

# Determinants Of Inventory Management Practices On Service Delivery In Trans Nzoia County Level Four County Hospital, Kenya

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## Abstract

The purpose of the study was to establish the Determinants of Inventory Management on Service Delivery in Trans Nzoia County Level Four Hospital, Kenya. The analysis was focused on the respondents of the target population of the study. The specific objectives of the study were: Lead Time, Staff Competence, Records Management Practices and ICT Practices on Service Delivery in Trans Nzoia County Level Four Hospital. The study was anchored on the following theories; The EOQ theory, Transaction Cost Theory, Resource Based View Theory (RBV) and The Theory of Change. A descriptive research design was adopted. The target population was 200 respondents who comprised of employees from the following departments in Trans Nzoia Level four hospital; procurement, finance, pharmacist and administration department resource respectively. The researcher did a census survey. A sample and sampling technique was purposive, because the respondents had similar experience, skills and exposure. 10% pilot test was done to confirm the validity and reliability of the research instrument. Research instrument of this study were both structured and semi- structured. Data was collected with the assistance of two researchers assistant who were conversant with the problem under study. The collect data was analyzed with the help of Statistical Package for Social Science Version 24 and now its presented in a form of tables, pie charts, frequency and figures. The findings from the results conclude that Record management practices had the strongest correlation to service delivery ( $r = 0.357$ ), while the weakest relationship among the variables was found between information and communication technology and service delivery ( $r = 0.386$ ). Staff competence and record management practices were strongly and positively correlating with service delivery at correlation coefficient of 0.357 and 0.386 respectively. Service delivery significantly influences effort of respondents, most notably through the JIT shortening of lead time, staff competence, record management practices and the up-take of information and communication technology in all level four hospital in Kenya.

**Key Words:** *Inventory Management, Service Delivery, Staff Competence, Information and Communication Technology*

## INTRODUCTION

### Background of the Study

Procurement performance is an on-going, never-ending, integrated process requiring continuous reassessment and reformation. Procurement is the nerve center of performance in every institution, whether public or private and thus needs a tight system to be followed and adopted. Procurement performance measurement is the process by which procurement establishes criteria, based on strategic planning goals, for determining the results and quality of its activities. It involves creating a simple, effective system for determining whether the procurement is meeting its objectives (Wanyonyi & Muturi, 2015). This includes monitoring results, comparing to benchmarks and best practices, evaluating the efficacy and efficiency of the process, controlling for variances, and making adjustments to the process as necessary (Kerzner & Kerzner, 2017)

According to Ali *et al.*, (2007) County Governments, being service providers to the public, are not immune from pressure that drives organizations to be successful with the quality service that satisfy the customers and stakeholders. The last ten years saw an increased pressure on governments around the world to demonstrate efficient and effective use of the assets under their care. Inventory being one of the main assets owned by the county governments. County governments are the primary providers of services at the local level and communities judge their performance by the level of service provided.

The government of Kenya is initiating and developing its public service reform program through the introduction and institutionalizing of result based management in the public service. Result based management was adopted as a means by which the public service would begin to deliver targeted and timely results for Kenyans (Odette, 2014). Performance contracting has become a very important initiative to support the efforts of institutionalizing result based management. This tool has played an important role in improving service delivery. Service delivery is an indicator of performance entrenched in the performance contract.

Quality customer service is a touchstone of Government quality service initiative. Kumar (2018) stated that inventory management software in Indian hospitals has been important in ensuring that hospital or medical stores in India are kept precise

and updated. The well managed pharmaceuticals and surgical equipment, for example, has ensured that medical care is of high quality and appealing all over the world. Kumar (2018) further hold that inventory management and quality service are the most significant jobs for any health organization. Medicines and other hospital equipment are costly and hence important for healthcare hospital department to keep track of all the stock/inventory items. He however notes that hospitals face a number of challenges including; Shortage of pharmaceuticals, theft of surgical equipment, among other challenges.

According to Mensah (2015), Ghanaian hospitals have a high daily hospital attendance of patients which makes it necessary for the hospitals to buy and store both medical and non-medical materials for proper service delivery. She further states that this is however not the case always, thereby affecting service delivery to the patients. Ghanaian hospitals majorly suffer from shortages of items, overstocking non-medical stocks, huge amounts of obsolete stocks, and stock losses. Due to this, public Ghanaian hospitals have greatly lost reputation in the eyes of the public who seek services from these hospitals.

In recent years, major improvements in the way services were provided in Kenya had been put in place by defunct Local Authorities as part of renewed focus on customer services. The principles underlying customer service are courtesy, accessibility and fairness in how services are provided. Inventory consists of all goods owned and held for customer satisfaction. According to Yatundu et al (2016), Inventory is a necessary evil to any organization although there are various costs that accrue as a result of keeping inventory. Yatundu et al (2016) goes ahead to state that Inventories represent a sizeable investment and a potential source of waste that needs to be carefully controlled. Inventory Control is a means by which an organization's resources are put to economic use. Inventories require huge financial investments and hence need for contemporary financial controls and well-functioning financial audit systems meant to deliver key assurance to all stakeholders against corruption, waste and inefficiencies. When controls are found to contain weaknesses, management must choose among the following alternatives; increase supervision and monitoring and institute risk, inherent with the control weakness. County Governments in Kenya are created by an act of parliament, (CG Act. 2012.). There are 47 county Government in Kenya with Trans Nzoia being county number 026.

### **Statement of the Problem**

The need for devolved County Government to focus on service delivery in the health sector has been a subject of discussion all around the country by various researchers and government officials. In spite of the legal, policy and institutional reforms undertaken so far in the public health procurement sector in Kenya, county governments still find it hard to effectively manage the inventory (Koross *et al.*, 2016). United Nations (2013) indicated that over 65 percent of key government health projects in Kenya are being affected due to poor inventory management practices. This implies that only 35% of major health projects are successful due to effective inventory management in this country. This implies that despite efforts so far undertaken in the health project sector in Kenya, health projects are still unable to effectively deliver health services. The

inability to effectively manage inventory affect health project in the country consuming about 20% of the GDP and up to 60% of the annual budget (RoK, 2013) it is a serious problem given that health persons are the engine of a healthy nation, economic growth and development needed to move the country to a middle level economy as envisaged in the development blue print of Vision 2030 (ACEPD, 2011). According to World Bank report (2014) on the effective delivery of health project services in Kenya, it was established that 60% of the health projects were not performing well due to poor inventory management. This information is as reported by Koross *et al.*, (2016) in their project titled "Determinants of effective inventory management in health projects in Kenya: a case of Homa-Bay County." The issues included Lead time, Staff Competence, Records management Practices and ICT Application Practices. It is on this premise that the study seeks to find out if the determinants of inventory management have an effect on service delivery in Trans Nzoia County, specifically the level four county hospitals of the health sector in Trans Nzoia County.

### **Objectives of the Study**

#### **General Objective**

The general objective of this study was to establish the determinants of inventory management practices on service delivery in Trans Nzoia level four county hospital, Kenya

#### **Specific Objectives**

The specific objectives of the study were:

1. To assess the effect of Lead Time on Service Delivery in Trans Nzoia County level four hospital in Kenya.
2. To determine the effect of Staff Competence on Service Delivery in Trans Nzoia County level four hospital in Kenya.
3. To examine the effect of Record Management Practices on Service Delivery in Trans Nzoia County level four hospital in Kenya.
4. To assess the effect of Information and Communication Technology on Service Delivery in Trans Nzoia County level four hospital in Kenya.

### **Theoretical Framework**

#### **Agency Theory**

Agency theory is thought to be relevant for this study in understanding the effect of lead time on Service Delivery in Trans Nzoia County level four hospital in Kenya, hence it gives a theoretical background for this study. According to Jensen and Mackling (1976), an agency relationship is a contract under which one or more persons (principals) engages another person (the agent) to perform some service on their behalf, which involves delegating some decision-making authority to the Agent. Agency theory is concerned with agency relationships. The two parties have an agency relationship when they cooperate and engage in an association wherein one party (the principal) delegates decisions and/or work to another (an agent) to act on its behalf (Eisenhardt, 2009). The important assumptions underlying agency theory is that; potential goal conflicts exist between principals and agents; each party acts in its own self-interest; information asymmetry frequently exists between principals and agents; agents are more risk averse than the principal, and efficiency is the effectiveness criterion. Two potential problems stemming from these assumptions may arise in agency

relationships: an agency problem and a risk-sharing problem (Xingxing, 2012).

An agency problem appears when agents' goals differ from the principals' and it is difficult or expensive to verify whether agents have appropriately performed the delegated work (i.e. moral hazard). A risk-sharing problem arises when principals and agents have different attitudes towards risk that cause disagreements about actions to be taken (Xingxing, 2012). By their nature, buyers expect suppliers to provide good quality and to improve the quality of supplied products and/or services, but suppliers may be reluctant to invest substantially especially if they perceive that buyers are reaping all the benefits. The difference between buyers and suppliers will result in the two parties concerning themselves only with their self-interests (Xingxing, 2012).

The agency theory is widely used in procurement, Cliff Macure and Eric Prier did a study on using agency theory to model cooperative public purchasing and the operational linkages between government organizations, their purchasers, and their suppliers are vied as important contributors to the success of government policy and decision-making. Although cooperative purchasing has been a topic of study for many years (Wooten, 2003), researchers revisited issues related to cooperative public purchasing (CPP) in search of more clarification on with respect to its theoretical underpinnings (Aylesworth, 2003). Dixit (2002) consider that although the procurement official might believe that the actual purchase is an outcome, the purchase is merely considered an action from the viewpoint of the stakeholder for whom the purchase was made. In other words, the level of analysis is important in determining what behavior is an action as opposed to an outcome. Another reason why agency theory is a fruitful method for modeling public purchasing performance is that it helps to identify the various incentives of the stakeholders. By clarifying the opportunities and constraints they face, there is hope that efficiency, effectiveness, and accountability will be increased. This theory explains that procurement managers in the public sector play a relationship role. According to this theory, procurement managers including all civil servants concerned with public procurement must play the agent role. Therefore, procurement managers take on the role of agent for elected representatives. This theory holds that shirking is likely to occur when there is some disagreement between policymakers and the bureaucracy.

### **Theory of Reasoned Actions (TRA)**

Theory of Reasoned Actions (TRA) is considered to be relevant for this study in order to understand the effect staff competence on service delivery in Trans Nzoia level four hospital, Kenya, hence it gives a theoretical background for this study. The second most cited theory was the Theory of Reasoned Actions (TRA). The theory originates from social psychology, and it is a special case of the Theory of Planned Behavior (TPB) (Ajzen, 2010). Fishbein and Ajzen (1975) developed TRA to define the links between the beliefs, attitudes, norms, intentions, and behaviors of individuals. The theory assumes that a person's behavior is determined by the person's behavioral intention to perform it, and the intention itself is determined by the person's attitudes and his or her subjective norms towards the behavior. The subjective norm refers to "the person's perception that most people who are important to him think he should or should not

perform the behavior in question" (Fishbein and Ajzen, 1975, 302). Ajzen and Fishbein's (1980) book is focused on the prediction and understanding of human behavior to help in solving applied problems and making policy decisions. The authors state that TRA is applicable, for example, when studying consumer behavior, women's occupational orientations, or family planning behaviors. In these studies TRA was used to compare it with TAM (Davis et al., 1989, see above), or in combination with DOI (Karahanna et al., 1999). For example, Karahanna et al. (1999) examined users' pre-adoption and post-adoption beliefs and attitudes by combining aspects of TRA and DOI.

### **Theoretical Contexts of Records Management Theory.**

Theoretical contexts of records management theory is considered to be relevant for this study in order to understand the effect information and communication technology on service delivery in Trans Nzoia level four hospital, Kenya, hence it gives a theoretical background for this study. By "theoretical context" we mean a broader area of theory into which records management theory fits. There can be many such theoretical contexts. We will mention just three. Functional context; Records management serves a firm or other organization. Therefore, the *mission* of a records management service needs to be related to and supportive of the mission of the organization as a whole. The *role* of the records management program needs to be articulated with the roles of other parts of the organization: the roles, needs, and activities of employees needing access to records; the roles of other information-related programs such as Management Information Systems, data processing, the library, and the archives. In other words, records management theory is likely to be sterile or incomplete unless it is related to a view of the organization as a whole. More than academic curiosity is involved. If we are to assert that the role of records management is important, then we need to have views on how a good records management program contributes to and supports the effectiveness of the organization.

Professional context; Records management can be seen as one member of a family of retrieval-based information systems. An Italian is not the same as a Briton, but they are both Europeans and share some things in common as Europeans. Archives, libraries, records management programs, and corporate databases are not the same, but they are all retrieval-based information services and so have some features in common as well as differences that make them uniquely different (Buckland 1982, 1991). Seeing records management as a member of a family of retrieval-based information systems is not new. This view was adopted in the "Documentation" movement early this century, especially in the writings of the Paul Otlet (1868-1944) (Rayward 1976, 1986). What we now call records management, Otlet called "administrative documentation" and he saw it as an important specialty in administration. He also included what we now call Management Information Systems as part of administrative documentation. Otlet wrote a number of papers on the subject and his ideas were implemented to a limited extent in Europe (Otlet 1923, 1930, 1934, 350-55; Rayward 1976, 160, 184). Otlet viewed archives, bibliography, libraries, museums, and records management as parts of the broad field of "Documentation" or "General Documentation", or, as we might say now-a-days, information resource management. In 1923 he

wrote, somewhat prematurely, that administrative documentation was a branch of "general documentation," which was born from the convergence and then the fusion of bibliography, archive administration, and even museology (Otlet 1923, 13). Otlet was a major figure in his time but is now little known. His writings are only now beginning to appear in English (Otlet 1990).

However, the idea that there might be theoretical and practical benefit in seeing records management (and other sorts of information services) as part of a family of related information professions and of adopting a comparative approach has received attention recently in North America (Seibell 1987; Pemberton & Prentice 1990; Buckland, 1991). Intellectual context;. Another kind of context is what could be called the "intellectual context". Where did ideas in records management ideas come from and where have records management ideas gone to? Two examples can illustrate this point. One source of records management ideas is archival theory. Posner (1940) teased archivists for their penchant for tracing their roots to ancient Assyria. Perhaps that ancient archival activity is more accurately described as ancient records management (Walker 1989). Professor Duranti has recently summarized that aspect of the intellectual ancestry of records managers (Duranti 1989).

### Technology Acceptance Model (TAM)

Technology Acceptance Model is thought to be relevant for this study in understanding the effect of information and communication technology on Service Delivery in Trans Nzoia County Level Four Hospital, Kenya; hence it gives a theoretical background for this study. The most cited theory was the Technology Acceptance Model (TAM). Davis (1989) presented a theoretical model aiming to predict and explain ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system.

Perceived usefulness refers to "the degree to which a person believes that using a particular

System would enhance his or her job performance", and perceived ease of use refers to "the

Degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, 320). In these articles TAM was used in three different ways, namely to compare different adoption models, develop extensions of TAM, or replicate the model. For example, Davis et al. (1989) empirically compared the ability of TRA and TAM to predict and explain the acceptance and rejection by users of the voluntary usage of computer-based technology; Venkatesh and Davis (2000) developed and tested a theoretical extension of TAM, referred to as TAM2, which explains perceived usefulness and usage intentions with the help of social influence and cognitive instrumental processes, and Adams et al. (1992) replicated Davis' (1989) study.

### Conceptual Framework

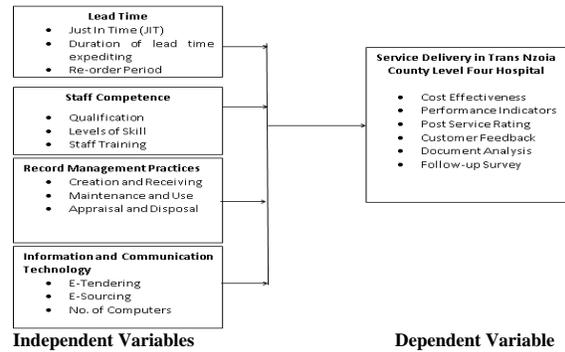


Figure 2.1: Conceptual Framework

### Lead Time Management

In the recent times, service providers have focused on speed as the basis of competitive advantage to gain customer satisfaction. The lead time is the measure of speed for delivering services. Lead time may be defined as the time elapsed between the initiation and execution of a process (Okyere, Annan & Anning, 2015). A more conventional definition of lead time in the realm of a service industry is the time from the moment the customer demands a service to the moment it is received by the customer. Lead time management is not a new concept in service delivery. The opportunity to reduce lead time in service delivery lies in the service process itself. The time it takes to provide a particular service to a customer is very significant. The service lead time is subjected to various constraints such as excessive and unstipulated demand, and geographic limitations.

For an organization to be able to reduce lead time, it should include lead time reduction as a company strategy. This will enable the company to address lead time issues more efficiently. Therefore, effective management practices play a major role in minimizing lead time for service providers (Kritchachai & Meesamut, 2015). The significance of lead time management is unquestionably a very important aspect in any business environment, and everyone involved must have in-depth understanding as to why it is important. The following are the important to understand lead time management; It provides competitive edge for Product and Services; Customer Lead time plays a significant part in Demand forecast; Direct influence on customer Satisfaction and Provides an alternative overview of Business Performance (Okyere et al.,2015).

Time is a fundamental unit of measurement. It measures an event or process in seconds, minutes, hours, days, weeks, months or years. Time is therefore a basic and a key measurement of efficiency in almost every organization. The understanding of time by mankind makes it a common unit of measurement and a key performance indicator for every organization. The above attributes of time is believed to be behind Harrison and Van Hoek (2008) suggestion of time as a key performance indicator in an organization before cost and quality. This consequently signifies the significance of lead time or the total order cycle time in organizations nowadays. Total order cycle time often known as order to delivery cycle time has been explained by various authors to mean the time existed from when a customer order is received until the delivery of such customer order. The

customer order in question can be a service, raw material, finished goods, or works.

### **Staff Competence.**

Business Dictionary defines competence as the sufficiency of related abilities, commitments, knowledge, and skills that enable an employee (or an organization) to act effectively in a particular job. The realizations of objective by organizations, private or public, greatly depend on the skill, caliber, competence and experience of its work force. The point of emphasis here is that the success or failure of organization is not unconnected with the manpower it recruits, maintains and develops in the course of its operational life. Ensuring the availability of a skilled workforce with the right competence is a critical task for every human resource professional in every organization. As consumer behavior and technological developments change over time, the demand for certain competencies and skills also changes. Performance reviews and career development are an important means of ensuring that competence development objectives are met. In addition to hiring competent workers, it also essential to place equal importance on individual development plan that includes actions for development of existing workers through training, assignments and work experience. Proper planning and training measures are required to address the existing and evolving needs. Every organization must have a measure to analyze the organization's current competence status and future needs, process competency gaps, and define either the need for recruitment or the development of existing employees. (Inthiyaz, 2017).

### **Record Management Practices.**

Records management refers to the whole range of activities which an organization should perform to properly manage its records. The key activities include setting records management policy, assigning responsibilities, establishing and promulgating procedures and guidelines, as well as designing, implementing and administering recordkeeping systems (Musembe, 2015). In the Government, "records management" includes the planning, directing, organizing, controlling, reviewing, training and other managerial activities involved with respect to the creation, classification and indexing, distribution, handling, use, tracking, storage, retrieval, protection and disposal of records to achieve adequate and proper documentation of government policies, decisions and transactions as well as efficient and cost-effective operation of government bureaux and departments (B/Ds).

All organizations need to identify the regulatory environment that affects their records management (Pinheiro & Macedoa, 2009). The regulatory environment may comprise such elements as laws and regulations, codes of best practices, code of conduct etc. For instance, the retention period of a particular type of records before they can be destroyed may be governed by a law or a code of practice. The purpose of a recordkeeping system is to manage records throughout their life cycle, i.e. from the creation or receipt of a record, through its useful life to its final disposal.

### **Information and Communication Technology.**

Information is a very critical guide in Service delivery, especially its availability, access speed, reliability, timeliness and accuracy that actually facilitates admirable service delivery through informed decision making (Kithinji, 2015). According to Riley (2012), how easily the information is understood; cost worth and

ability to meet user's needs are the three important elements of critical information within an environment where the objectives seeking the information are defined in advance.

The integration of IT in Procurement/ inventory management and improves information sharing potentially unlocks the efficacy of inventory management by improving information sharing, predictability increase, value chain waste reduction, better product demand monitoring and order placement to prevent stock-outs which eventually reduces bullwhip lead time effects (Haag and Cunnings, 2016). Effective SCM continues to be best enabled by Information Technology (IT) (Kodama, 2017) while improving supply chain agility, reducing cycle time, achieving required efficiency and timely customer/patient service/product delivery in expectable manner (Radjou, 2016).

### **Service Delivery**

According to Michael (2007), from the beginning of the "customer service revolution" almost 20 years ago, a body of business research has focused on service delivery. Business consultants, corporations and others have worked to identify the characteristics of organizations that consistently please their customers, to develop tools for monitoring service delivery, and build continuous, quality improvement system that respond to consumer feedback. Service delivery survey is considered critical in understanding consumer behavior, needs, wants, attitudes, perceptions, expectations and trends in an organization service and how to influence the customers to the advantage of organization. Calking *et al.*, (2004) advised that the key to successful service delivery and hence relationship management follow through and actually improve performance in areas that need greater public attention. This *et al.*, (2008), insisted that government have to be more responsive to society's needs and demands. He added that public-sector organizations are being reformed in order to provide better, faster and more services. However, quality quantity and speed are not the only new competences that society requires from its government. Since the pace of social change is accelerating, government should equally be able to respond to changing demands by offering new solutions. Secondly, government reforms with the purpose of re-establishing trust in government. Government needs to provide more choice, democracy and transparency by interacting with citizens/customers at all stages of the policy and service delivery process.

### **RESEARCH METHODOLOGY**

A descriptive research design was adopted for this study. The target population was 200 respondents drawn from different departments; 50 finance officers, 60 Procurement officers, 50 pharmacist officers and 40 administration officers' respectively. as officers from sub county hospital were also inclusive. The study adopted a purposive random sampling technique, since the respondents had similar experience, skills and knowledge for this study. The study used both structured and semi-structured questionnaires for primary data collection. The researcher employed the drop and pick approach for the questionnaire which was picked after a week, where there was need, an extension was granted, so as to give humble time to the respondents to fill in without stress (Wekesa, 2016). The study also employed documentary sources of data collection for

purposes of obtaining secondary data to validate same with primary data.

In line with Hassan (2016) assertion, both descriptive and inferential analysis was used to analyze data to establish the relationship between variables using the Statistical Package for Social Sciences (SPSS version 24). This relationship was described in the multiple regression model at 95% confidence level.

## RESEARCH RESULTS

### Lead Time

The variables were lead time, staff competence, record management practices and information and communication technology on service delivery at Trans Nzoia level four hospital in Kenya. This section examined the specific variable called Lead Time using the Likert scale of five points where; Strongly Disagree =SD, Disagree =D, Neutral =N, Agree =A, and Strongly Agree =SA

### Influence of JIT on Service Delivery

The study also sought to determine the effect of just in time on service delivery to Trans Nzoia level four hospital in Kenya. The respondents were required to indicate whether they agree with just in time on service delivery. Majority 79.2% (111) of the respondents indicated that they strongly agreed that the just in time can enhance their service delivery. A bout 14.3% (20) of the respondents indicated they disagree and the remaining 6.5% (9) agreed. The study therefore successfully captured of electronic data interchange which influence performance.

### Effect of Duration on Service Delivery

The study sought to find from the respondent whether the duration of lead time was on time for goods and service when supplier gets orders to delivery to Trans Nzoia level four hospital. Therefore the respondents were asked to indicate their level of agreement as to whether duration to deliver goods is always on time. A majority 59%, (83) of the respondents strongly agreed that their institutions can perform through duration is preserved. A bout 30.2% (42) of the respondents indicated that they were neutral with the duration taken on service delivery at Trans Nzoia level four hospital and (15)10.5% of the respondents disagreed . A further 32% (44) of the respondents strongly disagree duration taken is too long before the delivery to Trans Nzoia level four hospital, also 40.3 % (56) of the respondents Agreed, another 18.3% (26) of the respondents agreed that reorder period was too long, hence the need to improve for better service delivery in Trans Nzoia hospital a few 2% (3) of the respondents disagree lead time was the cause of poor service delivery. A similar result was replicated when the respondents were asked to state how they thought overall lead time affects service delivery to Trans Nzoia level four hospital in Kenya.

Respondents were further asked whether order period affects service delivery at Trans Nzoia level four hospital. The majority of respondents stated that there was need to embrace shorten the lead time period for better service delivery at the hospital. Then they explained why it is important because it had an impact on customer satisfaction with a mean of (3.915) with standard deviation of 1.37318; followed by active management of all aspects of order processing with a mean of (3.752) and standard deviation of 1.0094; then collaborative inventory control flow of all types of products such as medicine and drugs in time a mean of (3.832) and standard deviation of 0.8318. Further, a mean of

(3.592) and standard deviation of 1.1604. the respondents indicated that lead-time effectiveness had impact to order period; direct response to delivery minimises complains mean of (3.401) and standard deviation of 0.9912; influence of service delivery to both internal and external clients such as patients and staffs Mean of 3.394) and standard deviation of 1.093; From the foregoing, it can be deduced that a majority of employees explored embraced quick order delivery as an aspects of good service delivery at Trans Nzoia level four hospital in Kenya.

These results are in line with findings of Ochiri and Nyakeri (2017), who revealed that about 78% of work-related service delivery can be influenced by expediting lead time and that it must be enhanced by quick response. Similarly, Nyongesa and Osoro, (2019) identified concept of JIT which includes stockless and accuracy towards delivery and minimizing time cost of manual processing. Moreover, some unreliable evidence showed that substantial JIT leads to modern confidence.

### Effect of Re-order

Majority 86% (146) of the respondents strongly agreed with their reorder period at Trans Nzoia level four hospital in Kenya. A bout 48% (67) of the respondents agreed their reorder period of two weeks, similarly, 26% (36) of the respondents indicated strongly disagree, another 12% (17) of the respondents disagreed with the reorder period, and additionally an average 11% (15) of the respondents were neutral with the existing reorder period. This finding was replicated when the respondents were asked to state how they thought service delivery at Trans Nzoia County hospital in Kenya.

Separately, the study sought to find whether reorder period can affect service delivery at Trans Nzoia County level four hospital in Kenya. From figure 4.5 below, majority 56% (146), of the respondents agreed when properly instituted can minimize delay service delivery at Trans Nzoia County level four hospital in Kenya A bout 18% ( 130), of the respondents were neutral, then 6% (129) of the respondents strongly disagreed at 20% (105) of the respondents indicated the importance of service delivery at Trans Nzoia level four hospital in Kenya. This is in line with the findings of Wabuge and Osoro (2020), who pointed out that service delivery at the hospital was essential, as would ultimately enhanced both performance and efficient service delivery to their clients.

### Effect of Staff Competence

When also, asked to state if there was effective staff qualification on service delivery at Trans Nzoia county level four hospital in Kenya. a majority of respondents indicated that disagreed with a mean of (3.891 and standard deviation 1.4011); of the respondent were neutral with a mean of (3.763) and 1.3317; then extent to which qualification affect service at a Trans Nzoia level four hospital in Kenya with a mean of (3.672) and standard deviation of 1.11713 of the respondents agreed. A further a mean of (3.519) standard deviation of 1.2092 of the respondents strongly agreed; about a mean of (3.507) and standard deviation of 0.9912 of the respondents indicated they strongly disagreed. All indicators were engaged to establish the level of qualification at Trans Nzoia county Level four hospital in Kenya.

### Record Management Practices

The respondents were requested to respond to record management practices at Trans Nzoia county level four hospital in Kenya. Majority 68.8% (89) of the respondents strongly

disagree that level of respond to record management practices was not good, while 14.1% (18) of the respondents disagreed; only 12.4% (19) of the respondents agreed. A small number 4.7% (8) of the respondents strongly disagree that respond to record management practices has service delivery, while a high majority 76.5% (78) of the respondents were neutral, another 8 of the respondents agree and the remaining 16.3% (29) of the respondents strongly agree. This echoes the finding of David & Asamoah (2011), who observed that about 23.5% (40) of the respondents disagree level of respond to record management practices at Trans Nzoia county level four hospital in Kenya was low, hence affecting service deliver, while 35.3% (50) of the respondents disagree that it cannot have any effect at Trans Nzoia county level four hospital in Kenya, 32.9% (69) of the respondents were neutral and on 2.9% (8) of the respondents agreed felt that there was need to improve service delivery through respond to record management practices at the county level four hospital, hence 4.1% (7) of the respondents strongly agreed and the remaining of the respondents were neutral.

The study sought to find out from the respondents opinion on the effect of respond to record management practices on service delivery at Trans Nzoia County level four hospital in Kenya. Majority 58 % (81) of the respondents agreed on service delivery at Trans Nzoia County level four hospital in Kenya. Bearing in mind, that respond to record management practices on how to retrieve, maintain and receive the records once they are established at Trans Nzoia county level four hospital with the revolution of technology changing year in year out, also business must embrace new training of going for further studies oftenly. From the foregoing, majority of respondents affirmed that their respond to record management practices was a good achievement towards improvement by mean of (6.971) and standard deviation 1.224 who disagreed for the types of maintenance most of the respondents therefore strongly disagreed by a mean of (3.873) and standard deviation 1.007 of the respondents who were neutral on how record management practices, followed by mean of (3.546) and standard deviation 1.821 of the respondents who were in agreement, and then mean of (5.197) and standard deviation 1.933 of the respondents who strongly agreed finally others (3.527) and standard deviation 1.684 of the respondents agreed. Supply chain performance in public institutions as was well centric to the needs and wants of the whole structure in the organization.

### **Information and Communication Technology**

The respondents were requested to state whether the hospital staff like procurement officers use e-tendering as the do their work, a few 3% (4) of the respondents strongly disagreed that the hospital personnel don't use e-tendering method to manage the their customer, 2% (3) of the respondents disagreed, with none of the respondents remaining neutral. 45% (63) of the respondents agreed that the hospital procurement personnel use e-tendering method and 50% (70) of the respondents strongly agreed to the same statement. On whether the hospital personnel responds apply e-sourcing for quick service delivery at Trans Nzoia County level four hospital, 7% (10) of the respondents strongly disagreed, 9% (13) of the respondents disagreed, with 11% (15) of the respondents remaining neutral. 33% (46) of the respondents agreed while 40% (64) of the respondents strongly agreed that the hospital has enough computers to responds

quickly and accurately to easy working procedures. The respondents were requested to indicate their acceptance to the application of information and communication technology at Trans Nzoia county level four hospital on service delivery, the respondents' numbers were; 2% (3) of the respondents strongly disagreed, another 2% (3) of the respondents disagreed, and 4% (6) of the respondents stated that they neutral. 46% (64) of the respondents agreed that indeed the number of computers were enough to all staff and they network was excellent and finally majority 46% (64) of the respondents strongly agreed.

The results indicated that, 65% (91) of the respondents were positive on whether the hospital has embraced ICT training to all departments at the Trans Nzoia County level four hospitals. On whether the hospital management responds quickly and accurately with the help of Information and communication technology when leading with their working on daily basis, 13% (18) of the respondents agreed/strongly agreed while 11% (15) of the respondents either disagreed or strongly disagreed, on the statement, however 11% (15) of the respondents remained neutral. The researcher therefore concluded that the hospital management responds when leading with their working procedures. As in the other analyses above, the descriptive statistical measures, mean and standard deviation were used to analyze the data. On whether the hospital has allocated and assigned qualified ICT personnel to manage the ICT department, the responses generated a 4.621 mean with a 1.5412 standard deviation. The findings on whether the hospital management responds timely and accurately as ICT is used leading to easy working procedures indicated a mean of 3.902 with a standard deviation of 1.852 that; the hospital management responds timely and accurately as ICT is used leading to easy working procedures. The third and last statement/question on this variable was that ICT facilitates easier, faster and cheaper communication that offers increased convenience and reduced service delivery time was backed with a mean of 4.463 and a standard deviation of 1.6171.

### **Service Delivery**

From results below, majority of respondents affirmed that service delivery at Trans Nzoia county level four hospital in Kenya was good with a mean of (3.971) and standard deviation 1.7001 of the respondents who disagreed, with a mean of (3.873) and standard deviation 1.462 of the respondents who were neutral, followed with a mean of (3.546) and standard deviation 1.6031 of the respondents who were in agreement, and then with a mean of (3.197) and standard deviation 1.3713 of the respondents who strongly agreed. Service delivery can be improved with mean of (3.651) and standard deviation 1.0721 was in agreement for efficiency, then with a mean of (2.007) 1.3215 of the respondents indicated they were in disagreement. Such the three levels namely; individual needs, groups wants and the organization's objectives being made proactively for the whole growth. Majority with a mean of (3.456) and standard deviation 1.0932 of the respondents indicated were strongly disagreed, while a few with a mean of (4.001) and standard deviation 1.6312 customer satisfaction and return on investment with a mean of (5.641) and standard deviation 0.9863 high service delivery indicated they were neutral, finally with a mean of (4.033) and standard deviation 1.0985 of the respondents indicated they strongly disagree with timely delivery.

**Model Correlations of all Variables**

The study further conducted inferential statistics entailing both Pearson and regression analysis with a view to determine both the nature and respective strengths of associations between the conceptualized predictors (independent variables) lead time, staff competence, record management practices and information and communication technology and (dependent variable) service delivery at Trans Nzoia County level four hospital.

**Table 4.15: Results of Pearson Correlation**

		Staff Lead t	RecordICT	Service Del.
Lead time	Pearson Correlation	1	.	.
	Sig. (2- tailed)	.	.	.
	N	140		
Staff Comp.	Pearson Correlation	.269	1	.
	Sig. (2- tailed)	.409		
	N	140		
Record mgt	Pearson Correlation	.172	.258	1
	Sig. (2- tailed)	1.000	.438	
	N	140	140	140
ICT	Pearson Correlation	.357**	-.249	.1
	Sig. (2- tailed)	.001	.533	.418
	N	140	140	140
Service Del.	Pearson Correlation	.350	.588	.377
	Sig. (2- tailed)	.386	.097	.356
	N	140	140	140

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From the findings, a positive correlation is seen between each supply chain and performance. The strongest correlation was established between independent variables and service delivery (r = 0.386), and the weaker relationship found lead time and service delivery (r = 0.269). ICT and record management practices were found to be strongly and positively correlating with Information technology on service delivery Trans Nzoia County level hospital correlation coefficient of 0.350 and 0.357 respectively. This is tandem with the findings of Kothari (2011), who observed that all the independent variables were found to have a statistically significant association with the dependent variable at over 0.05 level of confidence.

**Regression Analysis**

To establish the degree of effect on service delivery, a regression analysis was conducted, with the assumption that: variables are normally distributed to avoid distortion of associations and significance tests, which was achieved as outliers were not identified; a linear relationship between the independent variables and dependent variable for accuracy of estimation, which was achieved as the standardized coefficients were used in interpretation. The regression model was as follows:

(record management practices) +  $\beta_4$  (information and communication technology) + error term. Regression analysis produced the coefficient of determination and analysis of variance (ANOVA). Analysis of variance was done to show whether there is a significant mean difference between dependent and independent variables. The ANOVA was conducted at 95% confidence level.

**Model Goodness of Fit**

Regression analysis was used to establish the strengths of relationship between service delivery (dependent variable) and the predicting variables; Lead time, staff competence, record management practices, and (information and communication technology (independent variables). The results showed a correlation value (R) of 0.871 which depicts that there is a good linear dependence between the independent and dependent variables.

**Model Goodness of Fit**

R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate
0.871	0.712	0.794	0.056

a. Predictors: (Constants), Lead time, staff competence, record management practices, and information and communication technology

b. Dependent Variable: service delivery

With an adjusted R-squared of 0.794, the model shows that Lead time, staff competence, record management practices, and information and communication technology explain 79.4% of the variations in supply chain performance while 20.6% is explained by other indicators which are not inclusive in study or model. A

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

$$\text{Lead time on service delivery} = \beta_0 + \beta_1 (\text{lead time}) + \beta_2 (\text{staff competence}) + \beta_3$$

measure of goodness of fit synopsis the discrepancy between observed values and the values anticipated under the model in question (Capelli, 2010).

**Analysis of Variance (ANOVA)**

Analysis of variance statistics was conducted to determine the differences in the means of the dependent and independent variables to show whether a relationship exists between the two. The P-value of 0.05 implies that service delivery has an effect at Trans Nzoia County level four hospital has a significant relationship Lead time, staff competence, record management practices, and information and communication technology which is significant at 5 % level of significance. This is in line with the findings of Nyongesa and osoro (2020), who observed that this also depicted the significance of the regression analysis done at 95% confidence level. This implies that the regression model is significant and can thus be used to evaluate the association

between the dependent and independent variables. This is in line with the findings of Kothari (2011) who observed that analysis of variance statistics examines the differences between group means and their associated procedures.

**ANOVA Test**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.647	1	1.309	.514	.002
Residual	5.432	139	.483		
<b>Total</b>	<b>10.089</b>	<b>140</b>			

**Regression Coefficients of Determination**

To determine the relationship between the independent variables and the dependent variable and the respective strengths, the regression analysis produced coefficients of determination revealed a positive relationship between role of procurement in service delivery and all the independent variables. Taking the multiple regression models:

**SUMMARY, CONCLUSIONS AND ECOMMENDATIONS**

**Conclusion of the Findings**

From the results presented in this section, it was concluded that inventory management practices on service delivery indeed affect the level four hospital in Kenya. There is a high correlation between the inventory management practices on service delivery. The results are in agreement with the findings of other studies carried out relating inventory management practices on service delivery. These resulted in larger savings and improvement in the public hospital in counties in Kenya Hanover. The authors suggested that inventory management practices on service delivery by embracing lead time, reorder level, training staff, encouraging modern skills through further studies. However, they asserted that these relationships are moderated or mediated by inventory management practices on service delivery. The research therefore concludes that there is a relationship between determinants inventory management practices on service delivery in all county level four hospitals in Kenya in future.

**Recommendations**

The Researcher recommends that all the specific variables, e lead time, staff competence, record management practices and the up-take of information and communication technology on service delivery in Kenya, hence the need to embrace the same now and in future endeavors.

**Lead Time**

The researcher recommends that devolved system of government in Kenya need to incorporate components inventory management practices into the system to improve on service delivery for the

patients with and their customers. This can enable the county governments to realize the empowerment of their people health wise and enhance e- on service delivery to devolved system of Government as have enough medicine and drugs in their inventory. The impact of on service delivery on service delivery systems can also be used to co-ordinate the procurement by ensuring better sharing of information related to inventory management practices and encourage e-sourcing for goods and services online.

**Staff Competence**

This study recommends that there is need to have competent staff who can do things first time and be proactive to expedite the lead time process in all the county level four hospitals in Kenya. The Government of Kenya has the responsibility of advising the county level hospitals through the Ministry of Health the best practice embraced by development counties from other pioneers countries. Staff competence lead to error and paper work and increased transparency when competed officer are involved to excuse their daily duties on any available tenders on online platforms. Though flexible information and communication technology practices, and through proper networking with the help of computers, websites and modern research of effective and efficient inventory management practices, hence heading to bearing fruits in the county level four hospitals in Kenya.

**Record Management Practices**

The results recommend that record management practices can minimize paper work during the ordering of goods and services to county devolved level four hospitals in Kenya. And at the same time minimizes double filing. Most procurement activities are can now be handled electronically with the help of flash disk, hard disk, online and online archiving. There is need for devolved system of government in level four hospitals in Kenya. Actors supporting Treasury full automation of records of suppliers and keep update profile of online portals and websites. An entity that embraces healthy record management practices outshine those that do not and in fact the disparity continues to widen as such firms go on to creatively explore new ideas aiming faster and additional creation of value given vast competition and high expectations from customers. Record management practices can minimize unnecessary expenditure to level four county hospitals in Kenya.

**Information and communication Technology**

The study recommends the need for real time dissemination of information to all interested parties, it is the recommendation of this research that county governments should gather and appropriate information and communication technology through e- information. The websites of county governments need to be regularly updated with the latest information concerning procurement activities. Suppliers should be encouraged to communicate their needs online and even download others from a procuring entities portal/websites. Also to acquire the most recent software be applied, with tech-savvy, hence more resources towards further trainings where there is need. Getting input and sharing through e- information from all level four county hospitals in Kenya.

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