THE EFFECTIVENESS OF LEAD-TIME SUPPLIES ON PROCUREMENT PERFORMANCE IN TANZANIA, A CASE OF ARUSHA CITY COUNCIL

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A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION IN-PROCUREMENT AND SUPPLIES MANAGEMENT OF THE INSTITUTE OF ACCOUNTANCY ARUSHA (IAA)

NOVEMBER, 2021

DECLARATION

I, **Gloria H Mshiu**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any university for a similar or any other degree award.

Signature:.....

Date:..... /..... /.....

CERTIFICATION

I, the undersigned, certify that I have read and hereby recommend for acceptance Institute of Accountancy Arusha the dissertation entitled: ***" The Effectiveness of Lead-Time Supplies on Procurement Performance in Tanzania, A Case of Arusha City Council"*** in partial fulfilment of the requirements for the degree of Master of Business Administration of Institute of Accountancy Arusha.

Mr. Emanuel S. Isan*g*o

(Supervisor)

Date.....

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DEDICATION

The work is dedicated to my lovely family members, including my father, Heavengton Mshiu, my mother Jane Malisa, my Evaline Ntenga and my sister Gladness Mshiu, for their love, patience and persistence during the whole period of my study. Their well wishes and prayers have led to the accomplishment and success of these hard academic tasks.

ABSTRACT

The study assessed the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council. The specific objectives were to describe factors affecting procurement lead-time, to explore the effects of procurement lead-time on product availability and to find out the relationship between procurement lead-time and procurement performance. The guiding theories were Lead-time theory and Queuing theory. This study employed a descriptive research design. The population constituted of 40 respondents'. Data were collected from 36 respondents who were employees of ACC and some suppliers. The study also used both primary and secondary data to gather information from the respondents. Qualitative data were analysed using content analysis. Quantitative data were analysed using descriptive statistics such as frequencies, percentages, mean and standard deviation and inferential statistics. The study findings concluded that there were a number of factors, both internal and external, that affect procurement lead-time was discovered. Among them are; institutional policies, communication, procurement staff quality, tendering methods, supplier management techniques and market environment were factors that affect procurement lead-time. The study concludes that the effect of procurement lead-time on products resulted in ineffective operation, thus reducing customer satisfaction. In the third objective, the study concluded that there is a relationship between procurement lead-time and procurement performance. It is recommended that the government should put efforts into the integration of procurement with ICT based systems so as to facilitate the process, thus reducing the lead-time. The government through its respective authorities, should review the procurement policies, especially in local government authorities, so as to reduce the delay in the procurement process. Procurement staff training should be strengthened so that expertise is used in the whole process of procurement so as to reduce effects that can be caused by procurement staff. There should

be emergence alternatives to get the commonly used items, especially when the delay occurs in times with high demand of the items.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter highlights the main points of the study. It gives the background of the study, statement of the research problems, research objectives, research questions/ hypothesis, significance of the study, scope and organisation of the study

1.1 Background of the Study

All over the world, in an increasingly intense competitive environment, the effective deployment of organisational resources is of paramount importance (Aronsson, 2018). Central to developing competitive strategies is the notion of comparative advantage. A strategic framework should allow a firm to gain an advantage in existing and new markets. High speed is not always synonymous with better use of time, but attacking and eliminating delays invariably improves throughput and customer services. Measures for reductions in design times, cycle times, setup times, throughput times and delivery times are appearing with greater regularity on performance reports (Arrowsmith, 2018). Eliminating delays and improving product flows involves creativity, specialised skills, capital investments and behavioural changes that challenge the status quo. Frequently, significant improvements can be attained with relatively little, if any, additional capital investment.

In today's competitive business world, companies require short lead times, low costs and high customer service levels to improve operational performance and survive **(**Anand, 2016). The result is that companies have been putting in significant effort to reduce their lead times. The main focus of companies in the 21st century was the customers. It has become more and more competitive to satisfy customers, according to Arrowsmith (2018). For instance, to perform in a

global market, short lead times are essential to provide customer satisfaction. Organisations that have focused on cycle time as a productivity measure can reduce delivery time and improve quality, thereby creating a more satisfied customers. Today more than ever, companies are trying to gain a competitive edge and improve profitability through cutting costs, increasing quality and improving delivery. Companies' concentrate on improving delivery through cutting lead-time and show how shortened lead times will help to increase export and reduce costs (Asakeya, 2014). Time is an essential element in many forms of competitive advantage. As firms continually search for the elusive combination of resources and capabilities that yield differential financial performance, time is often a common aspect in sources of advantage.

Lead-time has been a key challenge element in the procurement process of supplies of goods in many organisations, companies and institutions in Tanzania. The public procurement Act, 2004, section 25 (1-3) requires the public organisations to prepare annual management plans and budget for their activities that can be executed in each financial year. The public procurement (goods, works, non-consultancy services and disposal of public assets by tender) regulations, 2005, section 46 mandated public organisations to prepare planning for implementation of various projects work plan including all tasks and activities to be carried out from initiation of the requirements to delivery of goods.

The public procurement (goods, works, non-consultancy services and disposal of public assets by tender) regulations, 2005, section 46 (7 & 11) provides time frame on forecasting of an optimum time (lead-time) to the nearest month for receipt of the consignment of goods, and thus the timescale shall be calculated basing on standard processing times prescribed in the Third Schedule of the regulations, 2005. The Ngorongoro Conservation Area Authority (NCAA), being

a public organisation, faces challenges of in-adherence of proper lead-time as stipulated in the public procurement regulations, 2005 (Third Schedule of these regulations). Some of the identified key constraints facing the lead-time are lack of appropriate knowledge, policies and procedures concerning proper acquisitions of goods, works and services in a timely manner.

As the response to those challenges, there have been some significant changes in what can be termed as 'lead-time". A lead-time essentially refers to the period between a customer's order and the delivery of the final product. In supporting the concept of lead-time, different authors focus more on the lead-time. Lead-time in the supply chain is defined as a supply chain management realm as the time from the moment the customer places an order (the moment you learn of the requirement) to the moment it is received by the customer, and it includes the time required to ship the parts from the supplier because manufacturing companies also need to know when the parts will be available for material requirements planning.

In the absence of the finished goods or intermediate (work in progress) inventory, the time it takes to actually manufacturer the order without any inventory other than raw materials is considered as lead-time. Movahedi et al. (2019) explain that specialisation within chain management began in the 1980s with the inception of transportation brokerages, warehouse management, and non-asset-based carriers; and has matured beyond transportation and logistics into aspects of supply planning, collaboration, execution and performance management. Therefore, the ability to quickly obtain and deploy this domain-specific supply chain expertise without developing and maintaining an entirely unique and complex competency in the house is the leading reason why supply chain specialisation is gaining popularity. The lead-time will, in one way or another, remain as a main challenging factor in procurement management.

Studies in Tanzania have been done on lead-time. For example, Hamza (2017), Hunja (2016), Ivambi (2016), Laizer (2019), Mohamed, Mwaiseje and Mwagike (2019), just to mention a few. None of the above studies have captured issues related to the effectiveness of lead-time supplies on procurement performance in the Tanzanian public sector, especially to the local government authorities. Therefore, this study intends to examine the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council

1.2 Research Problem

Lead-time is one of the essential elements in the supplies procurement management in any organisation for its efficiency and effectiveness performance. As Averkamp (2019) noted, lead-time is an extremely important competitive advantage when stock is not held in advance. Public procurement (goods, works, non-consultancy services and disposal of public assets by tender) regulation, 2005, section 5 (a-c) described those public officers and members of the tender boards should choose appropriate procedures and enable the procurement to be carried out diligently and efficiently so that the prices paid by the procuring entity represents the best value for the funds used. This can be achieved efficiently and effectively if an organisation follows the procedure as it is stipulated in the public procurement (goods, works, non-consultancy services and disposal of public assets by tender) regulations of 2005, section 46 which mandates public organisations to prepare mechanisms for implementation of various project work plans including all tasks and activities to be carried out from the initiation of the requirements to delivery of goods.

It has been observed that in some organisations, there is a tendency of non-compliance to proper lead-time adherence, which leads to dissatisfaction of their customers. However, the contribution of lead-time in supplies procurement management in business performance is not yet well known to many organisations. Lead-time has a direct impact on the business to the customer. This is because most of the organisations seem to lack adequate knowledge

concerning what lead-time contributes to the organisation during the procurement of goods and services. Lead-time can be an extremely important competitive advantage when stock is not held in advance.

Despite all efforts done by the government of Tanzania by introducing new legislation (public procurement Act no. 21 of 2004, PPA Act. No.7 2011 and its amendment of 2016), which requires procuring entities to prepare an annual procurement plan (APP), there is still non-compliance towards scheduling of requirements of customers' needs. The ACC is one among many public organisations, lead-time is a critical element in the execution and/ or delivery of services to their customers (efficiently and effectively regarding its objectives). This study, therefore will aim at assessing the effectiveness of lead-time supplies on procurement performance in the Arusha City Council.

1.3 General Objective

The general objective of this study is to find out the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council

1.3.1 Specific Objectives

The specific objectives of the proposed study are:

i) To explore the factors that affect procurement lead-time in Arusha City Council

(ii) To describe the effect of procurement lead-time on product availability at Arusha City Council

1.3.2 Hypothesis

H0: There is a relationship between procurement lead-time and procurement performance

H1: There is no relationship between procurement lead-time and procurement performance

1.4 Research Questions

(i) What are the factors that affect procurement lead-time at Arusha City Council?

(ii) What is the effect of procurement lead-time on product availability at Arusha City Council?

1.5 Scope of the Study

This study examined the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council, Arusha Region. The study specifically examined the factors that affect procurement lead-time, assessed the effect of procurement lead-time on product availability and found the relationship between procurement lead-time and procurement performance. Also, Arusha City Council has been selected because the council has substantially been spending a lot of its budgets in procuring both consultancy services, works – construction projects and also procurement of tangible items (goods). Procurement, as one of the basic functions of the council, faces many challenges, including a longer lead-time in acquiring those goods, works and services; hence a researcher is expected to get the relevant information concerning the effectiveness of lead-time supplies on procurement performance.

1.6 Significance of the Study

The significance of this study is that the study shall add knowledge in the area of procurement lead-time. The results shall enable those involved in procurement procedures to identify the challenges, thus finding better ways of solving them for better procurement performance. The study shall encourage effective implementation of a proper procurement system in order to mitigate the frequency of stock-outs consequently. The study findings shall provide important information to the policymakers and other stakeholders both internally and externally to attest the occurrence that impact their procurement system in a public organisation, thus adding the value of service delivery through procurement lead-time. The findings shall also provide an

understanding of the existing position of procurement lead-time. The study shall become the basis for further studies with regard to procurement lead-time.

1.7 Limitations of the Study

A number of limitations faced a researcher during his study as here explained below:

(i) Non- responses

This challenge was observed during the field, as some of the respondents were not filling the questionnaires so as to give information to the researcher. To overcome this challenge, a researcher had to produce other questionnaires and give them to respondents who were willing to give the information.

(ii) Data Inaccessibility

Due to confidentiality, some of the staff were reluctant to give out information to the researcher. To overcome this, the researcher had to explain the importance of the study to their organisation and nation at large.

1.8 Organisation of the Study

Chapter one presents a background of the study, problem statement, research objectives, and research questions, significance of the study, study limitations and scope of the study. Chapter two gives conceptual definitions, theoretical reviews, critical reviews of empirical literature, conceptual framework as well as an identified research gap. In chapter three, research designs, area of the study, research population, sample and sampling methods, data collection and data analysis methods, reliability and validity of data, plus ethical research consideration are presented. The reference section follows immediately after chapter three. The appendices provide data collection instruments, a research timeline and an estimated budget.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter described a review of literature whereby identified concepts are discussed. It is based on the definitions of the key terms, theoretical literature review, empirical literature review, conceptual framework and research gap. Also, the chapter described the previous studies, which explained the gap that is filled by this study.

2.2 Conceptual Definitions

2.2.1 **Lead-Time**

Lead-time is defined as the time between the placing of an order and the receipt of the goods ordered. Furthermore, lead-time is made of pre-processing lead-time, actual processing lead-time and post-processing lead-time. Bartezzaghi (2018) explain that the achievement of delivery on time is a standard purchasing objective. Failure for goods and material to arrive on time or when work is not completed at the right time, sales may be lost, production halted, and damage causes may be invoked by dissatisfied customers.

2.2.2 Procurement Lead-time

Procurement lead-time can be defined as the amount of time between the initial process of procurement to the receipt of goods or services (Bovis, 2017). The amount of time can be huge or small depending on how the purchasing process was conducted. The more the procurement process is effective, is the more the lead-time is reduced. In this study, procurement lead-time refers to the time taken by the procuring entity procurement processes from the initial stage of procurement to the receipt of the materials.

Callist (2016) argued that Lead-time is the amount of time between the placement of an order and the receipts of the goods ordered. It depends on the nature of the product, e.g. whether it is made to order or if it is a from the shelf product. Lead-time also depends on planning and supply chain management, logistics services and, of course, distance to customers and suppliers. Long lead-time does not need to be a problem if delivery is predictable and demand is stable. However, if there is uncertainty about future demand, a long lead-time is costly even when the customer knows exactly when the merchandise will arrive.

If future demand has been underestimated, running out of stock has costs in terms of foregone sales and the possibility of losing customers (Chopra, 2015). If future demand has been overestimated, excess supply must be sold at a discount. Furthermore, the longer the lead-time and the more varieties of the product in question are on the market, the larger stocks are needed. It is also important to notice that competitiveness on lead-time is not a static concept to deliver just-in-time, and the customer finds it safe to reduce inbound inventories to a couple of days or, in some cases, even a couple of hours.

2.3 Theoretical Review

2.3.1 Lead-Time Theory

Woeppel (2001) advocates that lead-time is as a very important component in a customer's perception of business performance. In a make-to-order business, the lead-time has a direct impact on the business and on the customer. Total lead-time is the result of total work in the process (manufacturing lead-time), which primarily is driven by excessive queue time/work-in-process, batching of product and batching in time.

There is a need for ACC to know when to order and quantity to follow in order to re-order economically. During ordering, they are supposed to emphasise time lapse between the placement of a purchase order and receipt of the inventory, or in the time it takes to manufacture

an item after an order is placed is very important to be considered. This time is called lead-time. If the demand of the inventory is known with certainty, the lead-time is zero (Wachowicz, 2005).

2.3.2 Queuing Theory

The main idea of this theory is based on the arithmetic assessment of the waiting line of services delivery processing (Magenda, 2015). The theory is structured to facilitate a prediction of the time an individual will take while waiting for the service online. Queuing theory has its origins in research by AgnerErlang, a Danish engineer who worked for Copenhagen Telephone Exchanged in 1909. The author's idea came after observing the number of telephone calls arriving at an exchange. His idea has been delivered from telecommunication, traffic engineering, computing and the design of factories, shops, offices as well as hospitals (Ndubi,2016). The practical applications of this theory are based on the provision of fast services to the customers, such as little time from ordering to the receipt of goods, reduced waiting time and customers' satisfaction through quick acquisition of fast services. For the fast provision of services, one of the very important factors is the ability to control inventory in an optimal manner.

This goes hand in hand with the ability of service providers such as ACC to know their responsibilities in the procurement and supply chain. This kind of efficiency is not only for large institutions but also for the medium and small ones. Both large and small hospitals can improve their procurement processes with the aim of reducing lead-time for better services. Queuing also helps to understand how the institutions can reduce trafficking in services (Yu, Tang and Fu,2013).

2.4 Empirical Literature Review

2.4.1 Factors Affecting Procurement Lead-time

In today's competitive business world, companies require small lead times, low costs and high customer service levels to survive. Because of this, companies have become more customers focused. The result is that companies have been putting in significant effort to reduce their lead times. The main focus of companies in the 20th century was the customers. It has become more and more competitive to satisfy customers, according to Danese (2011). For instance, to perform in a global market, short lead times are essential to provide customer satisfaction. Organisations that have focused on cycle time as a productivity measure can reduce delivery time and improve quality, thereby creating a more satisfied customers. But due to the short time to respond to demand and long capacity procurement lead-time, the manufacturer needs to procure capacity in advance. As capacity procurement involves monetary investment, it may lead to underestimation, if the risk has to be solely borne by the manufacturer (Shafiq, 2018).

According to Hawkins (2014), properly executing the procurement process can consume significant time. Internal customers need time to define needs and develop cost estimates. Buyers need time to conduct market research, develop an appropriate sourcing strategy, and develop requests for proposals. Suppliers must develop their strategy for performing the work in a way that is favourable to the buyer and then must estimate the costs to perform the work. The parties often negotiate, and contracts and order releases must be documented. Hence, time is a valuable resource in the procurement process. Due to the high level of focus on mission accomplishment in the government sector, the time required to award contracts is often scrutinised and emphasised. Also, technical competence of procurement personnel is fundamental for procurement performance; therefore, there is a need to have continued education and development of procurement personnel (Cheptora, 2018).

Cycle time or lead-time is from the time a customer release an order until the time they receive the finished product. Doloi (2012) defined lead-time as the time that elapses between the placement of an order and the receipt of the order into inventory. Lead-time may influence customer service and impact inventory costs. As the Japanese example of just-in-time-production has shown, consequently reducing lead times may increase productivity and improve the competitive position of the company.

According to Elemuwa (2015), Inventory is part and parcel of every facet of business life. Without it, no business activity can be performed, whether it is a service organisation like hospitals and banks etc. or manufacturing or trading organisations. Irrespective of the specific organisational setting, inventories are reflected by way of a conversion process of inputs to outputs. Inventory is simply a stock of physical assets having some economic value, which can be either in the form of material, money or labour. Inventory may be regarded as those goods which are procured, stored and used for day to day functioning of the organisation.

According to Chelimo (2018), the processes of tendering especially tender planning, impacts on the duration it takes for the execution of works, goods or services to be delivered, the quality and also the cost of the works, services or goods acquired (Basheka, 2008). The management of the contract stage aids government entities in getting the right quality of goods or services within a specific time and budget. It is vital to take note of the tendering processes, among them planning, supplier selection, tendering method, as well as contract management, and it requires a holistic approach. These processes have a central role in the tendering process, particularly in managing the contract smoothly and ultimate delivery of expected outputs. Consequently, so as to have a thorough tendering system, efficient tendering processes are of extreme importance to the tendering organisation (Mahmood, 2010).

According to Liu, Wang and Wilkinson (2016), efficient and effective tendering processes results in positive social impacts such as the enhanced expectation of realising other government objectives, more access to government contracts by citizens, a better reputation for government institutions, and quality social services, including stable and reliable electricity, better roads, clean water, airports, schools, hospitals (Raymond, 2008). Poor public tendering processes translates to higher cost to the government and the citizens, delays in execution of projects or deliverables, which ends up in escalation of cost, poorly executed project and delaying the delivery of benefits to the beneficiaries. They further result in poor proficiency of job contracts, delivering of poor-quality goods, delaying of benefits to the beneficiaries and nurturing elements of corruption in the tendering process (Tweneboah & Ndebugri, 2017; Chelimo, 2018).

The impact of lead times on the external performance of supply chains has often been analysed through the balance between customer satisfaction and safety stock required. For instance, Kelepouris et al. (2008) demonstrated that an increase in mean lead times tends to result in decreased customer satisfaction—thus, more safety stock is required to achieve a target CSL. This positive relationship between the lead-time and the safety stock can also be observed in classic safety stock models. Meanwhile, it was concluded that the sum of holding and stock-out costs dramatically increases as the variability of lead times grows. The benefits in inventories derived from using facilities with a low variance of lead times can also be seen (Ponte, 2018)

The public entities carrying out the tender may have internal aims such as efficiency, cost and on time delivery of goods or services. In the same token, the public organisations have to attend to the objectives and goals of the public in general, who may happen to have conflicting demands (Knight, Harland & Telgen, 2012). This complicates the tendering process and, more so, the tendering entities who have to attain the expected objectives. In the long run, many

tendering entities suffer massive losses because of poor management of the tendering processes. The tendering process is mainly comprised of the tender plan, tendering itself as well as contract management (Shirima, 2009; Chelimo, 2018).

The procurement function plays a role in obtaining goods and services by meeting several criteria, namely the right procedure, the right quality, the right quantity, the right price, and on time to meet all the needs of both raw materials and supporting materials. However, in practice, there are problems that occur, namely delays in procurement that are not in accordance with the lead-time recorded in the procurement document (Chaerunnisa, 2009)

This can be in the form of physical resources such as raw materials, semi-finished goods bought out products used in the production and assembling operations. Most managers do not like inventories because they are like money placed in a drawer, assets tied up in investments that are not producing any return and, in fact, incurring a borrowing cost. They also incur costs for the care of the stored material and are subject to spoilage and obsolescence. In the last two decades, there has been a spate of programmes developed by industry, all aimed at reducing inventory levels and increasing efficiency on the shop floor.

Some of the most popular are Erick (2016), just-in-time manufacturing, lean manufacturing, and flexible manufacturing. In this paper, our focus is not only on the criticality of effects of lead-time on inventory but also on the various techniques implemented so far to solve critical lead-time reduction problems leading to inventory optimisation and control through extensive literature review. Based on different outcomes revealed from open literature, the new possible methodologies are discussed in the later sections.

Factors such as demand, order quantity, quality of product, re-order point, safety stock, and other factors like price discount, allow shortage or not, inflation, and the time value of money are also important in the study and so on should be taken into consideration in the reduction of lead-time in inventory study. By making different combinations of these factors stated above, we can get different inventory models. Demand acting as the driving force of the whole inventory system, demand is a key factor that should be taken into consideration in an inventory study. In their studies (Glock, 2012), assumed that the lead-time demand follows the normal distribution. There are mainly two categories of demands in the present studies, one is deterministic demand, and the other is stochastic (probabilistic) demand.

However, when the demands of the different customers are not identical in the lead-time, then it was found that only a single distribution cannot use to describe the demand of the lead-time. Moreover, it has been seen that the re-order point r is a decision variable (Gunasekaran, 2015). After that, many researchers have extensively studied this type of demand. Stochastic demand includes two types of demands: the first type characterised by a known demand distribution and, on the contrary, the second type characterised by arbitrary demand distribution. When the assumption of deterministic demand is relaxed, and demand is assumed to be stochastic, lead-time becomes an important issue, and its control leads to many benefits. In the classical inventory model, it is implicitly assumed that the quality level is fixed at an optimal level, i.e., all items are assumed to have perfect quality.

However, in the real production environment, it can often be observed that there are defective items being produced due to imperfect production processes. Juran was one of the first to think about the quality (Hamza, 2017). This was illustrated by his "Juran trilogy", an approach to cross-functional management, which is composed of three managerial processes: quality planning, quality control and quality improvement. Without change, there will be a constant waste. During change, there will be increased costs, but after the improvement, margins will be

higher, and the increased costs will get recouped. The defective items must be rejected, repaired, reworked, or, if they have reached the customer, refunded. In all cases, substantial costs are incurred.

Therefore, for the system with an imperfect production process, the manager may consider investing capital in quality improvement so as to reduce the quality-related costs. In literature, Harland (2017) are among the first who explicitly elaborated on a significant relationship between quality imperfection and lot size.

Hinson (2004) investigated the impact of quality improvement on the modified lot size re-order point models involving variable lead-time and partial back-orders. Brier (1995) model by investing in process quality improvement and setup cost reduction simultaneously. Reducing lead times is especially important in situations where customer demand is uncertain since long lead times put the company at a high risk of running out of stock before an order arrives. In this context, a variety of studies illustrate that reducing replenishment lead-time may lower the safety stock, reduce the stock-out loss, and improve the customer service-level, which results in lower expected total costs.

Research by Hunja (2016) which was done in Uganda attempting to explain non-compliance in public procurement, demonstrated that the procurement exercise follows steps according to the PPDA of 2003. These steps must be observed in order to ensure that all stakeholders involved in the procurement exercise obtain fair treatment. The steps include; planning for the required procurement over a given period, identifying the source of the items, highlighting specifications/initiation of procurement, determination of procurement procedure, Sourcing (soliciting) offers, evaluation of offers, post qualification, the commencement of the contract, contract performance (delivery) and management, record keeping and accountability, payment and post contract performance (PPDA, Act, 2003). Many corporate board members in Africa,

especially those of state-owned companies, have limited understanding of their roles and are usually open to manipulation by management, chairmen, or principal shareholders. Some are outright incompetent. Non-executive directors in Africa need to play meaningful roles in ensuring compliance. However, many simply act as rubber stamps for decisions taken outside the board (Charles & Oludele, 2003). In this perspective, compliance arises from a dynamic equilibrium between the various powers of the state and understanding what their roles are (Fisher 2004), as cited by (Eyaa and Oluka 2011). The empirical findings by Eyaa and Oluka(2011) indicate that of the three variables, which are professionalism, familiarity with procurement regulations, and institutional factors, only one variable, which is familiarity, is a significant predictor of compliance.

Bovis (2007) established a linear relationship between lead-time and lot size in the classical stochastic continuous-review (Q; r) model and demonstrated that significant savings could occur if firms considered the impact of lot size on the lead-time and safety stock requirement. Buvik (2016) modified Kim and Benton ''s model by rectifying the expression of the annual back-order cost and proposing another relation for the revised lot size to generate a smaller lot size than that. He extended the study by considering the investment in setup time reduction and the relationship between lead-time, lot size and setup time. Furthermore proposed that the transportation cost, the overtime wages and extra inventory holding costs for the expedition were proportional to the item quantities rushed and hence the crashing cost could be represented as the sum of a fixed portion and a variable portion proportional to the quantities in the rushed order.

Ivambi (2016) consider both lead-time and the order quantity as the decision variables of a mixture of back-orders and lost-sales inventory model in which the shortages are allowed and consider the demand of the lead-time with normal distribution. Safety stocks are extra inventory kept on hand as a cushion against stock-outs due to random perturbations of nature or the

environment. Lead-time is an important element in any inventory management system. Johnson (2015) propose that by shortening the lead-time, they can lower the safety stock, reduce the loss caused by stock-out, improve customer service-level, and increase the competitive ability in business. Price (quantity) discount is an important strategy which the seller always uses to encourage the buyer to purchase in large quantities; many researchers have taken this factor into consideration in lead-time reduction inventory modelling.

According to Hawkins (2014), without a complete understanding of the buyer's service requirement, a supplier may not perform work that the buyer expects to receive and may not meet the buyer's expectations in terms of function, performance, quality, and compliance. Additionally, requiring organisations that fail to determine and document specific requirements may jeopardise effective decision-making in the acquisition planning process. For example, an inappropriate assignment of contract type (e.g., time and materials versus firm-fixed-price), driven by poorly defined work specifications, may violate regulatory requirements to choose the type of contract that apportions fair risk to both parties.

Allowing shortage or not is another factor which researchers always focus on (Kagendo, 2018). Some of their studies supposed that shortage is not allowed, the rest supposed that shortage is allowed and then corresponding inventory strategy can be made according to the two assumptions respectively. In fact, shortages usually happen in our daily life, and what is more, in the circumstance of a high deteriorating rate, the demand may need to be backlogged to reduce cost due to deterioration, so there are more studies that concentrate on the assumption that shortage is allowed. There are two cases when dealing with the shortage; one case supposes that the shortage items are totally backlogged, and the other case supposes that the shortage items are partly backlogged. That is to say, the customers are only willing to accept

part of the items that are out of stock this period and can only be supplied by the seller in the next period.

Kagiri (2005) identified key factors influencing lead-time to include inadequate knowledge on behalf of procurers, delays, insufficient planning, inadequate facilities and equipment, inadequate financial resources, poor motivation of employees, cumbersome bidding and tendering processes etc. Additionally, Lynch (2004) has also identified influencing factors to be inaccurate estimates and forecasts, poor designs, late preparation of tender documents, inaccurate site information etc.

According to Hawkins (2014), many processes and documents require specific content and must be performed within prescribed timeframes. (e.g., advertising for 30 days and debriefing within 10 days). The amount of needed procurement lead-time varies between procurements depending on many factors such as the urgency of the need, the market structure (i.e., sole/single source or competitive), the resources available, internal politics, dollar value, and acquisition criticality. The amount of lead-time afforded likely determines how well the contract complies with the myriad of sourcing laws and regulations (Roberts, 2010). Stated another way, in cases in which adequate time is not available or allowed, the odds of omitting or overlooking a matter of compliance should increase.

According to Thai (2001), factors external to the firm that can affect procurement lead-time may comprise the market environment, the legal environment, and the political, technological and social environments. However, the influence of these external factors may, for instance, depend on the number of suppliers, since a competitive environment may engender more structured

and transparent bidding and tendering processes while a monopolistic situation will call for using one supply which can be faster and less bureaucratic.

A study by Kagendo (2012) pinpointed some factors affecting the procurement lead-time, including; corruption from some procurement officers, ineffective bids, unawareness of the public procurement laws and regulations, the inefficiency of the PPA on enforcing the penalties to the offenders as well as lack of organisational incentives and pressures for public procurement guidelines implementation that demand to be implemented on time.

Kingsman (2013) portrayed that high lead-time variability as a major reason for a plant's inability to achieve inventory goals and to incur longer average throughput. The pressure to reduce inventory investments in supply chains has increased as competition expands and product variety grows. Managers are looking for areas they can improve to reduce inventories without hurting the level of service provided. Two areas that managers focus on are the reduction of the replenishment lead-time from suppliers and the variability of this lead-time. The normal approximation of lead-time demand distribution indicates that both actions reduce inventories for cycle service levels above 50%. The normal approximation also indicates that reducing lead-time variability tends to have a greater impact than reducing lead times. There is a service-level threshold greater than 50% below which re-order points increase with a decrease in lead-time variability. Thus, for a firm operating just below this threshold, reducing lead times decreases re-order points, whereas reducing lead-time variability increases re-order points. For firms operating at these service levels, decreasing lead-time is the right lever if they want to cut inventories, not reducing lead-time variability.

In procurement, communication between a buyer and prospective suppliers that occurs prior to contract award ensures that contractual requirements are understood. *Requirement definition sufficiency* is the extent to which the buyer defined all of its needs accurately, accounting for possible ambiguities, errors, and omissions. It reflects the extent to which an acquisition team is able to convert tacit knowledge to explicit knowledge in order to more fully and consistently transfer required knowledge to the supplier. Knowledgeable procurement professionals should be able to: (1) recognise when a requirement is (not) sufficiently defined and (2) help requiring organisations define their requirements. A recent study identified the procurement phase of planning and defining requirements' as the greatest gap in knowledge (Govloop, 2013; Hawkins, 2014).

After the award of a contract, communication persists in order to interpret complex requirements and acceptable coordinate actions by the supplier. Communication between buyers and suppliers results in successful relational exchanges between parties by providing a mechanism for partners to resolve disputes, align their expectations and perceptions, and jointly develop strategies (Monczka et al., 1998; Palmatier et al., 2013; Wittmann, Hunt, & Arnett, 2009).
Selecting suppliers and deciding suppliers' strategies is one of the major keys for an effective, optimised and accountable supply chain. Suppliers ensure the constant flow of goods and products, and they are involved in a wide part of business, above all due to the growing tendency to outsource logistics, manufacturing, marketing and product development activities (Genis-Gruber and Ogut, 2014). Therefore, integrating and aligning purchasing into company strategic planning can really bring benefits and competitive advantages (Petersen et al., 2005; Qrunfleh et al., 2013; Matevž and Maja, 2013). For example, choosing the proper strategies could reduce supplier quality failures, which could improve the company’s inventory, quality and productivity

performance. A proper supplier strategy is also related to supplier cost effectiveness (Bianchini, 2018).

Companies can engage in particular agreements that could incentive the suppliers to improve their processes, reduce non-added value activities and search for innovative solutions and, consequently, decrease costs. Flexibility is another company performance indicator that could improve with an optimal supplier relationship. Purchasing from sellers able to assume manufacturing, technology, process and demand changes allows the company to acquire flexibility and responsiveness in relation to market variations. Finally, thanks to the right relationship, the supplier can recognise delivery as a key parameter and guarantee a quick and reliable distribution of supply sources. Therefore, the buyer becomes able to: reduce stock and inventory costs, avoid final product delivery delays and promptly respond to both scheduled and urgent customers' needs (Shin et al., 2000; Tan et al., 2002; Jaiia et al., 2016). For these reasons, a focused company–supplier relationship ensures the overall organisational performance, competitiveness and long-term success as a result of efficiency and service improvements, risk mitigation and lower go-to-market times (Jaipuria and Mahapatra, 2015; Bianchini, 2018).

2.4.2 Effect of Procurement Lead-time on Product Availability

Kuhlang (2011) demonstrate that lead-time variation has a major impact on lot size and inventory costs. Furthermore, they indicate that an inventory system is more 13 sensitive to lead-time variation than to demand variation. Variations in lead-time can occur for purchased items and for those that are manufactured in-house. A major factor related to these variations is quality problems. Typically, either safety stock or safety lead-time is utilised to cushion the impact of this variability. In either case, larger variability requires increased inventories. High lead-time variability is a major reason for a plant's inability to achieve inventory goals and to

incur longer average throughput. Customers around the globe are demanding products as they want them at the best possible price. In today's highly competitive global marketplace, they are placing greater value on quality and delivery time. Manufacturers similarly have begun to place more value on quality and delivery time, and companies are trying to gain a competitive edge and improve profitability through cutting cost, increasing quality and improving delivery. However, it is safe to say that the more competitive the industry, the more shortened lead times will help. In competitive industries, a short lead-time will differentiate a company from its competitors, leading to increase sales and effective service delivery.

SMEs supply chain experience frequent changes in their order and has a comparative shorter lead-time. SMEs have more flexibility in their process, which poses as their advantage over the large organisation. As SMEs have distinct supply chain characteristics, the conventional large organisation supply chain performance measurement model cannot be used for SMEs sustainable supply chain measurement. The existing literature has used lifecycle assessment, equilibrium models, statistical sampling case study and action research for large companies' sustainable supply chain measurement (Taticchi et al.,2015). In the existing methods, however, the distinct SMEs' characteristics and Critical Success Factors could not be measured and improved (De, 2018).

Lead-time is a key performance indicator that, and a measure of service levels, it is the only parameter in the objectives scheme described by Hopp and Spearman (2000, p. 196) that supports both lower manufacturing costs and high sales. Hence insight into how lead times might vary with factors such as arrival rate, variability and batch size is essential for effective planning and scheduling. Historically the purchase decision has been dependent mainly on the price (Bowersox, 2010). Nowadays, the choice of supplier not only depends on the price but

also on "the cost of time" while the customer is waiting for the delivery. According to Christopher (2008), the sourcing process has become more complex for the purchaser as there should be considered not only cost efficiency but also the responsiveness of material flow (Isogangwa, 2014).

Oyamo and Mburu (2014) sought to investigate the impact of procurement procedures in the distribution of pharmaceutical products in Kenya and found that sourcing plays a key role in quality health care delivery and that other vital component such as designs, planning and choice of suppliers. Once more, Musau (2015) tried identifying the influence of the procurement function on the supply of products at Kenya Pipeline Company. The study found that the present buying system is in a position to sustain organisational operations. It was likewise found from the study that procurement influences the supply of products and services. Again, Kumar (2008) examined the impact of inventory management on the organisational performance of Kenya's public healthcare institutions and found that inventory investment and inventory reduction have a negative impact on organisational performance. The study, therefore, prescribes that the hospitals ought to guarantee that losses emanating from inventory shrinkage related to medicines are reduced.

Besides, Kanyoma and Khomba (2013) explored the effect of procurement operations on health care delivery in Malawi's public health care delivery system. The study looked to affirm the existence, establish the frequency and the causes and effects of stock-outs of essential drugs. The study found that the procurement function negatively affected health care delivery through the inability to ensure the accessibility of medications. Frequent stock-outs of medications were confirmed, the impacts of which on healthcare delivery ranged from death of patients, deterioration of medical conditions of patients, overcrowding and the transfer of patients to other medical facilities.

Supply chain failure involving long lead-time has been ranked as a major risk, more than any other, having the greatest potential to disrupt their top revenue driver. It has been observed that in some organisations, there is a tendency of non-compliance to proper lead-time adherence, which leads to dissatisfaction of their customers. However, the contribution of the lead-time in procurement management in business performance is not yet well known to many organisations (Laizer, 2013; Karim, 2018).

Again and as pointed out by Laizer (2019), healthcare can be said to be of high quality when key indicators such as increased accessibility, higher utilisation, availability as and when needed, and extensive coverage is assured to all who need healthcare services. This is where the value of the procurement function comes into play since, without an effective procurement function, access or utilisation, or coverage will come nought. Of what use is utilisation or access or coverage when essential drugs and laboratory supplies are not available.

The procurement and supply management function play a vital role in service delivery, and this means that failure by the function to protect the availability of essential medical supplies such as drugs and other laboratory supplies can adversely affect quality health care delivery (Kumar et al., 2008). The challenge in managing inventory is to ensure the existence of a balance between the supply of inventory (vital and essential drugs and laboratory supplies) with demand (Coyle et al., 2003). This is because healthcare institutions would preferably want to have enough inventories to satisfy the demands of their patients and not lose patients to other health facilities due to inventory stock-outs. On the other hand, health care facilities do not want to have too much inventory staying on hand because of the cost of carrying unnecessary inventory

(Coyle et al., 2003). This implies that enough but not too much inventory is the final objective of health care facilities (Coyle et al., 2003). Hence the need to have an efficient procurement lead-time (Lee, 2000).

Lead-time can be defined variedly depending on the part of the firm that is focused on (Harland et al., 2007). Lead-time starts right from the onset of receiving an order from a customer to the time when the customer receives the product or service asked for. Harland et al. (2007) define lead-time as being the time required to receive delivery and the time between receipt and payment, while Silver et al. (2008) defines procurement lead-time as the time that passes by between making the order and when the order is received into inventory. Based on the foregoing, the researcher defines procurement lead-time as the time that goes by right from the moment when a firm places an order for goods/products up till the time that the required products are received.

Lee, (2004), despite the establishment of re-order levels, the quantities of vital and essential drugs and laboratory supplies are largely determined by past usage and therefore meaning that there is usually no specific policy to help the determination of the quantities to be ordered. This again means that orders for medical and laboratory supplies are placed based on the employee's familiarity with the procurement process. Again, incorrect quantities ordered sometimes can lead to unexpected situations of stock-out and overstocking. Shortage of medical and laboratory supplies are occasionally attributed to the existence of long and bureaucratic procurement procedures, occasional shortages of vital drugs, lack sufficient funds with which to purchase new medical supplies, the unwillingness of suppliers to supply healthcare facilities due to delayed payments, delay in ordering for drugs, inadequately trained

and skillful employees of the procurement departments and the general inadequacies of hospitals' inventory management systems.

One basic issue in most organisations is to meet the customer's order cycle (the time the customer is willing to wait for the delivery) with logistics lead-time (the time for the supplier to complete the process from receiving the order to delivering goods) not managing that will cause the lead-time gap. This gap is especially a problem in longer flows because, in general, the final customer is not willing to wait longer just because the sourcing is done globally. According to Christopher (2008), the possible way to reduce or close this time gap is shortening the logistics lead-time by the aid of such tools as supply chain mapping and bottleneck management. Simultaneously the customers' order cycle could be moved closer by increasing the demand visibility (Isogangwa, 2014).

This means that procurement lead-time is highly critical to the realisation of firms objectives, whether they are in the manufacturing or healthcare sector. This is because the capacity and ability to deliver swiftly affect customer satisfaction, profitability, loyalty, sales and general performance of firms. This again means that all efforts must be put in place by firms to ensure that there is enough lead-time between ordering the product and placing the order in order to forestall issues of stock-outs. As pointed out by Lee (2000), firms must guard against high lead-time variability – which is when the duration between the ordering period and the delivery varies from the expected time.

The effect of learning in the production time component of the lead-time and the production cost is another contribution of that paper. Lester (2017) considered the single vendor single buyer integrated production inventory problem. They relax the assumption that demand is deterministic and assume that it is stochastic and tackled the lead-time issue.

They assumed a linear relationship between lead-time and lot size but took into consideration also a non-productive time in the lead-time expression. Lee, Wu and Hou (2000) extend and correct the model of Ouyang and Wu (2017). That paper considers that the number of defective units in an arrival order to be a binomial random variable. They derived a modified mixture inventory model with back-orders and lost-sales, in which the order quantity, lead-time and re-order point are decision variables. In future research on that problem was, it would be interesting to deal with the inventory model with a service-level constraint or defective units in the inventory model with sub lot sampling inspection. Pan, Lo, and Hsiao (2018) considers a continuous-review inventory system in which shortage was allowed and the total amount of stock-out was a combination of back-order and lost sale.

Objective to simultaneously optimise the order quantity, lead-time, back ordering and re-order point. It was assumed that the supplier might offer a back-order price discount to the patient customers with outstanding orders during the shortage period, and the back-order ratio is in proportion to the price discount. Furthermore, it was assumed that the inventory lead-time is controllable, and the crashing cost can be represented as a function of reduced lead-time and the quantities in the orders. Since the shortage cost is explicitly included, the re-order point is also treated as a decision variable.

When the distribution of lead-time demand is normal, they considered the time value of a continuous-review inventory model with a mixture of back-orders and lost-sales (Magenda,2015). In that article, they provide a mixed inventory model, in which the distribution of lead-time demand was normal, to consider the time value. Firstly, the study tried to find the optimal re-order point and order quantity at all lengths of lead-time with components crashed to their minimum duration. Secondly, they developed a method to ensure the uniqueness of the re-order point to locate the optimal solution. By shortening lead-time, companies lower the safety stock, reduce the stock-out loss and satisfy market demand to gain competitive advantages in business. Under this situation, the firm must pay higher crashing costs, especially in the impact of time value.

Therefore, they wished to balance time and costs and obtain an optimal replenishment policy to minimise the expected present value of costs. They treated the re-order point as a new decision variable to obtain the optimal expected present value of costs. Zequeira, Durán and Gutierrez (2015) studied the determination of the optimal lead-time, re-order point and order quantity, considering that the back-order probability of a demand made during a stock-out period depends on the interval from the moment in which the order is placed until the next replenishment.

Mohamed (2014) investigated how to lead-time and ordering cost reduction affect the integrated inventory model. Lead-time crash cost was assumed to depend on ordered lot size and the amount of lead-time to be shortened. Moreover, ordering cost was included among the decision variables. Two models were proposed in that study. The first model employed a logarithmic investment cost function for ordering cost reduction, in which the ordering cost and lead-time reductions were performed independently. The second model assumed that the ordering cost

and lead-time reductions interacted with each other linearly. An iterative algorithm was devised to determine the optimal solution for lot size, re-order point, ordering cost, lead-time, and a number of shipments between the vendor and buyer.

Murwa (2014) demonstrated that the model of an integrated inventory problem under controllable lead-time between a vendor and a buyer and its heuristic solution procedure, proposed by Pan and Yang (2019) based on equal-sized batch transfer, may lead to an erroneous solution due to the lack of appropriate constraints on batch size.

To overcome the shortcoming, an alternative generalised model was developed in that paper. It was developed based on an equal or unequal-sized batch transfer of the lot from the vendor to the buyer. Constant safety stock overtime to meet the demand by a lot is assumed, and the lead-time is reduced with an additional crashing cost. It was shown theoretically that if the ratio of the production rate to demand is higher than the ratio of the highest lead-time to the least lead-time, then the problem's parameter values do not warrant the use of unequal-sized batches.

Otherwise, lot transfer by unequal-sized batches may be effective. A number of properties that lead to the optimal solution of the model were established, and following these properties, an algorithm to obtain the optimal solution was presented. The technique in that paper provides the optimal lot and batch quantities, a number of equal and unequal-sized batches, lead-time and safety stock per lot by minimising the total cost of setups or ordering, inventory holding, safety

stock and lead-time crashing. Lee and Schwarz (2016) examined a continuous-review, single-item, (Q, r) inventory system from an agency perspective, in which the hidden effort of an agent influences the item's replenishment lead-time.

Researchers such as Lewis and Roehrich (2009) state that procurement forms a major part of supply chain management. The procurement function can impact the realisation of organisational objectives based on the strategy adopted. Procurement forms a large portion of total expenditure in most firms and is therefore critical to maintaining profitability and sustainable business. Procurement works are the centre of the supply chain of most firms since it facilitates translating requests into actual products and satisfies identified needs (Caldwell et al., 2009). Caldwell et al. (2009) further argues that procurement serves three categories of users, and these are the internal customers; programmes in responses to crises and ongoing programmes, and requesting for stocks for customers within the firm and the needs of programmes

They had demonstrated that the possible influence of the agent on the replenishment lead-time can be large but that a simple linear contract is capable of recapturing most of the cost penalty of ignoring agency. Finally, they made a few comments about the applicability of their results to the lost-sales or partial-backordering scenario. In their analysis, they assumed that unmet demand is fully backordered and used an exact cost function to measure the cost impact of lead-time reduction. Although their analytical results on the payment schemes remain applicable to scenarios in which unmet demand is partially or fully lost, no exact expression for the average cost per unit time of a (Q; r) policy exists for the lost-sales scenario, much less the partial-backordering scenario. Ouyang et al. (2016) extend Yang and Pan (2018) model by adding the shortage cost and considering the re-order point as a decision variable.

2.4.3 Relationship Between Procurement Lead-time and Procurement Performance

According to Isogangwa (2014), today, more than ever, companies are trying to gain a competitive edge and improve profitability through cutting costs, increasing quality and

improving delivery. Companies' concentrate on improving delivery through cutting lead-time and show how shortened lead times will help to increase export and reduce costs (Olinder and Olhager, 2008). Time is an essential element in many forms of competitive advantage. As firms continually search for the elusive combination of resources and capabilities that yield differential financial performance, time is often a common aspect in sources of advantage.

For any performance of the institution, the reduction of procurement lead-time remains to be an important factor. This is to say, the reduced lead-time also brings reduction of costs, the realisation of profit, effective and efficient operation within an organisation and customer satisfaction because of the fact that services were offered on time (Laizer, 2013). The reduction of procurement lead-time ensures many things in the organisation, such as reduction in inventory stock, better cash flow for the business and proper service delivery to the customers. In various contexts, when there is a shorter lead-time automatically lead to less risk and improved inventory control because of better management of inventory stock. The same applies to hospitals; when the procurement lead-time is reduced, better health care services are guaranteed, increasing procurement performance.

During the procurement process, the amount of time can be huge or small, depending on how the purchasing process was conducted. The more the procurement process is effective, is the more the lead-time is reduced. In this study, procurement lead-time refers to the time taken by the procuring entity procurement processes from the initial stage of procurement to the receipt of the materials (Bovis, 2017).

Lead-time has been a key challenge element in the procurement process of supplies of goods in many organisations, companies and institutions (Laizer, 2013). The ability to quickly obtain and deploy this domain-specific supply chain expertise without developing and maintaining an

entirely unique and complex competency in the house is the leading reason why supply chain specialisation is gaining popularity. The lead-time will, in one way or another, remain as a main challenging factor in procurement management (Laizer, 2013). Laizer (2013) further argues that lead-time is a vital component in an organisation, companies, and institutions in achieving on time delivery or completion of the procurement management process. Lead-time creates awareness on how organisations, companies and institutions can understand when to initiate needs and accomplish those needs accordingly. The relationship between lead-time and procurement management is hence key.

According to Cheptora (2018), procurement performance as the backbone of firm manufacturing success contributes to the competitive purchase and acquisition of quality goods that put the organisation products or services at a competitive edge in the market. However, on several occasions, poor procurement performance has caused a private sector financial loss due to the delivery of poor-quality work materials, loss of value for money and inflated prices. Poor procurement performance also contributed to decreasing profitability of the private sector (Juma, 2010). According to Migai (2010), poor procurement performance is a major hindrance to private sector organisations growth since it causes the delay of delivery, increase of defects, delivery of low-quality goods or non-delivery at all (Barsemoi, Mwangagi & Asienyo, 2014).

A study by Njeru (2015) concluded that supplier management followed by training and then procurement policies are the major factors that mostly affect the effective implementation of procurement practices in tertiary public training institutions. The study, therefore, recommended that;

> *Improvement on the level of compliance with procurement regulations, adoption of effective supplier management techniques, application of inventory management techniques based on economic order quantity, implementation of better supplier selection strategies and finally training of procurement staff and integration of procurement functions with ICT based systems (P.153)*

Hamza, Gerbi and Ali (2017) argued that for an institution to overcome the procurement lead-time, effective supplier management strategies in order to support the implementation of effective procurement practices and effective supplier appraisal techniques should be adopted, better supplier selection strategies should be used, effective supplier selection process should be employed, better supplier performance methods should be applied, effective supplier relationship management techniques should be adopted, and supplier development and supplier collaboration should be employed. These, in turn, will reduce procurement lead-time; thus, better health care service delivery will be guaranteed. Murwa- Igosangwa (2014), on the other hand, indicated that to overcome the procurement lead-time, review of the existing legislatures, use of technology in procurement processes as the use electronic procurement technologies save up to 42 % in purchasing transaction costs, proper planning of all procurement events and use of appropriate procurement method.

In his study on lead-time reduction strategies in a single vendor single buyer integrated inventory model with lot size-dependent lead times and stochastic demand, Glock (2012) reported that lead-time reduction is most important in case of high demand uncertainty and that the mixture of measures to reduce lead-time is beneficial. The study suggested that the use of external expertise for technical specifications and early appointment of an evaluation panel with proper technical skills is vital and should go hand in hand with training the suppliers to understand the public procurement system.

Various factors affecting service delivery include factors such as workforce remuneration, promotional procedures, training, and organisational culture, among other factors (Pathak, Naz, Singh & Smith, 2010). However, it is important to note that service delivery in government institutions is highly dependent on efficient and effective tendering processes. Despite the existence of procurement departments and tendering committees in public institutions, the service deliveries they offer are still questionable. Kulshrestha (2013) notes that there is a lack of transparency, efficiency, and unreliable delivery of services that mainly originates from poor tendering processes (Chelimo, 2018).

According to Muriuki (2018). Stipulated that, in today's workplace, business pressures are ever-increasing, and organisations are now faced with persistent public outcry over poor procurement performance. Most public institutions have adopted procurement performance measurement initiatives in order to realise efficiency in their operations. In line with current development in the world, tertiary training institutions are faced with problems of poor service delivery, high cost of procurement, increased lead-time and failure to comply with procurement legislation

Reducing lead-time is very important. It is fundamental that organisations compare themselves and other firms to test that value for money is being accomplished, additionally as a feature of the procedure of looking for nonstop change and identification of good practice. This is frequently done through a benchmarking procedure (Maurer, 2004). The main role of benchmarking is to enhance the productivity of the firm by testing how it is performing, whether it is accomplishing better performance and the rate at which its performance is progressing. Again the procurement function should be consistently coordinated with other aspects of the supply chain within the firm, and this includes an effective warehousing and distribution function, astute financial management, and efficient human resources management. A coordinated way to deal with service delivery will most likely add to a more efficient and reliable health care

delivery. As pointed out by Shaw (2010), having unambiguous lines of communication, well-timed circulation of information, and consistent response will in making the procurement function more effective.

Mlinga (2010) presented a paper in the procurement and supply journal concerning procurement management challenges in the public sector, emphasising that a significant amount of resources is used for procurement of goods, works and services, and the extent to which it is reliable to have a significant impact on public organisation's developmental objectives. However, there are challenges that plague public procurement hindering it from registering its significant contribution in the effective and efficient utilisation of public organisation's financial resources. The defined public procurement challenges include striking a balance between key pillars of public procurement, managing stakeholders' expectations, managing an adequate supply of procurement and supplies professionals and technicians and managing the highest ethical standards. The Controller and Auditor General (2009) report raised concern on factors affecting proper public procurement, including poor understanding of the guiding laws and procedures, laxity of supervising authorities and unqualified persons performing the procurement function. The report also highlighted specific measures to be put in place by the government to minimise these problems, including putting in place deliberate measures to strengthen capacity in procurement activities as well as other related functions and register those persons dealing with the procurement function so as to be able to follow up their performance.

Traditionally companies have used inventory to bridge the lead-time gap. This inventory is built up by using a forecast to predict the customers need before the actual demand arises. However, forecast accuracy is never perfect, no matter how advanced the forecasting system is. Due to forecasting errors, there will always be too much or too little inventory, Christopher, (2011).

Further, he notes that forecasting error increases as the lead-time gets longer. Larger 4 forecasting error in turn, causes increased demand volatility and a need to keep higher levels of safety stocks. Therefore, it is advisable to decrease the lead-time gap in order to have more accurate forecasts that are based on actual demand and, at the same time, lower the amount of inventories (Isogangwa, 2014).

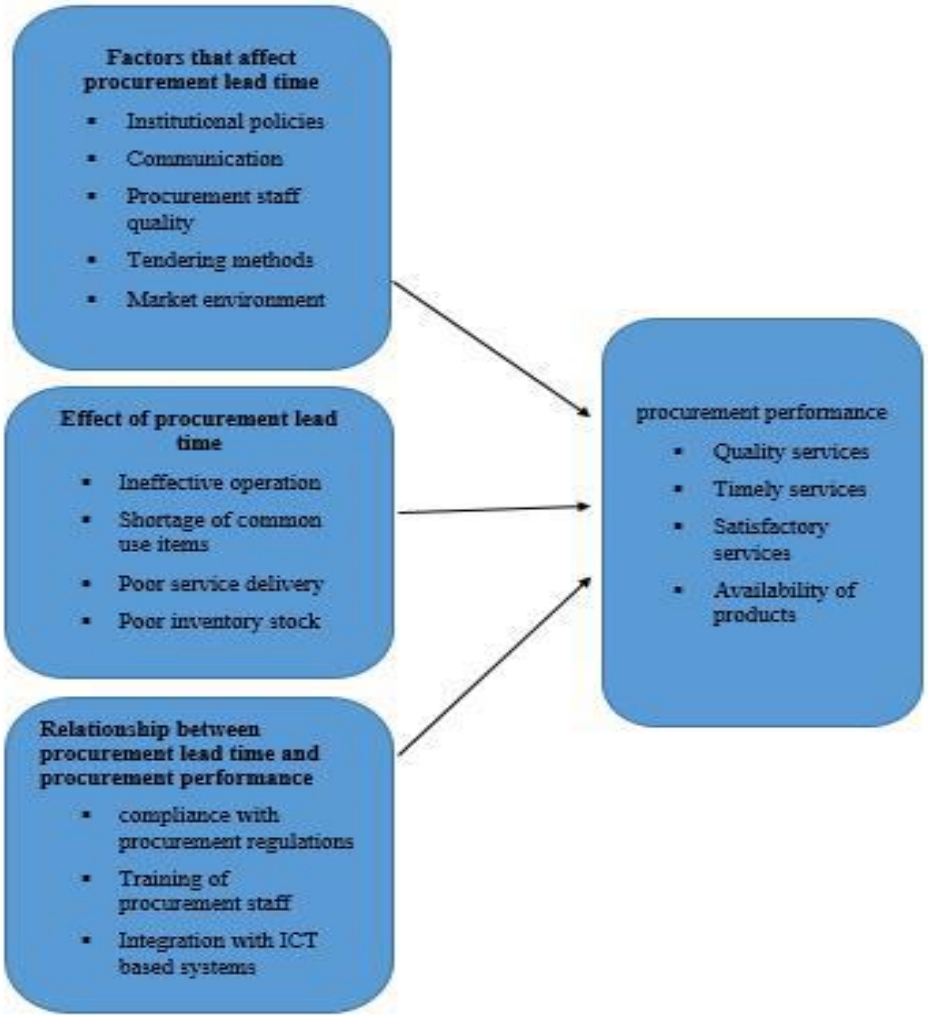
2.5 Conceptual Framework

According to Patrick (2015), a conceptual framework represents the researcher's synthesis of the literature on how to explain a phenomenon. The conceptual framework is the researcher's understanding of how the particular variables in his study connect with each other. In this study, procurement lead-time is an independent variable while procurement performance is a dependent variable. The conceptual framework is based on the assumption that when procurement lead-time is reduced, it automatically improves the service delivery in ACC, and the prolonged procurement lead-time may deteriorate the service delivery.

The framework shows both dependent and independent variables. It is used as a tool in research when assisting a researcher in identifying the variables in his or her study (dependent variable and independent variables).

Figure 2: 1**Conceptual Framework**

INDEPENDENT VARIABLE DEPENDENT VARIABLE



Source: Researchers own construction (2021)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology, which includes: research design, area of study, research approach, population, sample, sampling techniques, sample size, data collection methods, primary data, secondary data, data analysis technique, reliability and validity of the instruments and ethical considerations.

3.2 Research Design

A descriptive research design was used in this study. The essence of using this design will be that a researcher intended to describe specific behaviour as it occurs in the environment (Greener, 2008). The study assessed the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council. Mugenda and Mugenda (2003) showed that the main aim of descriptive research design is to report the way things are, and it helps in establishing the current status of the population under study.

Also, Kothari (2014) noted that descriptive research design aimed to produce statistical information about aspects of a study that interests policymakers. Furthermore, the kind of this study can be used to describe characteristics that exist in a population, determine cause and effect relationships between different variables and make inferences about possible relationships or gather preliminary data to support further research and experimentation

3.3 Area of study

The study was conducted at Arusha City Council, Tanzania. ACC is among the seven districts of the Arusha Region of Tanzania. Arusha City is bordered to the south, west and north by

Arusha Rural District and to the east by Meru District. The area was chosen because they apply procurement procedures in their supply chain management, and the council has substantially been spending a lot of its budgets in procuring both consultancy services, works – construction projects and also procurement of tangible items (goods). Thus, procurement, as one of the basic functions of the council, faces many challenges, including a longer lead-time in acquiring those goods, works and services. It is from this context that the researcher believed that adequate data about the effectiveness of lead-time supplies on procurement performance was obtained.

3.4 Research Approach

The study used a mixed research approach whereby both quantitative and qualitative approaches were employed. A quantitative approach is characterised by the collection of information which was analysed numerically, while the qualitative approach is characterised by the collection of narratives from respondents (Bouma, 2010). Therefore, the use of a mixed approach enabled the researcher to achieve the main objective of this study. The advantage of the mixed research approach is that they complement each other thus, the researcher was able to associate the information collected from respondents.

3.5 Population, Sample and Sampling Techniques

3.5.1 Population

The population of the study refers to the population to which a researcher wants to generalise the results of the study. The population of the study included the number of people, can be institutions, organisations and sometimes includes things that have one or more characteristics in common on which a study focuses. It is through the population of the study; the researcher collected primary data (Debois (2018). In this study, the targeted population were the employees of ACC and some suppliers. The total population were 40 respondents (HR source, 2021).

3.5.2 Sampling Technique

3.5.2.1 Probability Sampling Procedure

Simple random sampling refers to the sampling technique in which every member of the population had an equal chance of being selected (Kothari, 2011). Suppliers in the Arusha City Council was selected using this technique, and this technique eliminates all element of biasness while selecting a representative sample.

3.5.2.2 Non- Probability Sampling Procedure

Purposive or judgemental sampling techniques were used by the researcher as a sampling procedure in selecting employees. The mentioned employees were asked to take part in the study with the aim of giving more insight into the study. In addition, a purposive sampling technique was adopted in conducting this study to gain an insight into the phenomena.

3.5.2.3 Sample Size

Sample refers to the number of participants or observations included in a study. It is representative of the population in which the study findings are generalised (Alvi, 2016). In this study, the sample size was calculated using the Yamane (1967) formula of calculating sample size whereby;

$$n = \frac{N}{1+N(e)^2} \quad \text{.......... (i)}$$

Where

n= sample size

N= Population Size

E= desired precision (5-10%)

$$Sample\ Size\ (n) = \ Population\ Size \frac{N}{1 + N(e)2}$$

Where N= 40

e= 5%, thus

$$n = \frac{N}{1 + N(e)2}$$

n= 40

1+40(0.025)

n= 36 respondents

Table 3.2 Sample Size

Department	Population Size	Sample Size
Employees	14	14/40 × 36 = 13
Suppliers	26	26/40 × 36 = 23
TOTAL	**40**	**36**

Source: Researcher (2021)

3.6 Data Collection Methods

Primary data were collected using questionnaires and interview

3.6.1 Interview

In this study, a researcher used the interview as the method of data collection. This method involved face to face interviews between the researcher or interviewer and the interviewees or the respondents. The interview was used to collect information from the respondents that questionnaires could otherwise not be able to collect. Interview guides were prepared by the researcher in order to have consistency in asking questions, and the interview guides were used among the employees in the Arusha City Council.

A pilot study was carried out to determine the validity of the interview guides, where the responses of the subjects were checked against the research objectives.

3.6.2 Questionnaires

These are the questions prepared by the researcher and sent directly to the respondents in the field for the purpose of filling them. These questions are in two types open and closed-ended questions.

Questionnaires were preferred in this study due to the fact that they enable the researcher to reach the target group with the minimum cost in terms of time and other sources. A researcher believed that it is through questionnaires that the respondents were able to provide information at their own prudence or discretion. Hence, it helped to avoid any direct influence contrary to other methods like interviews where the researcher may have a direct influence in moulding respondents answers. Questionnaires were used among the suppliers in the study area.

3.6.3 Documentary Review

This refers to secondary data collection methods that include intensive literature review (Magigi, 2015). This comprises journals, reports and various documents published with respect to this

study. Different reports and documents were used to collect various data and information from ACC so as to assist in data analysis and findings.

3.6.4 Pilot Study

A pilot study is a small feasibility study designed to various aspects of the method planned for a larger, confirmatory investigation or more rigorous (Cooper & Lancaster, 2010). A pilot study prevented the researcher from launching a large-scale study without adequate knowledge of the methods proposed (Leyrat & Eldridge, 2017). A pilot study was carried out to determine the validity of the interview guides, where the responses of the subjects were checked against the research objectives to ensure reliability.

3.7 Data Analysis Technique

The data were analysed using Statistical Package for Social Sciences (SPSS) version 20 descriptively. Quantitative data were analysed using descriptive statistics such as frequencies, percentages, mean and standard deviation. Quantitative data were entered and coded on SPSS version 20. Also, inferential statistical was used to test the relationship between procurement lead-time and procurement performance using a Chi-Square method. Qualitative data were analysed using content analysis. Data were analysed into categories accordingly. Direct quotations from respondents were used as justification for their answers. In the presentation of findings, the researcher showed how the data from descriptive statistics and content analysis relates or not.

3.8 Reliability and Validity of the Instruments

3.9.1 Validity

Validity is the degree to which a study accurately reflects the specific concept that the instruments intended to measure (Kombo, 2006). The validity of the instruments for data

collection in this study was done through expert review. Experts in the research reviewed the data collection instruments, and any correction or adjustments was made accordingly in relation to the topic under study. This ensured the validity of data collection tools. Also, questionnaires and interview guides were checked by the supervisor, and the language used was simple to every respondent involved in this study.

Comments and guidance provided by the research supervisors and other experts in the field of procurement were of great and valuable inputs in validating the research instruments.

3.9.2 Reliability

Reliability is the degree to which a test is consistent and stable in measuring whatever it is measuring. Reliability requires the administration of the same test to the same respondents twice (Kothari, 2011). After a pilot study, data were tested through SPSS to ensure internal consistency.

The instruments were pre-tested through a pilot study before the actual data collection to enhance reliability. The research instruments were tested to identify possible problems during the main study and clarify the instrument and appropriateness of the language. The importance of pre-testing a questionnaire, according to Creswel (1999), is to help the researcher understand the meaning of the questions to respondents and how they arrive at their response. The researcher will carry out a pilot testing on 10 employees of ACC. Test re-test method was applied, where the questionnaires were administered to the same respondents twice in the span of two weeks.

3.9 Ethical Consideration

According to Mason (2013), ethical consideration in research is not only essential but also necessary to ensure that participants are treated with dignity and respect during the study. These are moral principles that guide researchers to conduct and report research without deception or intention to harm the participants of the study or members of the society as a whole, whether knowingly or unknowingly. Practising ethical guidelines while conducting and reporting research is essential to establish the validity of research

During this study, the following ethical issues were observed; the researcher got a data collection permit from the Institute of Accountancy Arusha and government authorities. The researcher ensured that all respondents voluntarily participated in the study and the information collected were kept confidentially and were used for the study only. The researcher always informed the respondents prior to data collection sessions.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents, analyses and interprets data on the effectiveness of lead-time supplies on procurement performance in Tanzania. The study had three objectives, namely; to explore the factors that affect procurement lead-time, to describe the effect of procurement lead-time on product availability and to find out the relationship between procurement lead-time and procurement performance

4.1 Presentation of Findings

The findings of the study included demographic information of respondents and findings for research objectives. Findings for the demographic information and research objectives are presented using descriptive statistics. Descriptive statistics such as frequencies and percentages were used to analyse questionnaire data.

4.2 Response of the Respondents

In this study, a researcher distributed a total of 36 questionnaires to the respondents, such as suppliers, while an interview was conducted among the employees in the study area. From the field, only 32 questionnaires were filled and returned to the researcher, and this represents 83% response rate which is considered satisfactory to make conclusions for the study. Mugenda and Mugenda (2003) discovered that 50% response rate is adequate, 60% is good, and 70% rated very well.

Also, Bailey (2000) argued that a response rate of 50% is adequate, while a response rate greater than 70% is very good. Therefore, the high response rate in this study was attributed to

the data collection procedures where the researcher pre-notified the potential respondents/ participants and applied the drop and pick method where questionnaires were picked at a later date to allow the respondents ample time to fill the questionnaires.

Analysis of data from the questionnaires was done through descriptive statistics (mean and standard deviation). Analysis of interview data was done through content analysis based on themes derived from research questions. The chapter is presented in two sections. The first section presents findings, and the second section provides a discussion of findings.

Table 4.1: Response Rate

Response	Frequency	Percent
Not returned	04	11
Returned and filled	32	89
Total	36	100

Source, Field Data (2021)

4.3 Characteristics of the Respondents

The demographic characteristics of the respondents were analysed in this chapter. The characteristics were in terms of age, gender, working experience and level of education.

4.3.1 Age of the Respondents

47% of respondents with the frequency of 17 aged between 35-54 years, and this was the largest age group in the sample. The second category of age was between 18-34 with a percentage of 36. The smallest frequency of 6 respondents showed that they were aged above 55 years old with a percentage of 16%. The data indicated that the majority of the respondents

were old enough to provide relevant information concerning the effectiveness of lead-time supplies on procurement performance in Tanzania.

Table 4.2 Age of the Respondents

Age Group	Frequency	Percent
18-34	13	36.1
35-54	17	47.2
55+	6	16.6
Total	**36**	**100.0**

Source: Field Data (2021)

4.3.2 Education of the Respondents

Therefore, the study was interested to know the level of education among the respondents. Among 36 respondents involved in this study, 16 (44%) of the respondents had attained a bachelor degree and who are the majority. Those with diploma were 12 (33%) of the respondents, postgraduate diploma were 6 (16%) of the respondents, and the minority were respondents with master degree composed of 2 (5%).

Data from the field indicated that the majority of the respondents involved in this study were considerably trained in order to perform their duties diligently. The level of education depicts that those with education are more likely to adhere to timely ordering process and the lapse time rate in receiving the goods and hence improves procurement performance.

Table 4. 3: Education of the Respondents

Education Level	Frequency	Percent
Masters	2	5.5
Post graduate diploma	6	16.6
Bachelor	16	44.4
Diploma	12	33.3
Total	36	100.0

Source; Field Data (2021)

4.3.3 Working Experience of the Respondents

In this part, a researcher was interested to know whether the working experience of the respondents had any influence on the effectiveness of lead-time supplies on procurement performance. Data from Table 4.5 indicated that 47% of the respondents had 6-10 years of working experience. 33% of respondents have 11-15 working years. Respondents with work experience of over 15 years formed a minority consisting of 5% of all the respondents. This, therefore, implies that staff in the study area are well informed on the effectiveness of lead-time supplies on procurement performance because the majority of them consists of employees with work experience of between 6-10 years.

Table 4. 4 Working experience of the Respondents

Working experience	Frequency	Percent
0-5	5	13.8
6-10	17	47.2
11-15	12	33.3
15+	2	5.5
Total	36	100.0

Source: Field Data (2021)

4.4 Reliability Test

In this study, the results from the findings of Cronbach's Alpha was above 0.6 for all items. The coefficient is significant, as shown in Table 4.1 below.

According to Leedy (2006), when Cronbach alpha is greater than 0.9 (>0.9), it means that the internal consistency reliability is excellent. When it is greater than 0.8 (>0.8), the reliability is good, while greater than 0.7 is accepted and greater than 0.6 is still acceptable. When it is 0.5 to 0.58 is poor, and when it is less than 0.5, internal consistency is unacceptable.

The test yielded the Cronbach's Alpha of.890 for three items of objective one,.933 for four items of objective two and.965 for six items of objective three, as shown in Table 3.2. These results proved that the data collection tools were reliable.

In Cronbach's Alpha, in order to say the data is reliable, the reliability result should be above 0.7.

Table 4.5 Reliability Statistics

Variable	Cronbach Alpha	No. of items	Internal consistency
Objective one	0.890	4	Acceptable
Objective two	0.933	4	Acceptable
Objective three	0.965	6	Acceptable

Source: Field Data (2021)

4.5 PRESENTATION OF FINDINGS

4.5.1 Factors That Affect Procurement Lead-time

Under this research objective, the researcher sought to determine the role of conflict of interest on procurement performance. Respondents were to respond by ticking the most appropriate option ranging from 1=strongly disagree 2=disagree 3=Undecided 4=agree 5=strongly agree. Respondents indicated their perception toward three items in the questionnaire, as shown below. The scale of mean score interpretation was as follows: Based on the mean values, mean score of 1 to 1.8 represent strongly disagree, 1.81 To 2.60 represent disagree, 2.61 To 3.40 represent undecided, 3.41 To 4.20 represent agree and 4.21 To 5.00 represent strongly agree

***Table 4. 6.*Respondents' responses on the factors that affect procurement lead-time**

Statements	N	Mean	Std. Dev	Interpretation
Institutional policies	36	3.78	1.476	Agree
Communication	36	3.81	1.327	Agree
Procurement staff quality	36	3.50	1.540	Agree
Tendering methods	36	3.78	1.416	Agree
Supplier management techniques Market environment	36	3.29	1.506	Undecided

Source: Field Data (2021)

Analysis of data for the first research objective, as presented in Table 4.2, showed that the respondents had a view that there were different factors affecting procurement lead-time. Respondents agree that institutional policies, communication, procurement staff quality and tendering methods were the most cited factors with the following mean score (M=3.78, S.D=1.476, M=3.78, S.D=1.416, M=3.81, S.D=1.327 and M=3.50, S.D=1.540). Other respondents were undecided on whether supplier management techniques, market environment affects lead-time or not with the mean score (M=3.29, S.D=1.506). This suggests that factors affecting procurement lead-time were both internal and external.

4.5.2 The Effect of Procurement Leads Time on Product Availability

In the second research objective, respondents were asked to indicate their perceptions about the effect of procurement lead-time on product availability. The data were collected using a standardised questionnaire and were analysed using the mean on SPSS. Mean scores were interpreted as follows. Mean scores from 1 to 1.80 were interpreted as strongly disagree. Mean

scores from 1.81 to 2.60 were interpreted as disagree. Mean scores from 2.61 to 3.40 were interpreted as undecided. Mean scores from 3.14 to 4.20 were interpreted as agree, and mean scores from 4.21 to 5.00 were interpreted as strongly agree. The results of the analysis are shown in Table 4.3

Table 4.7: Respondents' responses on the effect of procurement lead-time on product availability

Statements	N	Mean	Std. Dev	Interpretation
Ineffective operation	36	3.81	1.431	Agree
Shortage of common use items	36	4.11	1.166	Agree
Poor service delivery	36	3.61	1.460	Agree
Poor customer satisfaction	36	3.53	1.424	Agree
Increase of cost	36	2.72	1.059	Undecided
Poor inventory stock	36	2.81	1.305	Undecided

Source: Analysis of Questionnaire Data (2021)

Analysis of data for the second research objective as presented in Table 4.3 indicated that the respondents believed that there were myriads of the effect of procurement lead-time on product availability. The most mentioned effects were the shortage of common use items (M=4.11, S.D=1.166), Ineffective operation (M=3.81, S.D=1.431), Poor service delivery (M=3.61, S.D=1.460). Other respondents were undecided on whether procurement lead-time could have an effect on product availability**,** Poor inventory stock (M=2.81, S.D=1.305), Increase in cost (M=2.72, S.D=1.059). These findings suggest that the procurement lead-time should be taken seriously to reduce the mentioned effects.

4.5.3 Hypothesis testing

4.5.3.1 The relationship between procurement lead-time and procurement performance

Hypothesis testing is the method that uses statistics to determine whether the probability of a given hypothesis is true. The research hypothesis for this study was tested by using Chi-square.

Hypothesis 1:

Ha: There is a relationship between procurement lead time and procurement performance

Ho: There is no relationship between procurement lead time and procurement performance.

A questionnaire was distributed to 36 respondents, and data was analysed through SPSS version 20.0. The results showed that there is a statistically significant, direct and positive relation between procurement lead-time and procurement performance

A Chi-Square test of association between procurement lead-time and procurement performance showed a significant relationship between the two variables. The corrected value was 48.706, with an associated significance level of 0.000. To be significant, the significance value needs to be 0.05 or smaller. In this case, the value of 0.000 is smaller than the alpha value of 0.05, so a researcher concludes that the result is statistically significant. This means that the procurement lead-time and procurement performance is statistically significant.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	48.706[a]	1	.000		
Continuity Correction[b]	44.058	1	.000		
Likelihood Ratio	50.899	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	47.933	1	.000		
N of Valid Cases[b]	63				

a. 1 cell (25.0%) have an expected count of less than 5. The minimum expected count is 3.78.

b. Computed only for a 2x2 table

4.6 Content Analysis Findings of Interview Data

The study collected qualitative data using interviews. The data were collected from procurement officers. The data were analysed using qualitative content analysis.

4.6.1 Interview one: The extent to which Communication has to affect procurement lead-time

Communication is very important in procurement among the parties involved here we mean suppliers and PMU staff, and user department because it involves the imparting or exchanging of information by speaking, writing, or using some other medium

In the interview, one of the interviewees said;

Poor communication among the parties involved like suppliers and PMU staff and user department shall affect the procurement performance, and there will be a long lead-time. She further noted to minimise longer lead-time, parties involved in procurement must provide communication in every stage of the procurement cycle.

4.6.2 Interview two: The extent to which Procurement staff quality on procurement lead-time

In the interview, one of the respondent said;

> *One procurement officer from PMU had this to say: competence of staff affects procurement performance and longer lead-time. This was brought about by unqualified staff in the PE who were not conversant with the specification given by the customer, and so it takes time to know what exactly is required. It also took time for the papers needed to remove items from the stores to be signed by all the people in charge.*

Another interviewee had the opinion that;

> *Overloaded of staff in the store department affects procurement performance by longer lead-time. One employee is overloaded with work such that he or she becomes much tired to be in a position to finish all the work on time. The researcher also found out that there was only one person in charge of the store.*

Another interviewee had the opinion that;

> *Employee educational qualification also contributed to delayed lead-time because the employees didn't know the right time to order an item*

4.6.3 Interview three: The extent to which Poor inventory stock affects procurement lead-time

In the interview, one of the respondent said;

> *Too much inventory of unneeded material and possibly shortages of what is needed creates break down of the organisation. He added that, in order to balance expenses, ACC must find ways of managing their inventory correctly, as missing materials will impact the running of the organisation and can lead to delays which are unsatisfactory for supply chain flow.*

4.7 Discussion of Findings

This section presents the discussion of findings. The discussion focuses on relating the research findings and those of previous studies. The section has been arranged in accordance with the research objectives that guided the study.

Findings in the first objectives found that institutional policies, communication, procurement staff quality, tendering methods, supplier management techniques and market environment were factors that affect procurement lead-time. These findings are in harmony with those of Mwikali and Kavale (2012), who reported that factors that affect procurement lead-time including; the internal and external factors; Internal factors that affect procurement lead-time include the institutions' framework within which the procurement is carried out. External factors that affect

the procurement lead-time include; market environment, legal environment, political environment, and other environmental factors.

Kanyoma and Khomba (2013), in their study, also affirmed that depending on the market, for instance, medical supplies need careful processing and evaluating tenders. A competitive market, on the other hand, may give rise to very many respondents to tender and a lengthy process of evaluation. Political issues may affect the whole procurement process, especially in public institutions. In a volatile and corrupt political environment, there will be interferences from politicians with vested interests. This usually leads to delays where if the preferred bidder is not successful, they can instigate nullification of the process and order for a retender. Poor technologies also may cause a delay in the procurement lead-time

In her work, Murwa- Igosangwa (2014) on factors affecting procurement lead-time and operational performance in Kenya indicated that internal factors are; poor communication, lack of experience by the procurement manager; procurement delays, lack of planning, poor infrastructure, inadequate resources, lack of motivation and tendering methods. Doloi*et al* (2012) indicated that inflation, project complexity, inaccurate estimates, change orders, design changes, late submission of drawings, poor specifications, incorrect site information, poor project management, failure to submit RFQ's on time, late preparation of tender documents, receiving incomplete documents from bidders; failure to form the evaluation panel in time, delay by the evaluation panel in completing the evaluation process, protracted contract negotiations, underestimation of procurement lead times and approving authority taking too long to review and approve the tender.

Moreover, a study by Kagendo (2012) pinpointed some factors affecting the procurement lead-time, including; corruption from some procurement officers, ineffective bids, unawareness of the public procurement laws and regulations, the inefficiency of the PPA on enforcing the penalties

to the offenders as well as lack of organizational incentives and pressures for public procurement guidelines implementation that demand to be implemented on time.

Research by Eyaa and Oluka (2011), which was done in Uganda attempting to explain non-compliance in public procurement, demonstrated that the procurement exercise follows steps according to the PPDA of 2003. These steps must be observed in order to ensure that all stakeholders involved in the procurement exercise obtain fair treatment. The steps include; planning for the required procurement over a given period, identifying the source of the items, highlighting specifications/initiation of procurement, determination of procurement procedure, Sourcing (soliciting) offers, evaluation of offers, post qualification, the commencement of the contract, contract performance (delivery) and management, record keeping and accountability, payment and post contract performance (PPDA, Act, 2003). Many corporate board members in Africa, especially those of state-owned companies, have limited understanding of their roles and are usually open to manipulation by management, chairmen, or principal shareholders. Some are outright incompetent. Non-executive directors in Africa need to play meaningful roles in ensuring compliance. However, many simply act as rubber stamps for decisions taken outside the board (Charles & Oludele, 2003). In this perspective, compliance arises from a dynamic equilibrium between the various powers of the state and understanding what their roles are (Fisher 2004), as cited by (Eyaa and Oluka 2011). The empirical findings by Eyaa and Oluka(2011) indicate that of the three variables, which are professionalism, familiarity with procurement regulations, and institutional factors, only one variable, which is familiarity, is a significant predictor of compliance.

In the second research objective, the findings revealed that ineffective operation, shortage of common use items, poor health care service delivery, increase of cost, poor inventory stock and poor customer satisfaction were the major effects of procurement lead-time on product

availability. These findings correlated with Caniato and Größler (2015)'s findings that delay in procurement lead-time will lead to the delay in the service delivery. The effects of procurement lead-time sometimes are due to the nature of the whole procurement process, such as identification of needs, planning specifications and soliciting for suppliers, contract award and management. Procurement incorporates the entire procedure of purchasing property and/or services. It is initiated when a need is identified and a firm commitment made to fulfilling that need. Procurement proceeds through the risk management, assessing various options, contract award, delivery of and payment for the property or services and where necessary, the continuous administration of an agreement and consideration of options related to the contract, which in turn affect the availability of the required products.

Similarly, Bibo, Yang and Joseph Geunes (2007), in their study, revealed that the delay in product availability in an institution such as hospitals causes myriads of effects to the institution and the customers as well. The delay has many effects on operations performance and perceived customer service, particularly under uncertain customer demand. Thus it is important for the institutions to consider the importance of lead-time for better service provision

This third research objective is based on the relationship between procurement lead-time and procurement performance**.** In today's competitive business world, companies require short lead times, low costs and high customer service levels to improve operational performance and survive **(**Anand, 2016). High speed is not always synonymous with better use of time, but attacking and eliminating delays invariably improves throughput and customer services. Measures for reductions in design times, cycle times, setup times, throughput times and delivery times are appearing with greater regularity on performance reports (Arrowsmith, 2018). Eliminating delays and improving product flows involves creativity, specialised skills, capital investments and behavioural changes that challenge the status quo. Frequently, significant improvements can be attained with relatively little, if any, additional capital investment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Three sections were involved in this chapter, namely summary, conclusions and recommendations originated from the study findings and research objectives.

5.2 Summary of the Findings

The study aimed at assessing the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council. The study used the following specific objectives such as to explore the factors that affect procurement lead-time in Arusha City Council, to describe the effect of procurement lead-time on product availability at Arusha City Council and to find out the relationship between procurement lead-time and procurement performance. The study summarised that majority of the respondents strongly agree that institutional policies, communication, procurement staff quality and tendering methods were the most cited factors with the following mean score. The second research objective, the study summarised that majority of the respondents strongly agree that shortage of common use items, Ineffective operation, Poor service delivery were the main effect of procurement lead-time on procurement performance. In the third research objective, the study summarised that, there is a relationship between procurement lead-time and procurement performance.

5.3 Conclusions

On the basis of the data presentation made in chapter four, the following conclusions were made from this study.

First, a number of factors, both internal and external, that affect procurement lead-time were discovered. Among them are; institutional policies, communication, procurement staff quality, tendering methods, supplier management techniques and market environment were factors that affect procurement lead-time.

Second, the study concludes that the effect of procurement lead-time on products resulted in ineffective operation, thus reducing customer satisfaction.

In the third, the study concludes that there is a relationship between procurement lead-time and procurement performance.

5.3 Recommendations

From the study findings, the following recommendations were made on the basis of the conclusions made;

Multiple sourcing techniques should be employed for most commodities to avoid delay due to shortages when a supplier fails to deliver in time

Efforts to make sure that those suppliers are aware of the scheduled lead times for material should be made. Thus they will make sure that materials are delivered in time and avoid unnecessary delays

Moderate stocks should be held to ensure that production does not stop in case of delay in new deliveries

Modern electronic purchasing techniques should be employed to ensure that materials are produced exactly when needed. This will avoid delays that are both expensive and unnecessary for an efficient run of the organisation.

The government should put efforts into the integration of procurement with ICT based systems so as to facilitate the process thus reducing the lead-time.

The user department, the supplier and the procurement department should work closely, and they should establish workable lead times for all the material needed in production. This will ensure that materials are sourced and delivered on time to facilitate efficient products.

The government, through its respective authorities, should review the procurement policies, especially in local government authorities, so as to reduce the delay in the procurement process.

Procurement staff training should be strengthened so that expertise is used in the whole process of procurement so as to reduce effects that can be caused by procurement staff

There should be emergence alternatives to get the commonly used items, especially when a delay occurs in times with high demand of the items.

Procurement staff should be trained so that they can be updated on modern, efficient procurement methods. This will improve their job performance and will help in speeding up the procurement procedures

5.4 Areas for Further Research

This study the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council. Further research can be conducted to examine the impact of procurement lead-time on the availability of the commonly used items in other Tanzanian local government authorities.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR SUPPLIER

My name is **Glory H Mshiu**, a student pursuing a master degree in MBA –PSM as part of the requirements for the award of Master degree at IAA. The study was based on the effectiveness of lead-time supplies on procurement performance in Tanzania, a case of Arusha City Council. Therefore, I am looking for your assistance to fill the questionnaires attached below. The research results will be used for academic purposes only and will be treated with maximum confidentiality

Instructions:

1. *Indicates the most appropriate answer by ticking (√) in the bracket.*
2. *Each question should have only one tick (√)for your chosen answer unless stated.*
3. *Where the space is provided, write your answer in it.*
4. *Please use a pen to answer this questionnaire.*

PART A. DEMOGRAPHIC INFORMATION: Please tick the appropriate option

1. **Your gender?** ( ) Male ( ) Female
2. **Your age** ( ) Below 30 ( ) Between 30 – 40 ( ) Above 40
3. **Marital status** ( ) Married ( ) Single
4. **Education level** ( ) Primary( ) Secondary ( ) Tertiary

PART B. The Factors Affect Procurement Lead-time in Arusha City Council

Please read carefully and tick the correct option to describe your feelings about the below aspects:

S/N	ITEM	Strongl	Disagre	Undecid	Agree	Strongl y Agree
A	**FACTORS THAT AFFECT PROCUREMENT LEAD-TIME**					
1	Institutional policies					
2	Communication					
3	Procurement staff quality					
4	Tendering methods					
5	supplier management techniques					
6	Market environment					
B	**THE EFFECT OF PROCUREMENT LEAD-TIME ON PRODUCT AVAILABILITY**					
1	Ineffective operation within an Institution					
2	Shortage of common use items					
3	Poor service delivery					
4	Increase of cost					
5	Poor inventory stock					
6	Poor customer satisfaction					
C	RELATIONSHIP BETWEEN PROCUREMENT LEAD-TIME AND PROCUREMENT PERFORMANCE					

1	Improvement on the level of compliance with procurement regulations					
2	Training of procurement staff					
3	Integration of procurement functions with ICT based systems					
4	Adoption of effective supplier management techniques					
5	Improvement tendering methods					
6	Implementation of better supplier selection strategies					

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Appendix II

INTERVIEW GUIDE FOR EMPLOYEES

1. To what extent does Communication affect procurement lead-time in Arusha City Council?
2. What are the roles of extent Procurement staff quality on procurement lead-time in Arusha City Council?
3. Do the Tendering methods affect procurement lead-time in Arusha City Council?
4. To what extent do Institutional policies affect procurement lead-time in Arusha City Council?
5. Is Poor service delivery associated with procurement lead-time?
6. How does Poor inventory stock affect procurement lead-time?
7. Does Poor customer satisfaction associate with procurement lead-time?
8. Is there any relationship between procurement lead-time and procurement performance?