitative method having been selected due to its ability to ensure reliable results when the research instrument is repeated. The following chapter will focus on the data analysis and interpretation of results.

CHAPTER 4
DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 INTRODUCTION

Covered in Chapter 3 was a discussion of the research design, and of the kinds of research methodology adopted for this study in order to obtain data more accurately, and also to increase the authenticity of the research conducted. The chapter also provided a description of the reasoning and comprehension employed, and which pertain to the structure of the survey questionnaire which was formulated to examine those factors which affect the effectiveness of SCM in the eThekwini and UMgungundlovu municipalities.

Chapter 4 provides an in-depth analysis of the research outcomes, and an interpretation of the overall study results. The purpose of this study was to identify those factors influencing the effective use of SCM within municipalities in KZN, South Africa.

The objectives of the study covered aspects of SCM, such as policies, procedures, programmes/models, and also a survey of the personnel at the eThekwini and UMgungundlovu municipalities in KZN.

The descriptive statistics, or frequencies and percentages, derived from results obtained by the deployment of the study's research instrument at the selected KZN municipalities provide an overview of the feedback obtained, and are illustrated using bar charts. Chi-square tests were applied to the results to allow for the more precise analysis of each of the study's objectives, and these are presented in the sections of this chapter which follow.

4.2 PRESENTATION OF RESULTS

SECTION A

Table 4.1: Presentation of results

Questionnaire question/statement	Chi-Square	Df	Asymp. Sig.
Please state your municipality.	0	1	1,000
Please indicate your position.	139,05	2	0,000
Please indicate your years of service atthe municipality.	17,55	2	0,000
Lack of purchasing policy guidelines in the SCM departments has an impact on the municipality's service delivery.	81,833	4	0,000
Lack of adequate guidelines for procurement of required material in SCM is hindering the municipality's service delivery.	74,167	4	0,000
Strategic misalignment.	96,083	4	0,000
Lack of globalisation in municipalities.	94,833	4	0,000
Lack of proper management.	89,917	4	0,000
Financial constraints result in the municipality being unable to deliver services on time through the SCM operations.	111,167	4	0,000
Low planning accuracy.	130,917	4	0,000
Lack of complex material flow patterns.	128,333	4	0,000
Poor infrastructure network with suppliers affects the municipality's performance.	60,417	4	0,000
Insufficient/inconsistent value stream measures.	83,333	4	0,000
Lack of global networks in municipalities.	101,75	4	0,000
The limitations of technological training to staff member for better SCM operations is one of the major challenge that hinders SCM.	100,417	4	0,000
Lack of qualified personnel in SCM is a major challenge in the municipality.	66,5	4	0,000
Lack of technology availability has an influence on the SCM operations.	101,083	4	0,000
Lack of customer appreciation.	50,167	4	0,000

A discussion of the data presented in Table 4.1 follows.

4.3 HYPOTHESISTESTING

The traditional approach to reporting study results requires a statement of statistical significance, or p-value. A **p-value** is generated from a **test statistic.** A significant result is indicated byp-values greater than 0.05 ($p < 0.05$). These values are highlighted with an asterisk (*) in the Table 4.1. In addition, a second Chi-square test was performed to determine whether any statistically significant relationships existed between the variables (rows vs columns).

The null hypothesis states that there is no association between these two variables. The alternate hypothesis indicates that there is an association. Table 4.1 summarises the results obtained from the Chi square tests performed on the research data.

As supplied in Table 4.1, these results indicate, for example, that: the p-value between the results for the statements “Lack of purchasing policy guidelines in SCM departments has an impact on municipal service delivery”, and “Please state your municipality”, is 0.000, which is written as “$p < 0.001$”, and which indicates that a significant relationship exists between these two variables. Also indicated by this is the municipality from which the respondent came did play a significant role in terms of how these respondents viewed the impact that the municipality’s lack of SCM policies had on it.

Table 4.2: Responses for the two municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	eThekwini	60	50,0	50,0	50,0
	UMgungundlovu	60	50,0	50,0	100,0
	Total	120	100,0	100,0	

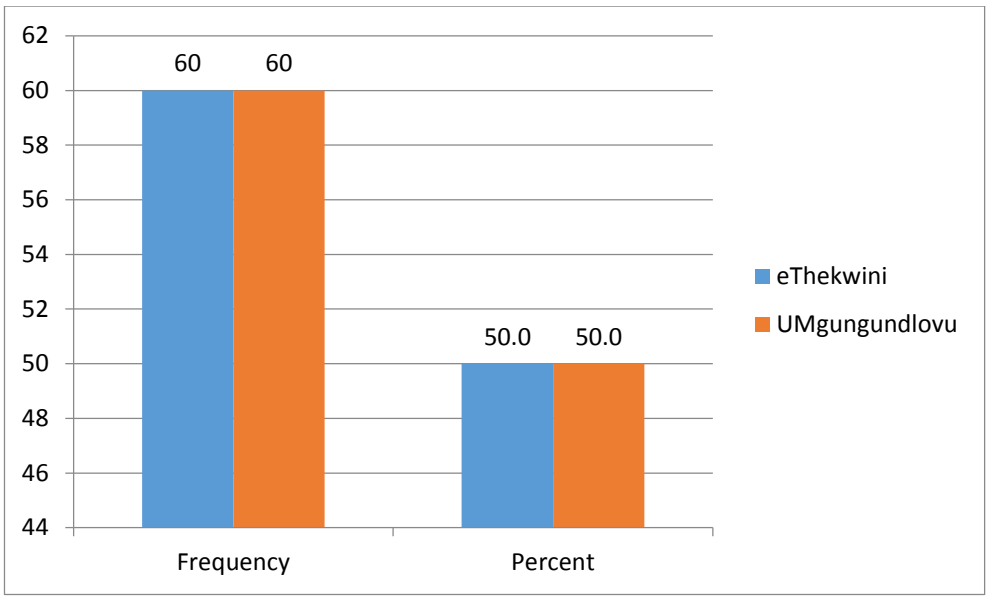

Figure 4.1: Respondents from the two municipalities

The resulting sample (Table 4.2) shows that an equal number of respondents (60 people), was surveyed from each of the selected municipalities, i.e. eThekwini and UMgungundlovu.

Table 4.3: Work positions of respondents at the municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administration Officer	100	83,3	83,3	83,3
	Senior Manager	19	15,8	15,8	99,2
	Assistant Director	1	0,8	0,8	100,0
	Total	120	100,0	100,0	

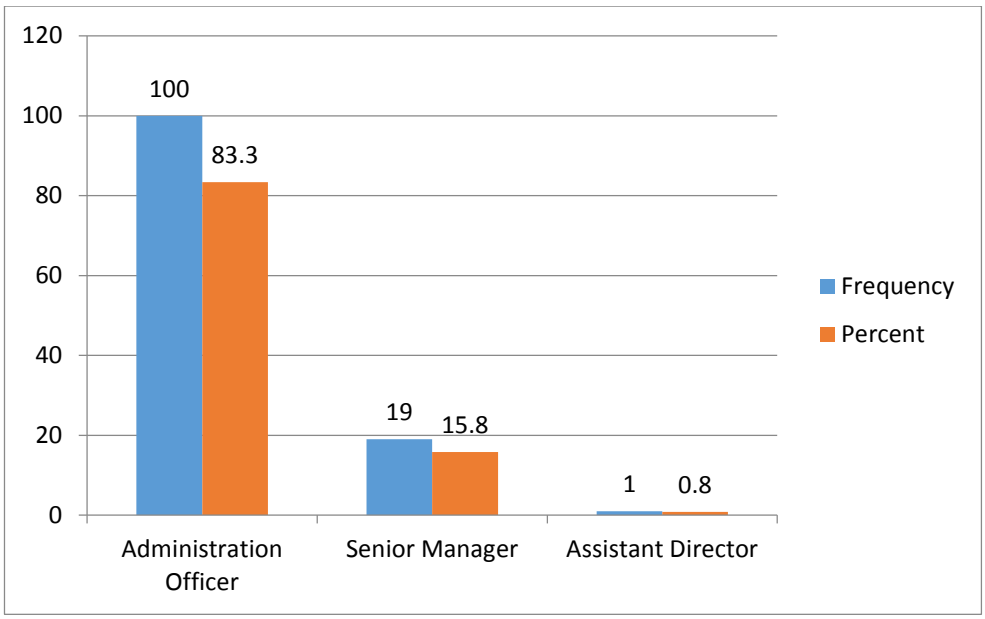

Figure 4.2: Work positions of respondents at the municipalities

The participants in the study hold different job positions (Table 4.3), which include: administration officer; senior manager; and assistant director. These respondents were chosen for the study survey because they all make a contribution to the management of the supply chains at the municipalities.

Table 4.4: Total years of service of respondent at the municipalities

		Frequency	Percent	Valid Percent	Cumulative Percent
foValid	1 - 3	19	15,8	15,8	15,8
	4 - 8	55	45,8	45,8	61,7
	> 8	46	38,3	38,3	100,0
	Total	120	100,0	100,0	

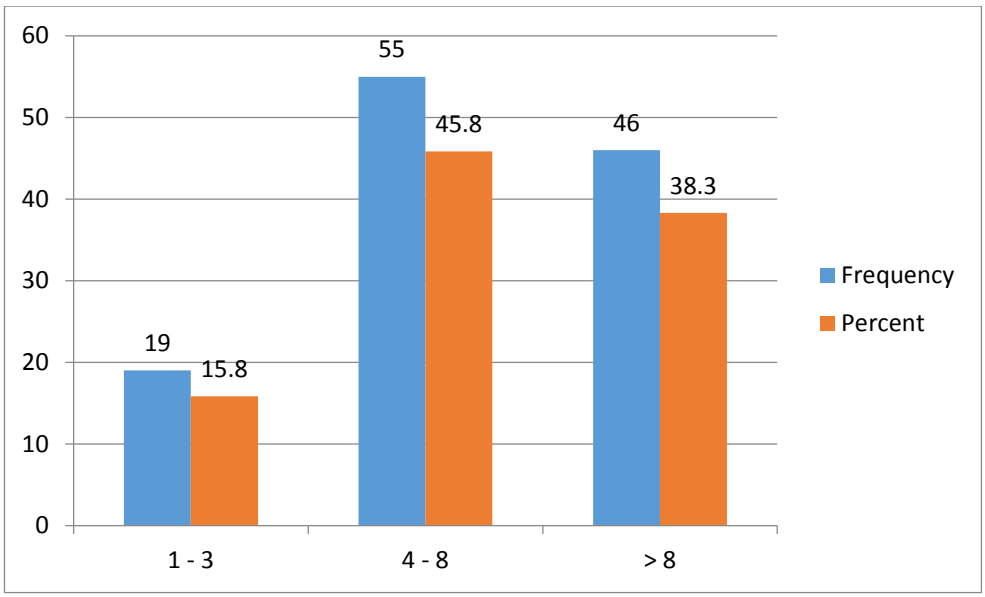

Figure 4.3: Total years of service of respondent at the municipalities

The years of service served by respondents (Table 4.4) were also considered for the purposes of this study, which also assisted in the validation of the research data. For instance, it can be concluded that those employees/participants with more years of service were far more knowledgeable regarding the SCM for their environments than those having fewer years of service.

It can be seen from the frequency bar-graph (Figure 4.4) that many study participants fell into the 4-8 years of service category, which was beneficial for the study data, as they provided more reliable responses. Far fewer participants, however, were found to fall into the 1-3 years of service category.

It is important understand that there are numerous sources in the available literature on the field which link SCM locally to SCM as practiced around the world in all sectors, especially the public sector. Moreover, literature also exists which covers how local governments affect municipalities in terms of both their employees and the citizens they serve (Chan 2012; Jariah *et al.*2012; Chan *et al.* 2010).

In addition, there appears to be a broad mix in the composition of age groups from municipalities all over the world, which causes each municipality to become unique in nature (Financial Regulator of Ireland 2009). Supply chains operate across all disciplines, as they play an integral part of the operations of any organisation (Anthony and Sabri 2015).

The study results also provided the following insights regarding SCM as conducted at both eThekwini and UMgungundlovu municipalities.

SECTION B

This section discusses the results of the study survey pertaining to the variables polled on the impact of SCM at the eThekwini and UMgungundlovu municipalities in KZN on service delivery, in terms of the policies, procedures, programmes/models, and also personnel of these public institutions.

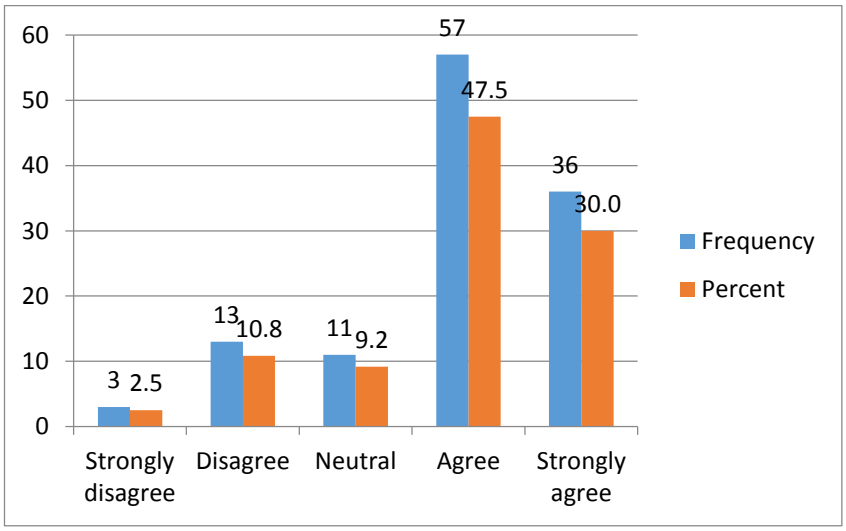

Figure 4.4: Purchasing policy guidelines

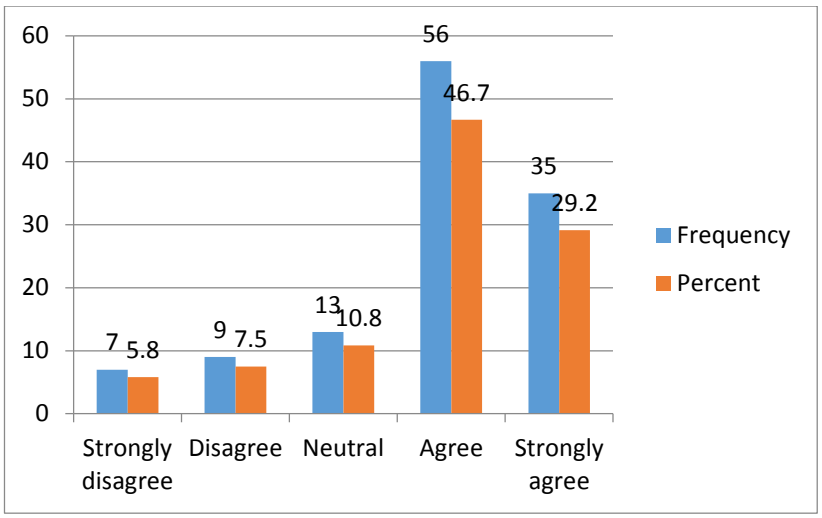

Figure 4.5: Lack of procurement guidelines

Figure 4.4indicatesthe responses of employees at the eThekwini and UMgungundlovu municipalities as to whether a lack of purchasing policy guidelines in their SCM departments has an impact on service delivery by both of these municipalities.

Figure 4.5 illustrates the findings on whether a lack of adequate SCM guidelines for procurement of required materials hinders the municipalities' service delivery.

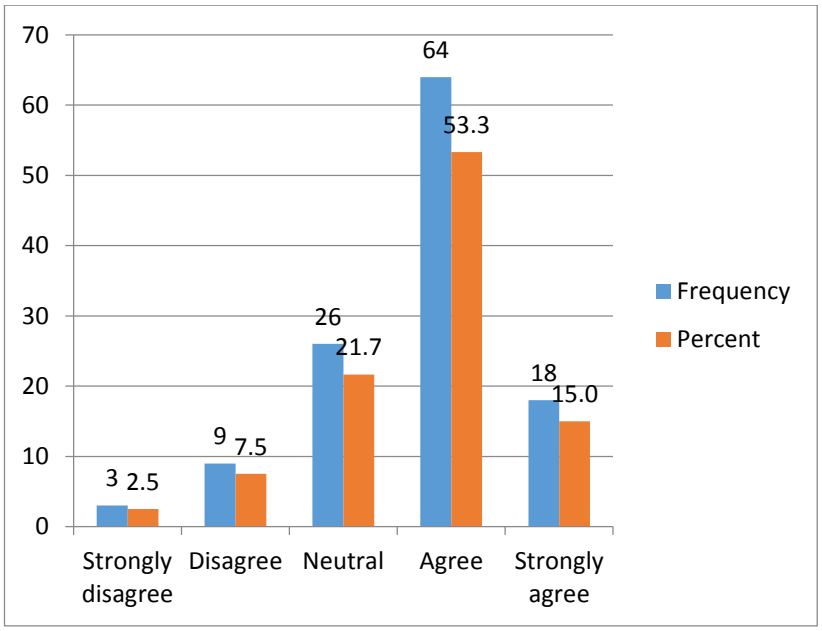

Figure 4.6: Negative impact of strategic misalignment

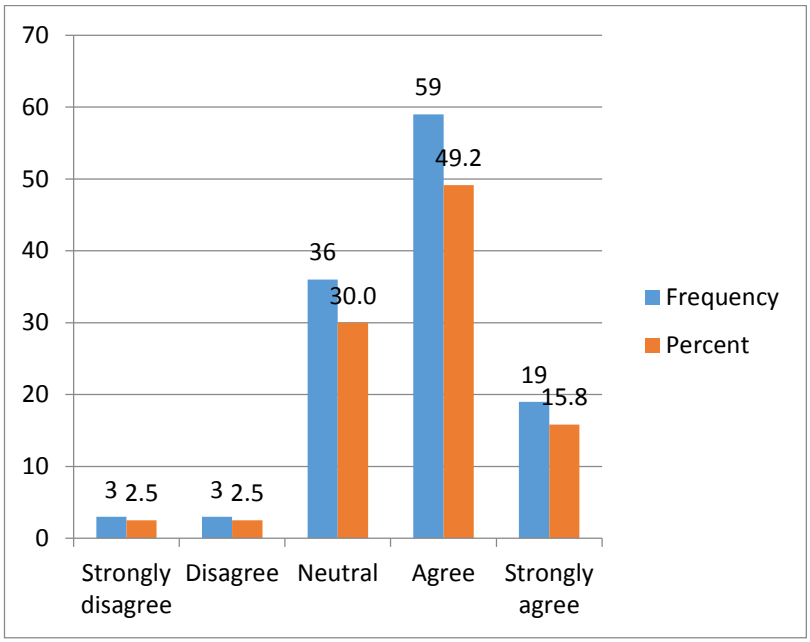

Figure 4.7: Impact of a lack of globalisation

Figure 4.6givesthe study findings as to whether respondents agreed or disagreed that strategic misalignment has a negative impact on the activities of SCM departments at the eThekwini and UMgungundlovu municipalities.

Figure 4.7 illustrates the survey results as to whether a lack of globalisation in SCM departments at the eThekwini and UMgungundlovu municipalities has an impact on the municipalities' delivery of services.

Bartlett's Test of Sphericity was performed to determine whether municipal policies have an influence on SCM factors. The question asked was based on the null hypothesis of uniformity for expected responses to questions. The Bartlett's Test results indicated that (Chi-square = 343,467; df=6; sig= 0.000) for this variable.

The Bartlett's Test results also show that this variable has a strong positive impact on factors which influence SCM practices at the eThekwini and

UMgungundlovu municipalities in KZN, South Africa. The hypothesis supported by this variable is therefore accepted, which indicates that municipal policies play a critical role in affecting SCM practices at the selected municipalities.

Table4.6: Policies

Policies	**1**
Lack of purchasing policy guidelines in the SCM departments has an impact on municipalities' service delivery.	0.845
Lack of adequate guidelines for procurement of required material in SCM is hindering the municipalities' service delivery.	0.896
Strategic misalignment.	0.896
Lack of globalisation in municipalities.	0.855

A component test was conducted on the responses to questionnaire statements regarding the policies used by SCM departments at the selected KZN municipalities for each given statement (Table 4.6). The respondents indicated negative significance to only one category of components, with all other components showing a positive significance of 0.845 regarding the statement "Lack of purchasing policy guidelines in the SCM departments has an impact on municipalities' service delivery".

A figure of 0.896 is shown for the statement regarding the lack of adequate guidelines for the procurement of required materials in SCM processes hindering municipal service delivery, while the other group indicated a value of 0.896 for respondent's who believed that strategic misalignment hinders service delivery in the SCM departments, and the final variable shows a value of 0.855. All of variables tested therefore indicate a very strong significance as to the

impact on service delivery of the policies adopted by the SCM departments' at these two municipalities.

Furthermore, financial policies are shown to play an important role with regard to the effectiveness of SCM processes at these municipalities (Mokhtar *et al.* 2015). With very young and energetic policy implementers (ages of 40 and below), however, the study results reveal the following (Sabri and Zakaria 2015) regarding the effects of municipal policies on SCM procedures:

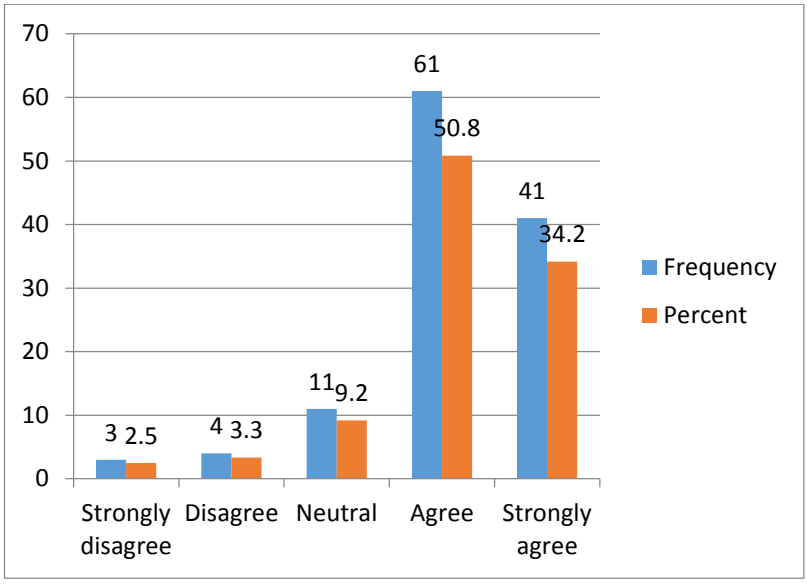

Figure 4.8: Lack of proper management

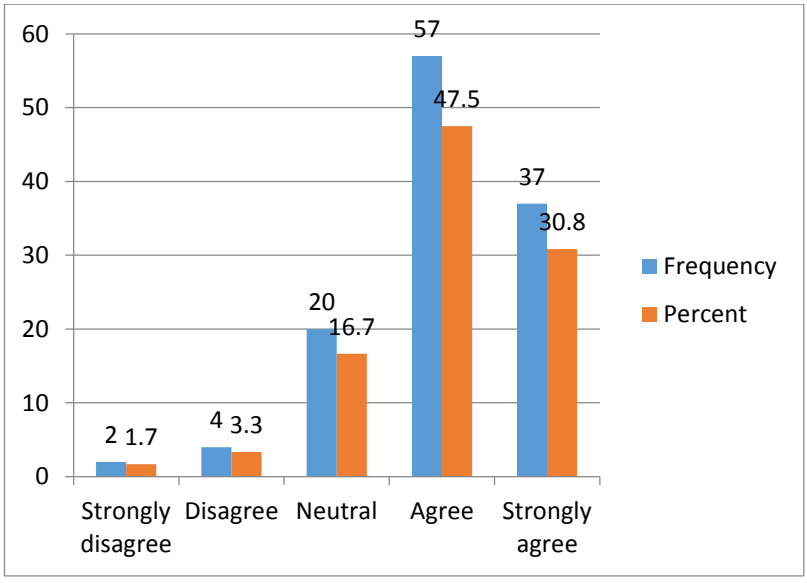

Figure 4.9: Financial constraints

Figure 4.8 shows the study findings as to whether these municipalities lack proper management, specifically in their SCM departments.

Figure 4.9 illustrates the respondents' views with regard to financial constraints resulting in these municipalities being unable to deliver services on time through their SCM operations.

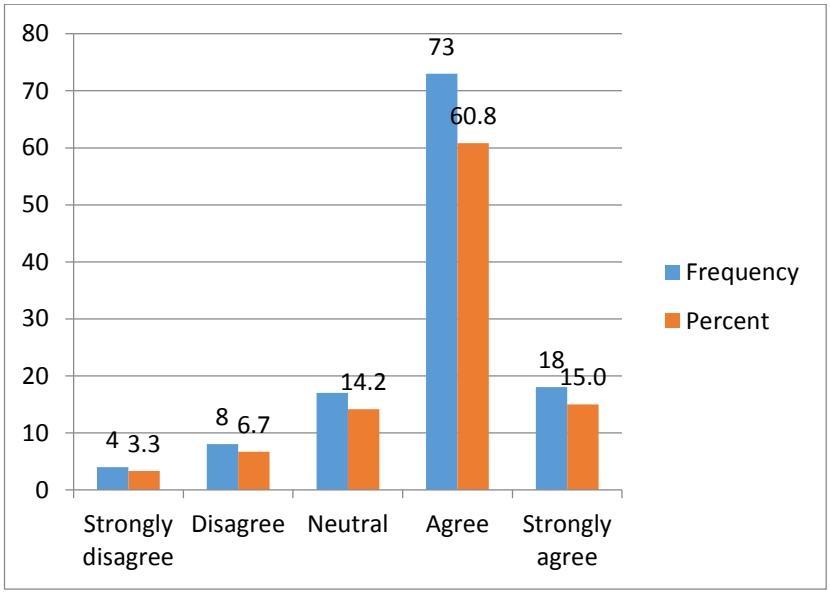

Figure 4.10: Low SCM planning accuracy

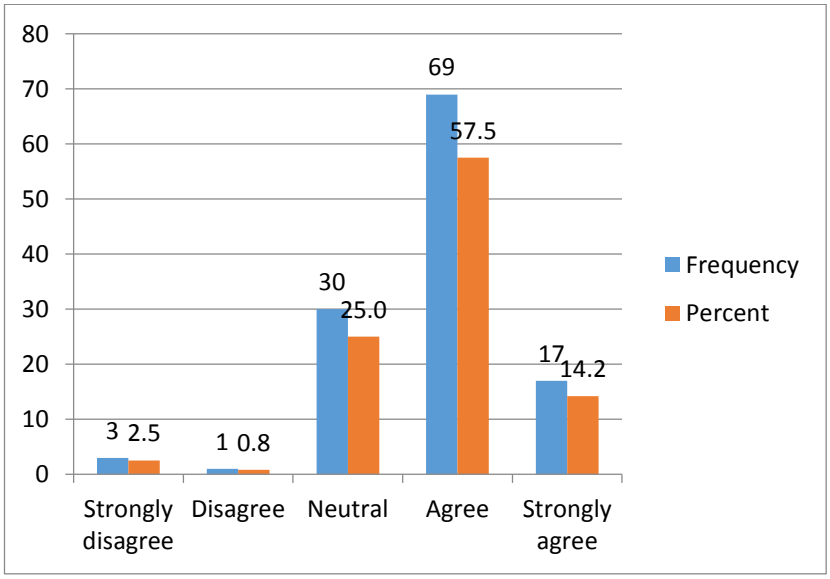

Figure 4.11: Lack of complex material flow patterns

Figure 4.10presentsthe study finding as whether there is low planning accuracy in the SCM departments at these municipalities

Figure 4.11 shows whether the selected municipalities lack complex material flow patterns within their respective SCM departments.

A Bartlett's Test of Sphericity was performed to determine whether municipal procedures have a significant influence on SCM practices at the eThekwini and UMgungundlovu municipalities. The question was based on the null hypothesis of uniformity for expected responses to questions. The Bartlett's Test results indicate that (Chi-square = 212.469; df= 6; sig= 0.000) for this variable.

The Bartlett's Test results additionally show that this variable has a strong positive impact on financial constraints, resulting in the municipalities being unable to deliver services on time through their SCM operations, due to a lack of proper management and low planning accuracy. The hypothesis for this variable is therefore accepted, which indicates that municipal procedures play a crucial role in the processes of SCM departments at the eThekwini and UMgungundlovu municipalities in KZN.

Table4.7: Procedures

Procedures	**1**
Lack of proper management.	0.814
Financial constraints result in the municipalities being unable to deliver services on time through their SCM operations.	0.846
Low planning accuracy.	0.851
Lack of complex material flow	0.835

patterns.	

A component test (Table 4.7) was conducted on the statement as to whether there is lack of proper management within the SCM departments at the two municipalities selected. The respondents indicated negative to only one category of the components, with all other components showing a positive significance of 0.814 regarding a lack of proper management. A figure of 0.846 was obtained for the statement concerning the impact of financial constraints resulting in these municipalities being unable to deliver services on time through their SCM operations. The other group also indicates a value of 0.851 for respondents who believed that low planning accuracy is one of the major challenges which hinder SCM operations at these municipalities. The final variable shows a value of 0.835. All the tested variables therefore indicate a very strong significance for the procedures adopted at municipalities within their SCM Departments.

The following of procedures is, however a protocol adopted by all organisations to ensure sound financial management practices (Banco de Portugal 2010; van Rooij *et al.* 2012; Klapper *et al.* 2012; Huston 2010). Nevertheless, the study results indicate the following regarding the programmes and models of the two selected municipalities:

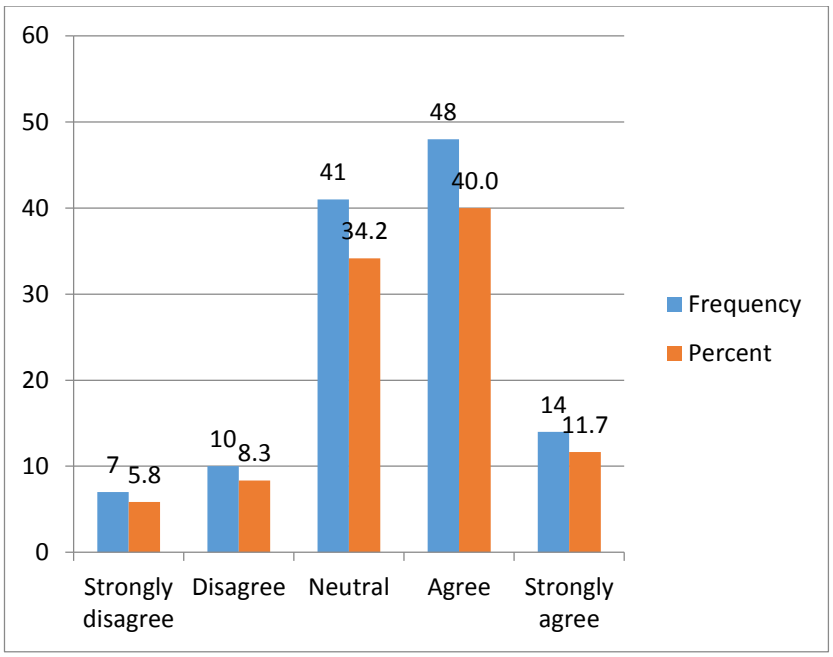

Figure 4.12: Poor supplier network infrastructure

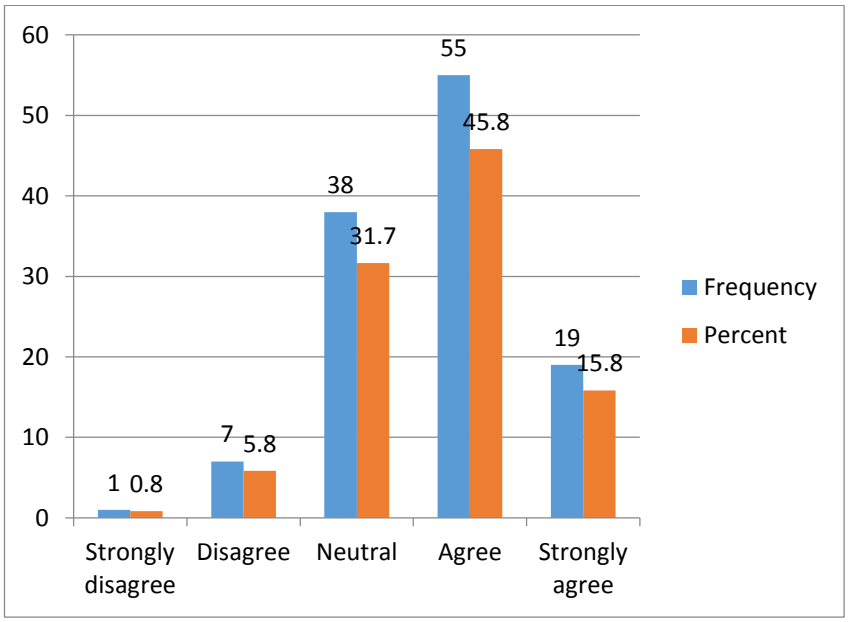

Figure 4.13: Insufficient/inconsistent value stream measures

Figure 4.12 indicates the study responses as to whether poor network infrastructures existing with suppliers affect the municipalities' performance within their respective SCM departments.

Figure 4.13 supplies he results for survey responses in terms of whether the respondents felt that insufficient/inconsistent value stream measures have a positive or a negative impact within the SCM departments of the two selected municipalities.

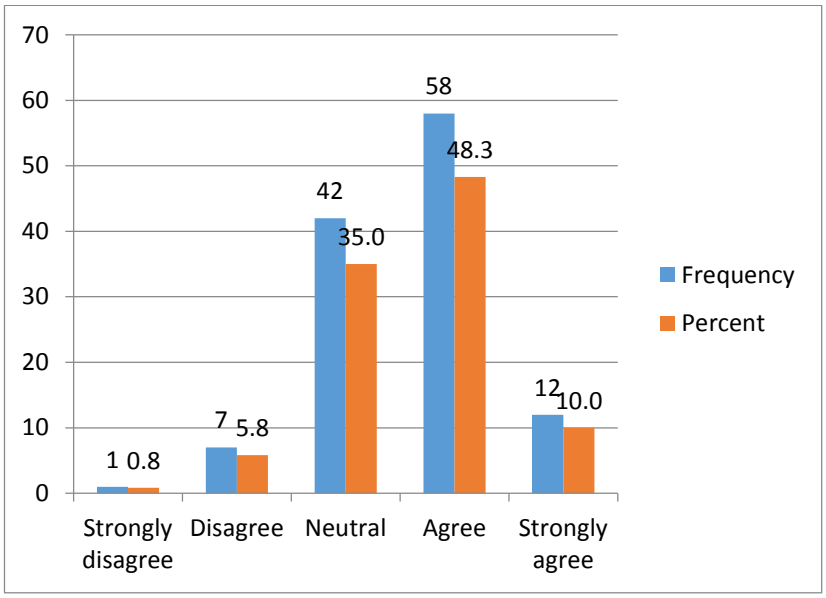

Figure 4.14: Lack of global networks in municipalities

Figure 4.14 provides the results for study findings regarding the statement as to whether a lack of global networks is evident within the eThekwini and UMgungundlovu municipalities.

A Bartlett's Test of Sphericity was performed to determine whether the programmes/models at these municipalities have an influence on factors influencing their SCM practices. The question was based on the null hypothesis of uniformity for expected responses to questions. The Bartlett's Test results indicate that (Chi-square = 163.946; df = 3; sig = 0.000) for this variable.

The Bartlett's Test results also show that this variable has a strong impact on poor infrastructure networks with suppliers affecting municipalities' performance, and also on insufficient/inconsistent value stream measures, and on a lack of global networks existing within the municipalities. The meaning of

this is that the programmes/models of these municipalities play a critical role as factors which influence effective SCM at the selected municipalities.

Table 4.8: Programmes/Models

Programmes/Models	**1**
Poor infrastructure network with suppliers affects the municipalities 'performance.	0.812
Insufficient/inconsistent value stream measures.	0.919
Lack of global networks in municipalities.	0.888

A component test (Table 4.8) was conducted on the statements regarding the programmes/models used at the two municipalities. The respondents indicated negative to only one category of the components, with all other components showing a positive significant of 0.812 for the statement regarding poor infrastructure networks with suppliers affecting the municipalities' performance.

A figure of 0.919 is found for the statement regarding insufficient/inconsistent value stream measures within the SCM departments at the two selected municipalities, which appears to be the most positive significance for this category. On the variable regarding a lack of global networks at these municipalities, the category of the group component shows a value of 0.888. The data presented (Table 4.8) denotes that all tested variables indicate a strong significance for the programmes/models used at these municipalities.

These municipalities utilise funds provided by the government's IDP programme to finance their initiatives and projects (Carter *et al.* 2015; Mentzer *et al.* 2001).

Changing technologies, procedures, beliefs, communication channels, and operational principles, are there by demonstrated to represent an important time-dependent contextual variable for SCM research (Arlbjørn andPaulraj 2013).

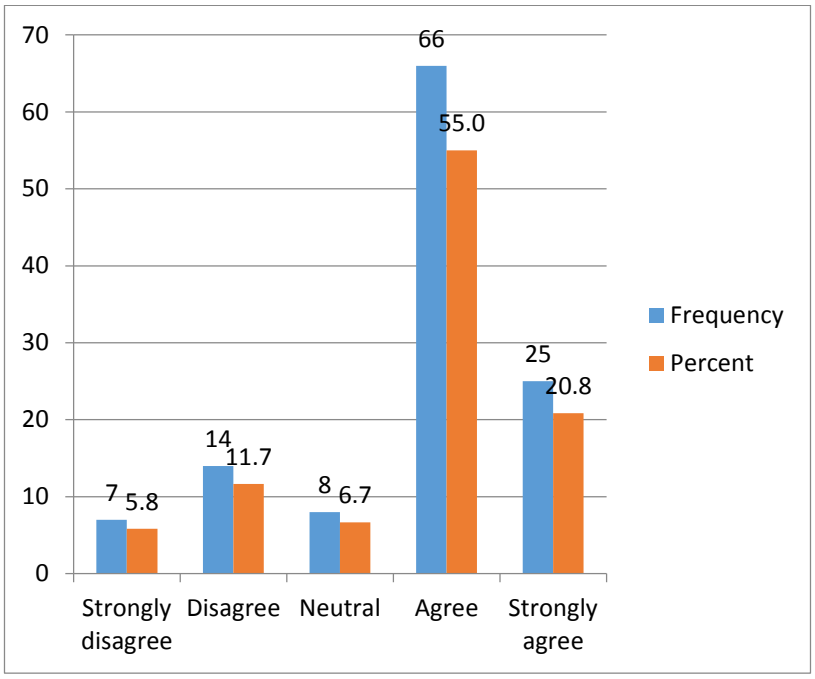

Figure 4.15: Limitations of SCM technological training to staff

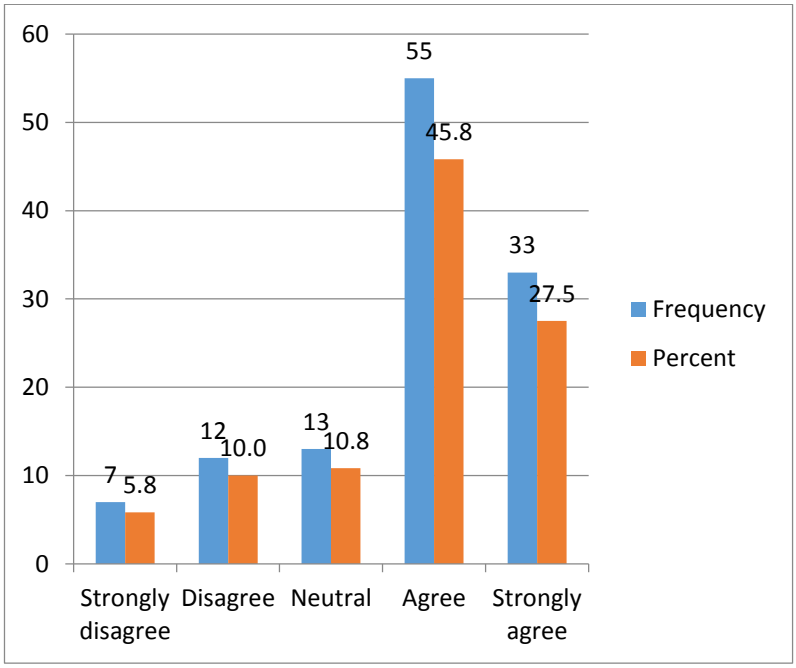

Figure 4.16: Lack of qualified SCM personnel

Figure 4.15providesresults for the study findings as to whether the limitations of technological training provided to staff members for better SCM operations is one of the major challenges which hinders SCM at the eThekwini and UMgungundlovu municipalities.

Figure 4.16presentsthe results from study respondents as to whether they believe that a lack of qualified SCM personnel is a major challenge for the municipalities.

A Bartlett's Test of Sphericity was performed to determine whether municipal personnel have an influence as a factor which influences SCM practices at the two selected municipalities in KZN, South Africa. The question was based on the null hypothesis of uniformity for expected responses to questions. The Bartlett's Test results indicate that (Chi-square = 96.199; df = 1; sig = 0.000) for this variable. The results show that this variable has a strong impact on the limitations of technological training to staff member for better SCM operations being one of the major challenges which hinder SCM, and also whether a lack of qualified SCM personnel is a major challenge for these municipalities. The meaning of this is that the programmes/models play a critical role in being amongst the factors which influence SCM at these municipalities.

Table4.9: Personnel

Personnel	**1**
The limitations of technological training to staff member for better SCM operations is one of the major challenge that hinders SCM.	0.935
Lack of qualified personnel in SCM is a major challenge in the	0.935

municipalities.	

A component test (Table 4.9) was conducted on the statement as to whether municipal personnel are one of the primary factors which impacts the SCM within the selected municipalities. The respondents have indicated negative to only one category of components, where the first variable, with regard to the limitations of technological training to staff member for better SCM operations is one of the major challenge which hinders SCM, showing a figure of 0.935. A value of 0.935 is also shown for the statement regarding whether the lack of qualified SCM personnel is a major challenge at these municipalities. The variables for both of these tests therefore show a very positive significance regarding the personnel at the municipalities being an influential factor.

It is, however, of pivotal importance that organisations acquire adequate personnel who are professionally trained in supply chain practices (Kembro andN€aslund 2014). Such hiring practices can increase procedural effectiveness, and improve service delivery performance for organisations (Kaufmann and Saw 2014). The study findings additionally revealed the following results with regards to other aspects investigated:

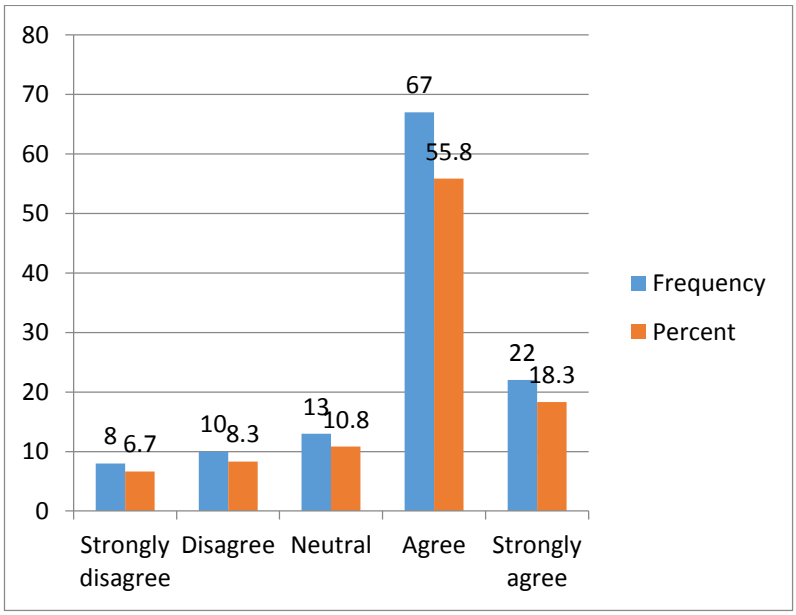

Figure 4.17: Lack of technology availability

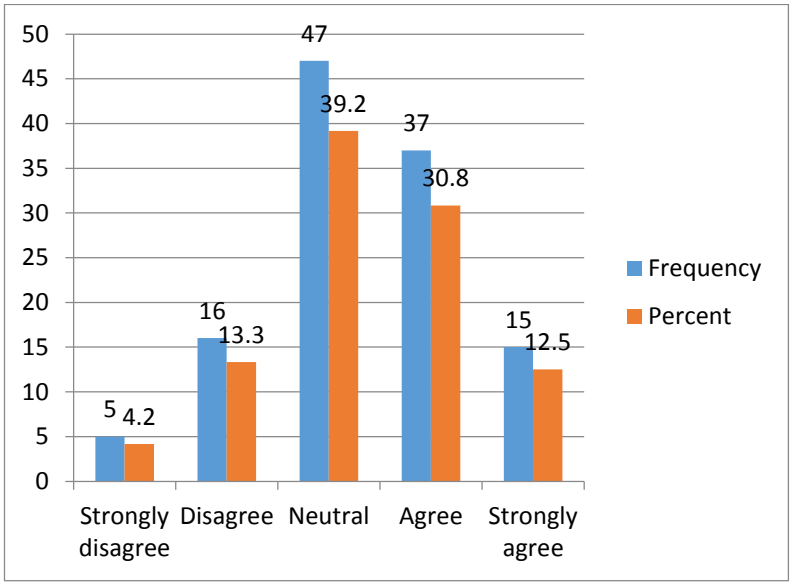

Figure 4.18: Lack of customer appreciation

Figure 4.17 indicate the results of the statement with regards to whether the Lack of technology availability has an influence on the SCM operations and Figure 4.18 illustrates the respondents' views with regard to the lack of customer appreciation at the eThekwini and UMgungundlovu municipalities.

A Bartlett's Test of sphericity was performed to determine whether municipal the other primary factors have a significant influence on SCM practices at the eThekwini and UMgungundlovu municipalities. The question was based on the null hypothesis of uniformity for expected responses to questions. The Bartlett's Test results indicate that (Chi-square = 9.171; df = 1; sig = 0.002) for this variable. The results indicate that this variable has a strong impact on the lack of technology availability for better SCM operations and also whether a lack of customer appreciation is a major challenge for these selected municipalities. The meaning of this is that the other factors play a critical role in being amongst the dynamics that influences SCM at these municipalities.

Table4.10: Other

Other	**1**

Lack of technology availability has an influence on the SCM operations.	0.798
Lack of customer appreciation.	0.798

A component test (Table 4.10) was conducted regarding the statement concerning other primary factors which might have an impact on SCM practices at the eThekwini and UMgungundlovu municipalities. A value of 0.798 is shown for whether the both selected municipalities' lack of technology availability has an influence on their SCM operations and the final variable shows a value of 0.798 for whether the both selected municipalities' lack of customer appreciation has a negative impact on the operations of SCM as well. All the tested variables therefore indicate a strong significance for other primary factors adopted at the municipalities within the SCM Departments.

4.4 CONCLUSION

Analyses of data collected for the study indicates the conclusions which can be drawn from this research. From the given analysis of this study, it can be summarised that specific and significant factors exist which negatively influence effective SCM practices at these municipalities in KZN, South Africa.

The study results, as stated, should be of concern, especially for both the eThekwini and UMgungundlovu municipalities, as it seems that a significant number of officials agreed that the factors, as identified, definitely negatively influence the effective implementation of SCM, and also impact poorly on both SCM practices, and on the delivery of services required of these municipalities by the public.

The following chapter provides conclusions drawn with regard to the primary objectives in obtaining the entire body of research and data for this study, and also includes recommendations for further research that could be performed.

CHAPTER 5
FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter summarises the study findings relating to the literature review, the research questions, the conclusions drawn, the implications of the study, as well as providing recommendations for further research, along with a brief chapter conclusion.

5.2 SUMMARY OF KEY FINDINGS

- The research study reveals a lack of purchasing policy guidelines and a lack of adequate guidelines for procurement of required materials in the SCM departments for the selected municipalities. Indicated by the findings is a negative impact which will hinder the service delivery performance of the UMgungundlovu and eThekwini municipalities.
- The study findings also indicate that there are financial constraints which result in these municipalities being unable to deliver services on time through their SCM operations.
- According to results of this study, it is also shown that strategic misalignment exists, which impacts negatively on service delivery to the public by these two municipalities.
- The study further finds that there is lack of globalisation in municipalities.
- The study also indicates that Lack of adequate guidelines for procurement of required material in SCM is hindering the municipality's service delivery.
- According to the study, it seems like there is lack of proper management which leads to poor SCM which will lead to the increase of risks of reputational damage in the municipalities.
- There is a clear indication that low planning accuracy is one of the factors which negatively influences SCM at these municipalities.
- There is also a clear indication that poor infrastructure networks with suppliers affect the municipalities' service delivery performance.

- The study also concludes that there are insufficient/inconsistent value stream measures in place at these municipalities, which has a negative impact on their SCM practices.
- It is also found that the limitations of technological training to staff members for better SCM operations is one of the major challenge which hinders SCM at these municipalities.
- The study findings indicate that 55% percent agreed that a lack of qualified SCM personnel is a major challenge for the two municipalities.
- The study also reveals that a lack of technology availability has an influence on the municipalities' SCM operations.
- Finally, it is found from the findings for this study that these municipalities exhibit a lack of customer appreciation, and customers are therefore not consistently fulfilled with regard to what they are promised with their expectations for faster and more effective service delivery remaining unmet.

Table 4.11: Main findings on statistical tests

THEMES	STATEMENTS	COMPONENT
Policies	The state of purchasing policy in the municipalities	0.845
	The adequate of procurement guidelines required by the SCM in the municipalities.	0.896
Procedures	Financial challenges influencing the municipalities SCM operations	0.846
	Lack of proper management faced by municipalities	0.814
Other important aspects	Poor infrastructure network with suppliers impacted on the municipalities performance	0.812
	The use of modern technology by SCM personnel in the municipalities	0.935
	Lack of qualified personnel in the	0.935

	SCM departments of municipalities	

The table above indicates the statistical analysis of the major variables that were statistically analysed through the use of components matrix. The component test was done on policy, procedures and other important aspects such as programmes/models and personnel. The purpose of this analysis was to identify the most influential variables and how reliable they were in the data. This concludes that supply chain management departments in the municipalities should improve on the mentioned variables.

5.3 LITERATURE REVIEW FINDINGS

The study's literature review reveals that SCM is used by organisations to effectively compete with their market rivals. Moreover, organisations with effective SCM can easily achieve competitive advantage (Hassini 2008). Many organisations therefore focus on their supply chains due to the tough competition encountered in all market sectors (Christopher 2000; Gligor *et al.* 2015; Lee *et al.* 1997). It is, however, extremely important within the manufacturing industries for firms to compete with each other in order to achieve competitive advantage, especially through the maximising of customer values (Kamath 2016). SCM can, hence, play a significant role in organisations achieving this competitive advantage (Christopher 2016).

The movement of goods, from raw materials to final products which are finally delivered to customers through connection in the supply chain, consists of completed activities which re critical to successful organisational functions and processes (Hervani *et al.* 2005). The structure of supply chains includes both their internal operations, and external suppliers. Supply chains are required by organisations for the purpose of creating value for customers in the provision of both products or services, and are networks comprising both the downstream and upstream organisations involved in the various processes and activities they are responsible for enacting (Matopoulos *et al*. 2007; Mustefa 2014).

Organisational activities influence the acquisition of organisational competitive advantage and, subsequently serve to enhance the quality of both products and business performance (Soin 2004). Those in middle-management need to take action on behalf of all levels of upstream and downstream suppliers responsible for ensuring that the products or services promised to consumers are delivered on time.

SCM has, moreover, emerged as an important factor in the success of manufacturers due to today's competitive world also being driven by the challenges associated with globalisation (Rusli *et al*. 2013). Many suppliers compete with each other to achieve customer satisfaction in an unsteady and competitive market (Chavosh *et al*. 2011), and to remain competitive, suppliers must focus on SCM and the provision of finished services and goods in order to succeed and survive (Li *et al.* 2006).

The high number of competitors which exist in business environments today make them infinitely more challenging, and it is therefore of enormous importance for organisations to improve on their business operations through the implementation of SCM, especially within manufacturing industries, in order for companies to achieve competitive advantage (Arumugam *et al.* 2011).

Consumers seek both reliable local and international products to purchase (Naina, Mohamed and Borhan 2014). The understanding and practice of SCM has consequently become a prerequisite for maintaining competitiveness and improving profitability in global terms. The speed of the changes by which the market evolves has prompted a growing focus in the manufacturing industry on understanding and awareness of the role supply chains play in the profitability of organisations (Hugos 2011). A strong positive relationship is therefore seen to exist between effective SCM and the achievement of competitive advantage in the manufacturing industries, since performance sustainability, when considered across supply chains, focuses primarily on their performance,

processes and systems, including also their measurements and management (Klassen and Vereecke 2012).

Effective supply chain performance can drive down costs and increase efficiency for organisations (Gunasekaran *et al.* 2004). With regard to performance sustainability, a subset of studies has been conducted which attempts to evidence this quantitatively (Burritt and Schaltegger 2012; Schaltegger *et al.*2012).

A number of other issues also arise from the study findings, along with the identification of supply chain sustainability measurements, such as what data to collect, when to collect it, and other proprietary reasons for assembling and assessing data across supply chain cycles (Lehtinen and Ahola 2010).

While extant literature explores these and related issues across a number of different industries, such as paper production (Bloemhof-Ruwaard *et al.*1996), and the manufacturing of furniture (Handfield *et al.*1997), the public sector remains faced with the additional and constant challenge of effectively influencing supply markets through public expenditure in terms of both environmental and social considerations (Lember *et al.*2011).

5.4 CONCLUSIONS

The following conclusions are drawn from the study, based on those factors identified to affect SCM policies at the eThekwini and UMgungundlovu municipalities:

This study concludes that respondents at the eThekwini and UMgungundlovu municipalities agreed that a lack of purchasing policy guidelines in the SCM departments has an impact on the municipalities' service delivery, which is evident from the 57 percent of respondents who were in agreement with the statement regarding this.

A further 56 percent of respondents also indicated that a lack of adequate guidelines for the procurement of required material in SCM hinders the municipalities' service delivery.

The study further concludes that 64 percent of respondents also agreed that there is strategic misalignment which has a negative impact at the two selected municipalities, while 59 percent of respondents supported the statement concerning whether a lack of globalisation exists there.

The following conclusions are drawn, based on factors which affect procedures at the eThekwini and UMgungundlovu municipalities:

A total of 61 percent of study respondents agreed that there is lack of proper management in the SCM departments at eThekwini and UMgungundlovu municipalities, while a further 57 percent agreed that financial constraints result in these municipalities being unable to deliver services through their SCM operations on time.

The study results further indicate that 73percentof respondents agreed that there is low planning accuracy at the eThekwini and UMgungundlovu municipalities, while 69 percent further indicated that there is lack of complex material flow patterns evident at these municipalities.

The following conclusions are drawn, based on factors which affect programmes/models at the eThekwini and UMgungundlovu municipalities:

The study indicates that 48 percentage of respondents were in agreement with the statement as to poor infrastructure networks with suppliers affecting the municipalities' service delivery performance, whereas the study further concludes that 55 percentage of respondents agreed that there are insufficient/inconsistent value stream measures within the SCM departments at the eThekwini and UMgungundlovu municipalities.

The study further concludes that 58 percent of respondents agreed that there is a lack of global networks at the selected municipalities.

The following conclusions are drawn, based on factors which affect the personnel at the eThekwini and UMgungundlovu municipalities:

A total of 66 percent of respondent agreed that the limitations of technological training to staff members for better SCM operations is one of the major challenges which hinder the municipalities' SCM. A further 55 percent of respondent agreed that a lack of qualified SCM personnel at the eThekwini and UMgungundlovu municipalities presents a major challenge for them.

The following conclusions are drawn, based on other factors that affect SCM at eThekwini and UMgungundlovu municipalities:

The study findings indicate that 67 percent of respondent agreed that a lack of technology availability negatively influences SCM operations at the two selected municipalities, and 37 percent of respondents were also in agreement with the statement as to there being a lack of customer appreciation in evidence there.

5.5 IMPLICATIONS OF THE STUDY

The study highlights many of the critical factors influencing SCM practices in the selected eThekwini and UMgungundlovu municipalities in KZN, South Africa.

5.6 RECOMMENDATIONS

The following recommendations are made, based on the findings from this study:

- The study recommends that all staff members ideas should be considered and allowed by the purchasing and procurement policy of the municipalities.

- The procurement and tendering or purchasing policy must include staff representative members in the municipalities as this will help combat corruption.
- The uses of modern technology by the SCM department personnel in the municipalities must be encouraged and promoted by all relevant departments**.**
- Qualified personnel should be recruited in the SCM departments and job training should also be done on continuous basis to improve the operations of SCM.
- These study findings recommend that municipal SCM departments be improved in order to allow the formulation and use of purchasing committees within the relevant departments. The effect of this will be to minimise errors which could be made by individual mangers when processing the purchasing of required materials.
- The study findings recommend that the procurement of required materials be performed by committees formed from the relevant departments within organisations, thereby ensuring that all eventualities are catered for.
- Based on the study findings, it is also recommended that 'strategies beset in place in the SCM departments at the selected municipalities which are in line with the mission and the vision of their SCM practices.
- The study findings recommend that SCM should be administered by people who are properly qualified, or who possess the necessary educational degrees.
- Finally, the study findings recommend that the SCM financial management team at the selected municipalities should be comprised of professional qualified officials, as this will assist in minimising the financial constraints normally faced by their SCM departments.

5.7 SUGGESTIONSFOR FURTHER RESEARCH

This study was launched upon with the intention of identify factors which influence SCM practices at selected municipalities in KZN, South Africa. The

research conducted aimed to identify and explain factors influencing SCM; therefore, based on the study findings, the following recommendations for further studies which could be performed are advanced:

- This study finding recommends that further research be carried on the procurement and SCM policy challenges facing South African municipalities.
- This study recommends further research on the staff attitudes towards the procurement and SCM procedures followed by municipalities.
- These study findings recommend that further research be carried out on the same area of South Africa using qualitative techniques, and which could then also be extended to other provinces, as also to include the private sector and even privately-owned businesses.
- These study findings also recommend that further research on factors which influence other important aspects of operations within government departments be carried out in order to improve on service delivery levels in South Africa.

5.8 CONCLUSION

The main focus for this chapter was to provide a summary of the study findings relating to the literature reviewed, conclusions, recommendations, and also suggestion for further studies based on this research.

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Appendix 1: Consent Letter

Faculty of Management Sciences

Department OF Public Management and Economics

The Researcher wishes to establish the Factors that influences Supply Chain Management in KwaZulu-Natal, South Africa.

It would be highly appreciated should you be able to assist by answering the attached questionnaire. The information provided will be treated with utmost confidentiality and anonymity and will be used for the purpose of this research only. No other use will be made of the information obtained, either for third party reasons or otherwise, without your permission.

DECLARATION BY THE RESPONDENT

I hereby agree to participate in the completion of this questionnaire

…….

Signature of the respondent

Appendix 2: Questionnaires

SECTION A

Demographics

(Please indicate your answer by placing a tick in the appropriate box)

1. Please state your municipality: Please tick

eThekwini Municipality	1
UMgungundlovu Municipality	2

2. Please indicate your position:

Administration officer	1
Senior manager	2
Assistant Director	3
Deputy director	4
Director	5

3. Please indicate years of service in the municipality:

Between 1-3 years	1
Between 4-8 years	2
More than 10 years	3

SECTION B

SCM Questions/Statements:

Please indicate your response to the following statements with regards to Supply-Chain Management policies, procedures, programmes and models that apply at your municipality, and challenges encountered in how these policies are implemented, by placing a tick in the appropriate box.

Statement	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
1. Policies					
1.1. Lack of purchasing policy guidelines in the SCM Departments has impact in municipalities' service delivery					
1.2. Lack of adequate guidelines for procurement of required material in SCM is hindering the municipality's service delivery					
1.3. Strategic Misalignment					
1.4. Lack of Globalization in municipalities					
2. Procedures					
2.1. Lack of proper Management					
2.2. Financial constraints result in the municipality being unable to deliver services on time through the SCM operations					
2.3. Low Planning accuracy					

2.4 Lack of Complex material flow patterns					
3. Programmes / Models					
3.1. Poor infrastructure network with Suppliers affects the municipality's performance					
3.2. Insufficient / inconsistent value Stream measures					
3.3. Lack of global networks in municipalities					
4. Personnel					
4.1. The limitations of technological training to staff member for better SCM operations is one of the major challenge that hinders SCM					
4.2. Lack of qualified personnel in SCM is a major challenge in the municipality					
5. Other					
5.1. Lack of technology availability has an influence on the SCM operations					
5.2. Lack of Customer Appreciation					

Appendix 3 : Proposal Approval Letter

DUT DURBAN UNIVERSITY OF TECHNOLOGY

FACULTY OF MANAGEMENT SCIENCES

31 October 2016

Reference: Proposal Approval: SF Duma, Student number: 21225108

Dear Ms SF Duma

MASTER OF MANAGEMENT SCIENCES: PUBLIC MANAGEMENT

This serves to confirm the approval of your research proposal by the Faculty Research Committee, at its meeting on 13 October 2016, as follows:

1. Research proposal and provisional dissertation title:

   FACTORS INFLUENCING SUPPLY CHAIN MANAGEMENT PRACTICES IN KWAZULU-NATAL MUNICIPALITIES, SOUTH AFRICA.

   Supervisor: Dr LM Lekhanya

   Co-supervisor: N/A

   Please note that any proposed changes in the dissertation title require the approval of your supervisor/s, the Faculty Research Committee, as well as ratification thereof by the Higher Degrees Committee.

2. Research budget to the amount of **R10 000.00**

   Please note that this funding is not a scholarship or bursary and is therefore not paid directly to you, but is controlled by your supervisor. Any proposed changes to use of this funding allocation require the approval of your supervisor and the Faculty Research Committee.

The Institutional Research Committee has stipulated that:

(a) This University retains the ownership of any Intellectual Property (patent, design, etc.) registered in respect of the results of your Masters/Doctors Degree in Technology studies as a result of the award and the provisions of the above Act;
(b) Should you find any of the terms above not acceptable then you are given the option to decline the Research budget award to your project in writing.

May we remind you that in terms of Rule G25(2)(b), if you fail to obtain the Masters/Doctors degree within the maximum time period allowed after first registering for the qualification, Senate may refuse to renew your registration or may impose any conditions it deems fit. You may apply to the Faculty Research Committee for an extension.

Please note that you are required to convert your registration from the informal to the formal course and re-register each year.

Should you experience any problems relating to your research, your supervisor must be informed of the matter as soon as possible. If the difficulties persist, you should then approach your Head of Department and thereafter the Executive Dean of the Faculty.

Please refer to the 2014 General Rule Book concerning the rules relating to postgraduate studies, which include *inter alia* acceptable minimum and maximum timeframes, submission of thesis/dissertations, etc. You are also advised to read the Postgraduate Students' Guide which is available on the DUT website.

Please do not hesitate to contact this office for any assistance. We wish you success in your studies.

Kind regards,

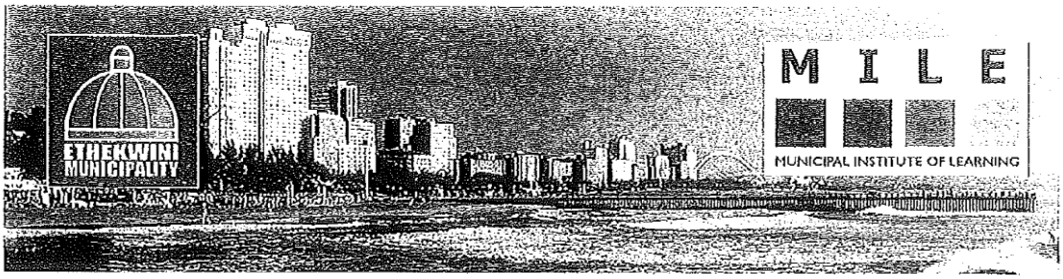
[redacted]

Prof R Balkaran

FRC Chairperson: Faculty of Management Sciences

Cc Supervisor: Dr LM Lekhanya

Appendix 4: eThekwini Municipality's Gatekeepers Letter



Pod 1, Second Floor, Intuthuko Junction, 750 Mary Thiphe Street, Umkhumbane, Cato Manor, Durban 4001.
Tel: 031 322 4513, Fax: 031 261 3405, Fax to email: 086 265 7160, Email: mile@durban.gov.za, Website: www.mile.org.za

For attention:
Chair: Research Ethics Committee
Faculty of Management Sciences
Durban University of Technology
Durban
4001

18 November 2016

RE: LETTER OF SUPPORT MS S.F DUMA, REGISTRATION NUMBER 21225108 - GRANTING PERMISSION TO USE ETHEKWINI MUNICIPALITY AS A CASE STUDY

TITLE: "Factors influencing supply chain management practice in the South African"

Please be informed that eThekwini Municipality's Head: Supply Chain Management Unit and the Head: eThekwini Municipal Academy (EMA), have considered the request by Ms Duma to use eThekwini Municipality as a research study site leading to the awarding of a Master's degree in Business Administration.

We therefore wish to inform Ms Duma of the acceptance of her request and hereby assure her of our utmost co-operation towards achieving her academic goals; the outcome which we believe will help our municipality deliver a more effective service.

In return, we stipulate as conditional, that Ms Duma contacts the Municipal Institute of Learning (MILE) to present the results and recommendations of this study to the related unit/s on completion.

Wishing the student all the best in her studies.

[redacted]

Mr. A. Petersen
Head : Supply Chain Management Unit
eThekwini Municipality

[redacted]

p/p Dr M. Ngubane
Head: EMA
eThekwini Municipality

Date :

[redacted]

Appendix 5: UMgungundlovu Gatekeepers Letter

ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH

TO: The Municipal Manager, uMgungundlovu District Municipality

DATE: 14 July 2017

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Masters student at the Durban University of Technology (DUT). I am currently unemployed hence I am a full time student at DUT.

The proposed topic for my research is:

Factors influencing supply chain management practice in the South African municipalities in KwaZulu-Natal.

Government commenced with public sector procurement reform in 1995, with several interim and other measures introduced, as part of the reform process. Reform focused on the promotion of good governance and the introduction of a new procurement system to address certain socio-economic objectives. A basic principle of these reforms is that managers must be given the flexibility to manage, within a framework that satisfies the constitutional requirement of transparency and accountability. The previous procurement and logistical arrangement suffered from a number of limitations that needed to be addressed. Therefore, this study is going to address the following:

Lack of proper supply chain management within various South African municipalities has resulted in poor service delivery to the local communities (3SMedia, 2013). This problem is further highlighted by literature review that South African Municipalities are faced with a challenge of non-performance on service delivery (the Report for Submission for the 2014/15 Division of Revenue (2014: 296).

The objectives of the study are:

- To identify and explain factors influencing Supply chain management

- To examine as to what extent do these identified factors affect or influence the municipalities Supply chain management in KZN

- To suggest and recommend strategies that should be employed to improve the current state of Supply chain management within the municipalities in KZN.

I am hereby seeking your consent to conduct my questionnaire within the various departments of uMgungundlovu District Muncipality.

Should you require any further information, please do not hesitate to contact me or my research coordinator, our contact details are as follows:

Student

Name and Surname : S'mangele F Duma

Contact Details : 074 659 4434

Email :smahduma8@gmail.com

Research Coordinator

Name and Surname : DR LM Lekhanya

Contact Details : 031 373 5835

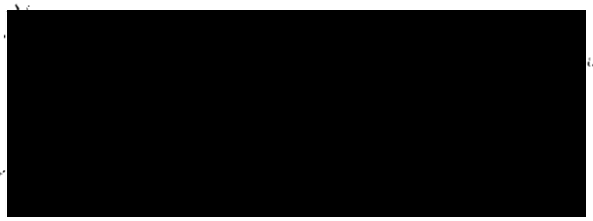
RESPONSE

Permission granted (Y/N)

BY (Name & Surname)

Date

Signature



Appendix 6: Language Editing Certificate

Helen Richter
Advanced Editing, Proofreading
& Copy writing

feetjieding@gmail.com
072 9538169

08 January 2018

LANGUAGE EDITING CERTIFICATE

To whom it may concern:

I have proofread and language-edited the Master's dissertation by S'mangele Favorite Duma, titled:

"Factors Influencing Supply Chain Management Practices in the Municipalities of KwaZulu-Natal, South Africa"

To the best of my knowledge, the work is the author's own work and is free of spelling, grammar, structural and stylistic errors, to meet the requirements for submission to the Durban University of Technology.

With thanks.

[redacted]

H. S. Richter (Ms)

Appendix 7: Frequency Tables

Please state your municipality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	eThekwini	60	50,0	50,0	50,0
	UMgungundlovu	60	50,0	50,0	100,0
	Total	120	100,0	100,0	

Please indicate your position					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administration Officer	100	83,3	83,3	83,3
	Senior Manager	19	15,8	15,8	99,2
	Assistant Director	1	0,8	0,8	100,0
	Total	120	100,0	100,0	

Please indicate years of service in the municipality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 3	19	15,8	15,8	15,8
	4 - 8	55	45,8	45,8	61,7
	> 8	46	38,3	38,3	100,0
	Total	120	100,0	100,0	

Lack of purchasing policy guidelines in the SCM Departments has impact in municipalities' service delivery					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	2,5	2,5	2,5
	Disagree	13	10,8	10,8	13,3
	Neutral	11	9,2	9,2	22,5
	Agree	57	47,5	47,5	70,0
	Strongly agree	36	30,0	30,0	100,0
	Total	120	100,0	100,0	

Lack of adequate guidelines for procurement of required material in SCM is hindering the municipality's service delivery					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	5,8	5,8	5,8
	Disagree	9	7,5	7,5	13,3
	Neutral	13	10,8	10,8	24,2
	Agree	56	46,7	46,7	70,8
	Strongly agree	35	29,2	29,2	100,0
	Total	120	100,0	100,0	

Strategic Misalignment				
Frequency	Percent	Valid Percent	Cumulative Percent	

Valid	Strongly disagree	3	2,5	2,5	2,5
	Disagree	9	7,5	7,5	10,0
	Neutral	26	21,7	21,7	31,7
	Agree	64	53,3	53,3	85,0
	Strongly agree	18	15,0	15,0	100,0
	Total	120	100,0	100,0	

Lack of Globalization in municipalities					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	2,5	2,5	2,5
	Disagree	3	2,5	2,5	5,0
	Neutral	36	30,0	30,0	35,0
	Agree	59	49,2	49,2	84,2
	Strongly agree	19	15,8	15,8	100,0
	Total	120	100,0	100,0	

Lack of proper Management					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1,7	1,7	1,7
	Disagree	4	3,3	3,3	5,0
	Neutral	20	16,7	16,7	21,7
	Agree	57	47,5	47,5	69,2

	Strongly agree	37	30,8	30,8	100,0
	Total	120	100,0	100,0	

Financial constraints result in the municipality being unable to deliver services on time through the SCM operations					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	2,5	2,5	2,5
	Disagree	4	3,3	3,3	5,8
	Neutral	11	9,2	9,2	15,0
	Agree	61	50,8	50,8	65,8
	Strongly agree	41	34,2	34,2	100,0
	Total	120	100,0	100,0	

Low Planning accuracy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	3,3	3,3	3,3
	Disagree	8	6,7	6,7	10,0
	Neutral	17	14,2	14,2	24,2
	Agree	73	60,8	60,8	85,0
	Strongly agree	18	15,0	15,0	100,0
	Total	120	100,0	100,0	

Lack of Complex material flow patterns					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	2,5	2,5	2,5
	Disagree	1	0,8	0,8	3,3
	Neutral	30	25,0	25,0	28,3
	Agree	69	57,5	57,5	85,8
	Strongly agree	17	14,2	14,2	100,0
	Total	120	100,0	100,0	

Poor infrastructure network with Suppliers affects the municipality's performance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	5,8	5,8	5,8
	Disagree	10	8,3	8,3	14,2
	Neutral	41	34,2	34,2	48,3
	Agree	48	40,0	40,0	88,3
	Strongly agree	14	11,7	11,7	100,0
	Total	120	100,0	100,0	

Insufficient / inconsistent value Stream measures					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly	1	0,8	0,8	0,8

	disagree				
	Disagree	7	5,8	5,8	6,7
	Neutral	38	31,7	31,7	38,3
	Agree	55	45,8	45,8	84,2
	Strongly agree	19	15,8	15,8	100,0
	Total	120	100,0	100,0	

Lack of global networks in municipalities					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	0,8	0,8	0,8
	Disagree	7	5,8	5,8	6,7
	Neutral	42	35,0	35,0	41,7
	Agree	58	48,3	48,3	90,0
	Strongly agree	12	10,0	10,0	100,0
	Total	120	100,0	100,0	

The limitations of technological training to staff member for better SCM operations is one of the major challenge that hinders SCM					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	5,8	5,8	5,8
	Disagree	14	11,7	11,7	17,5
	Neutral	8	6,7	6,7	24,2
	Agree	66	55,0	55,0	79,2

	Strongly agree	25	20,8	20,8	100,0
	Total	120	100,0	100,0	

Lack of qualified personnel in SCM is a major challenge in the municipality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	5,8	5,8	5,8
	Disagree	12	10,0	10,0	15,8
	Neutral	13	10,8	10,8	26,7
	Agree	55	45,8	45,8	72,5
	Strongly agree	33	27,5	27,5	100,0
	Total	120	100,0	100,0	

Lack of technology availability has an influence on the SCM operations					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	8	6,7	6,7	6,7
	Disagree	10	8,3	8,3	15,0
	Neutral	13	10,8	10,8	25,8
	Agree	67	55,8	55,8	81,7
	Strongly agree	22	18,3	18,3	100,0

	Total	120	100,0	100,0	

Lack of Customer Appreciation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	4,2	4,2	4,2
	Disagree	16	13,3	13,3	17,5
	Neutral	47	39,2	39,2	56,7
	Agree	37	30,8	30,8	87,5
	Strongly agree	15	12,5	12,5	100,0
	Total	120	100,0	100,0	

Appendix 8: Chi Square Test

	Chi-Square	df	Asymp. Sig.
Please state your municipality	0	1	1,000
Please indicate your position	139,05	2	0,000
Please indicate years of service in the municipality	17,55	2	0,000
Lack of purchasing policy guidelines in the SCM Departments has impact in municipalities' service delivery	81,833	4	0,000
Lack of adequate guidelines for procurement of required material in SCM is hindering the municipality's service delivery	74,167	4	0,000
Strategic Misalignment	96,083	4	0,000
Lack of Globalization in municipalities	94,833	4	0,000
Lack of proper Management	89,917	4	0,000
Financial constraints result in the municipality being unable to deliver services on time through the SCM operations	111,167	4	0,000
Low Planning accuracy	130,917	4	0,000
Lack of Complex material flow patterns	128,333	4	0,000
Poor infrastructure network with Suppliers affects the municipality's performance	60,417	4	0,000
Insufficient / inconsistent value Stream measures	83,333	4	0,000
Lack of global networks in municipalities	101,75	4	0,000
The limitations of technological training to staff member for better SCM operations is one of the major challenge that hinders SCM	100,417	4	0,000
Lack of qualified personnel in SCM is a major challenge	66,5	4	0,000

in the municipality			
Lack of technology availability has an influence on the SCM operations	101,083	4	0,000
Lack of Customer Appreciation	50,167	4	0,000

Appendix 9: Ethical Clearance Letter

MANAGEMENT SCIENCES: FACULTY RESEARCH ETHICS COMMITTEE (FREC)

3 April 2018
Student No: 21225108
FREC REF: 188/16FREC

Dear Ms SF Duma

MASTERS OF MANAGEMENT SCIENCES: PUBLIC MANAGEMENT

TITLE: FACTORS INFLUENCING SUPPLY CHAIN MANAGEMENT PRACTICES IN KWAZULU-NATAL MUNICIPALITIES, SOUTH AFRICA.

Please be advised that the FREC Committee has reviewed your proposal and the following decision was made: **Ethical Level 2**

Date of FRC Approval: 13 October 2016

Approval has been granted for a period of two years from the above FRC date, after which you are required to apply for safety monitoring and annual recertification. Please use the form located at the Faculty. This form must be submitted to the FREC at least 3 months before the ethics approval for the study expires.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the FREC according to the FREC SOP's.
Please note that ANY amendments in the approved proposal require the approval of the FREC as outlined in the FREC SOP's.

Yours Sincerely

[redacted]

Prof JP Govender
Chairperson: Faculty Research Ethics Committee